

# Catalog of Courses Fall 2003

## Graduation Requirements

## Associate's Degrees

## Transfer Programs

JCCC's transfer programs, ranging from accounting to theater. Credits from JCCC can be transferred to many colleges and universities in the United States.

## Career and Certificate Programs

JCCC's credit career and certificate programs, ranging from automotive technology to veterinary technology. JCCC's credit career and certificate programs give you the opportunity to study a specific career and enter the job market directly.

## Continuing Education Certificate Programs

Certificate programs offered through JCCC's continuing education program.

## Academic Offerings

Descriptions of the courses offered at JCCC, with additional links to the course outlines.

## Staff

A list of full-time faculty and administrators.

## Accreditation

Johnson County Community College is officially accredited by the North Central Association of Colleges and Schools. In addition, individual programs are accredited by associated professional organizations: Dental Hygiene - American Dental Hygienists Association and American Dental Association; Hospitality Management - American Culinary Federation Educational Institute Accrediting Commission; Fire Service Administration - International Fire Service Accreditation Congress; Mobile Intensive Care Technician - Joint Review Committee on Educational Programs for the EMT-Paramedic; Nursing - Kansas State Board of Nursing and National League for Nursing and National League of Nursing; Paralegal - American Bar Association; Basic Police Academy - University of Kansas; and Respiratory Care - Commission on Accreditation of Allied Health Education Programs and the Committee on Accreditation for Respiratory Care.

## Notice of Nondiscrimination

Johnson County Community College is committed to a policy of nondiscrimination involving equal access to education and employment opportunity to all regardless of sex, race, age, religion, color, national origin, handicap or veteran status. The administration further extends its commitment to fulfilling and implementing the federal, state and local laws and regulations as specified in Title IX and Section 504 of the Rehabilitation Act and the Americans with Disabilities Act. For assistance in these areas, contact the office of the dean of Student Services, Johnson County Community College, 12345 College Blvd., Overland Park, KS 66210-1299, 913-469-8500, or director, Office of Civil Rights, HHS, Washington, D.C. 20201.

JCCC provides a range of services to allow persons with disabilities to participate in educational programs and activities. If you desire support services, contact the office of Access Services for Students With Disabilities (913) 469-8500, ext. 3521 or TDD (913) 469-3885. The Access Services office is located in the Success Center on the second floor of the Student Center.

# Graduation Requirements

## Becoming a JCCC Graduation Candidate

### One semester prior to your graduation:

- Complete an Application for Degree/Certificate of Completion form and turn it in at the Success Center on the second floor of the Student Center or mail to the attention of the Records office at JCCC.

### Deadline for submitting an Application for Degree/Certificate of Completion is:

- **June 15** for summer graduation
- **October 15** for fall graduation
- **February 15** for spring graduation

### Requirements for degree or certificate of graduation:

- For an associate's degree, 15 credit hours must be earned in residence at JCCC. Advanced standing credit will not count toward satisfying this credit hour requirement.
- For certificates, a student must complete a minimum of 50 percent of the required coursework at JCCC.
- Graduates must have earned both a 2.0 grade point average at JCCC and have a cumulative 2.0 or better on all completed course work.
- Developmental courses, required before enrollment in college-level courses, will not count toward fulfilling graduation degree/certificate requirements.
- Students must be enrolled in classes at JCCC during the semester they anticipate completing degree/certificate requirements and wish to graduate.

### Rules to determine a student's graduation catalog term

Students are considered continuously enrolled if they complete at least one class during each regular fall and spring semester. If students do not maintain continuous enrollment, they will be required to follow the graduation requirements that are in effect at the time of re-enrollment.

### Graduation Process

1. Students must file the Application for Degree/Certificate of Completion form with the Records office by the deadline dates. Application for Degree/Certificate of Completion forms and Graduation Appeal can be picked up in the Success Center on the second floor of the Student Center or found online at Records (<http://www.jccc.net/home/depts.php/5105>).

**Note:** If the deadline to apply for graduation is missed, please see the appeals section of the Student Handbook for information on how to submit a Graduation Appeal.

2. When a student applies for graduation, the Records office will complete a degree check to ensure degree requirements will be satisfied.

**Note:** It is best if students submit Application for Degree/Certificate of Completion forms at least one semester before students plan to graduate.

3. Students may complete the requirements for a degree/certificate at the end of each semester or session. The degree/certificate status will be recorded on a student's permanent transcript record upon verification that all graduation requirements have been completed.

# Associate's Degrees

## Associate's Degrees Offered at JCCC

Associate of Arts

Associate of Science

Associate of Applied Science

Associate of Applied Science: Kansas AVS/TC  
Articulated

## Associate of Arts

The associate of arts degree from JCCC

- is designed for students who plan to transfer to a baccalaureate college or university.
- requires completion of 64 college-level credit hours within specified course distribution areas with a 2.0 or higher GPA.

The 64 hours of credit necessary to complete the associate of arts degree include the following:

- Communications (9 credit hours)
- Humanities (6 credit hours)
  - History is included in the Humanities category
- Social Science and/or Economics (6 credit hours)
- Science and Mathematics (9 credit hours)\*\*

\*\*Must include one course from a lab science and one from mathematics

- Health and/or Physical Education (1 credit)

**Note:** The associate of arts degree is designed as a transfer curriculum. Students should refer to the transfer program sheets in the Student Success Center.

**The following is an example of a first year schedule for an undecided transfer student.** Students interested in a specific major or degree should talk with a JCCC counselor.

### First Semester - CR (Credit Hours)

ENGL 121 Composition I            3

Social Science Elective 3

Math/Natural Science Elective 3-5

Humanities Elective 3

General Elective 3

Total Credit Hours 15-17

## Second Semester - CR (Credit Hours)

ENGL 122 Composition II 3

Oral Communication Elective 3

Math/Natural Science Elective 3-5

Social Science/Humanities Elective 3

General Elective 3

Total Credit Hours 15-17

An associate of arts program is designed specifically to meet your educational objectives and needs by allowing you to complete general education requirements.

## General Education Requirements

### Communications - 9 hours

#### A. English Composition - 6 hours

ENGL 121 Composition I\*.....3  
ENGL 122 Composition II\*.....3

#### B. Oral Communication - 3 hours

SPD 120 Interpersonal Communications.....3  
SPD 121 Public Speaking.....3  
SPD 125 Personal Communication.....3  
SPD 180 Intercultural Communication.....3  
\*Prerequisite/Corequisite required

## Humanities - 6 hours

No more than one course from each of the five areas may count toward the six required hours.

#### A. Literature/Theatre

ENGL 130 Introduction to Literature\*.....3  
ENGL 230 Introduction to Fiction\*.....3  
ENGL 231 American Prose\*.....3  
ENGL 235 Drama as Literature\*.....3  
ENGL 241 British Writers\*.....3  
ENGL 250 World Masterpieces\*.....3  
ENGL 254 Masterpieces of the Cinema\*.....3  
ENGL 256 American Poetry\*.....3  
THEA 120 Introduction to Theater.....3

#### B. Foreign Language

**(Note: These courses have prerequisites that**

must be satisfied before enrollment.)

FL 178 Intermediate Russian I\*.....3  
FL 179 Intermediate Russian II\*.....3  
FL 190 Intermediate Japanese I\*.....3  
FL 191 Intermediate Japanese II\*.....3  
FL 192 Intermediate Chinese I\*.....3  
FL 193 Intermediate Chinese II\*.....3

FL	220	Intermediate German I*	3
FL	221	Intermediate German II*	3
FL	230	Intermediate Spanish I*	3
FL	231	Intermediate Spanish II*	3
FL	240	Intermediate French I*	3
FL	241	Intermediate French II*	3

### C. History

HIST	125	Western Civilization I	3
HIST	126	Western Civilization II	3
HIST	130	European History from 1750	3
HIST	135	Eastern Civilization	3
HIST	140	U.S. History to 1877	3
HIST	141	U.S. History Since 1877	3
HIST	151	World History I: The Traditional World	3
HIST	152	World History II: The Modern World	3
HIST	160	Modern Russian History	3
HIST	162	Modern Latin America	3

### D. Humanities

ART	180	Art History: Ancient/Renaissance	3
ART	182	Art History: Renaissance/Modern	3
ART	184	Art History: Twentieth Century	3
HUM	122	Introduction to Humanities	3
HUM	145	World Humanities I	3
HUM	146	World Humanities II	3
HUM	155	Classical Mythology	3
HUM	164	Civilisation	3
MUS	121	Introduction to Music Listening	3
MUS	125	Introduction to Jazz Listening	3
PHOT	140	History of Photography	3
REL	120	Exploring World Religions	3

### E. Philosophy

PHIL	121	Introduction to Philosophy	3
PHIL	124	Logic and Critical Thinking	3
PHIL	143	Ethics	3
PHIL	154	History of Ancient Philosophy	3
PHIL	176	Philosophy of Religion	3

\*Prerequisite/Corequisite required

## Social Science/Economics - 6 hours

No more than one course from each of the five areas may count toward the six required hours.

### A. Anthropology

ANTH	125	Cultural Anthropology	3
ANTH	126	Physical Anthropology	3
ANTH	130	World Cultures	3
ANTH	210	Peoples of the World	3

### B. Economics

ECON	130	Basic Economics	3
ECON	132	Survey of Economics	3
ECON	230	Economics I	3
ECON	231	Economics II	3

### C. Political Science

POLS 122	Political Science.....	3
POLS 124	American National Government.....	3
POLS 126	State and Local Government.....	3
POLS 132	Introduction to Comparative Government.....	3
POLS 135	International Relations.....	3

## D. Psychology

PSYC 121	Applied Psychology.....	3
PSYC 130	Introduction to Psychology.....	3

## E. Sociology

SOC 122	Introduction to Sociology.....	3
SOC 125	Social Problems.....	3
SOC 131	Marriage and the Family.....	3

# Science and/or Mathematics - 9 hours

Must include at least one course from a lab science and one from mathematics.

## A. Life Science

BIOL 122	Principles of Biology Lecture.....	3
BIOL 123	Principles of Biology Lab*.....	1
BIOL 124	Oceanus: Marine Environment.....	3
BIOL 125	General Botany.....	5
BIOL 127	General Zoology.....	5
BIOL 130	Environmental Science Lecture.....	3
BIOL 131	Environmental Science Lab*.....	1
BIOL 140	Human Anatomy.....	4
BIOL 144	Human Anatomy/Physiology.....	5
BIOL 150	Biology of Organisms*.....	5
BIOL 225	Human Physiology*.....	4
BIOL 230	Microbiology Lecture*.....	3
BIOL 231	Microbiology Lab*.....	2

\*Prerequisite/Corequisite required

## B. Physical Science

ASTR 120	Fundamentals of Astronomy.....	3
ASTR 122	Astronomy.....	4
CHEM 120	Chemistry in Society.....	4
CHEM 122	Principles of Chemistry.....	5
CHEM 124	General Chemistry I Lecture*.....	4
CHEM 125	General Chemistry I Lab*.....	1
CHEM 131	General Chemistry II Lecture*.....	4
CHEM 132	General Chemistry II Lab*.....	1
CHEM 140	Principles of Organic Chemistry*.....	5
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography/Lab.....	3
GEOS 141	Physical Geography Lab*.....	2
GEOS 145	World Regional Geography.....	3
PHYS 130	General Physics I*.....	5
PHYS 131	General Physics II*.....	5
PHYS 220	Engineering Physics I*.....	5
PHYS 221	Engineering Physics II*.....	5
PSCI 120	Physical Science.....	4

\*Prerequisite/Corequisite required

## C. Mathematics

MATH 165	Finite Math: A Cultural Approach*.....	3
MATH 171	College Algebra*^.....	3

MATH 172	Trigonometry*^	3
MATH 173	Precalculus*^	3
MATH 175	Discrete Math and Its Applications*	3
MATH 181	Statistics*	3
MATH 225	Math as a Decision-making Tool*	3
MATH 231	Business and Applied Calculus I*	3
MATH 232	Business and Applied Calculus II*	3
MATH 241	Calculus I*	5
MATH 242	Calculus II*	5
MATH 243	Calculus III*	5
MATH 244	Differential Equations*	3

\*Prerequisite/Corequisite required

^MATH 173 is not available for credit to students who have completed MATH 171 and/or MATH 172.

Students who have credit in MATH 173 will not receive credit for MATH 171 and/or MATH 172.

## Health and/or Physical Education - 1 hour

HPER	Any Activity Course	1
EMS 121	CPR I - Basic Rescuer	1
HMEC 151	Nutrition and Meal Planning	3
HPER 192	Wellness for Life	1
HPER 200	First Aid/CPR	2
HPER 202	Personal/Community Health	3
HPER 205	Individual Lifetime Sports	2
HPER 240	Lifetime Fitness	1
HPER 255	Introduction to Physical Education	3

## Associate of Science

The associate of science degree from JCCC

- is designed with an emphasis in a specific career program.
- requires completion of a minimum of 64 college-level credit hours within specified course distribution areas, including the emphasis of study, with a 2.0 or higher GPA.

The 64 hours of credit necessary to complete the associate of science degree include the following general education requirements plus the courses listed for the specific career program:

- Communications (9 hours)
- Humanities (6 hours)
- Social Science and/or Economics (6 hours)
- Science and Mathematics (12 hours)
- Health and/or Physical Education (1 hour)

Specific courses that meet the associate of science degree requirements are:

## General Education Requirements

**(available for career programs only)**

### Communications - 9 hours

ENGL 121	Composition I*	3
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\*Prerequisite/Corequisite required

### B. Communications Elective - 6 hours

**(two of the following)**

ENGL 122	Composition II*	3
ENGL 123	Technical Writing I*	3
BUS 150	Business Communications*	3
SPD 120	Interpersonal Communications	3
SPD 121	Public Speaking	3
SPD 125	Personal Communication	3
SPD 180	Intercultural Communications	3

\*Prerequisite/Corequisite required

## Humanities - 6 hours

Two courses from any of the following categories may count toward the six required hours.

### A. Literature/Theater

ENGL 130	Introduction to Literature*	3
ENGL 230	Introduction to Fiction*	3
ENGL 231	American Prose*	3
ENGL 235	Drama as Literature*	3
ENGL 241	British Writers*	3
ENGL 250	World Masterpieces*	3
ENGL 254	Masterpieces of the Cinema*	3
ENGL 256	American Poetry*	3
THEA 120	Introduction to Theater	3

\*Note: ENGL 130 has pre-requisite of ENGL 121  
\*Note: ENGL 230 has pre-requisite of ENGL 122

### B. Foreign Language

Note: These courses have prerequisites.

FL 178	Intermediate Russian I*	3
FL 179	Intermediate Russian II*	3
FL 190	Intermediate Japanese I*	3
FL 191	Intermediate Japanese II*	3
FL 192	Intermediate Chinese I*	3
FL 193	Intermediate Chinese II*	3
FL 220	Intermediate German I*	3
FL 221	Intermediate German II*	3
FL 230	Intermediate Spanish I*	3
FL 231	Intermediate Spanish II*	3
FL 240	Intermediate French I*	3
FL 241	Intermediate French II*	3

### C. History

HIST 125	Western Civilization I	3
HIST 126	Western Civilization II	3
HIST 130	European History from 1750	3
HIST 135	Eastern Civilization	3
HIST 140	U.S. History to 1877	3
HIST 141	U.S. History since 1877	3
HIST 151	World History I: The Traditional World	3
HIST 152	World History II: The modern World	3
HIST 160	Modern Russian History	3
HIST 162	Modern Latin America	3

### D. Humanities

ART 180	Art History: Ancient Renaissance	3
ART 182	Art History: Renaissance/Modern	3
ART 184	Art History: Twentieth Century	3
HUM 122	Introduction to Humanities	3



HUM	145	World Humanities I.....	3
HUM	146	World Humanities II.....	3
HUM	155	Classical Mythology.....	3
HUM	164	Civilization.....	3
MUS	121	Introduction to Music Listening.....	3
MUS	125	Introduction to Jazz Listening.....	3
PHOT	140	History of Photography.....	3
REL	120	Exploring World Religions.....	3

## E. Philosophy

PHIL	121	Introduction to Philosophy.....	3
PHIL	124	Logic and Critical Thinking.....	3
PHIL	143	Ethics.....	3
PHIL	154	History of Ancient Philosophy.....	3
PHIL	176	Philosophy of Religion.....	3

\*Prerequisite/Corequisite required

## Social Science/Economics - 6 hours

Two courses from any of the following categories may count toward the six required hours.

### A. Anthropology

ANTH	125	Cultural Anthropology.....	3
ANTH	126	Physical Anthropology.....	3
ANTH	130	World Cultures.....	3
ANTH	210	Peoples of the World.....	3

### B. Economics

ECON	130	Basic Economics.....	3
ECON	132	Survey of Economics.....	3
ECON	230	Economics I.....	3
ECON	231	Economics II.....	3

### C. Political Science

POLS	122	Political Science.....	3
POLS	124	American National Government.....	3
POLS	126	State and Local Government.....	3
POLS	132	Introduction to Comparative Government.....	3
POLS	135	International Relations.....	3

### D. Psychology

PSYC	121	Applied Psychology.....	3
PSYC	130	Introduction to Psychology.....	3

### E. Sociology

SOC	122	Introduction to Sociology.....	3
SOC	125	Social Problems.....	3
SOC	131	Marriage and the Family.....	3

## Science and Mathematics -12 hours

Must include at least one course in mathematics and at least one in a lab science.

## A. Mathematics

The mathematics requirement will be satisfied by any mathematics course except Fundamentals of Mathematics and Introduction to Algebra.

Note: MATH 173 is not available for credit to students who have completed MATH 171 and/or MATH 172. Students who have credit in MATH 173 will not receive credit for MATH 171 and/or MATH 172.

## B. Science

The laboratory science requirement will be satisfied by any of the following:

### (Life Science)

BIOL 122	Principles of Biology Lecture.....	3
BIOL 123	Principles of Biology Lab*.....	1
BIOL 124	Oceanus: The Marine Environment.....	3
BIOL 125	General Botany.....	5
BIOL 127	General Zoology.....	5
BIOL 130	Environmental Science Lecture.....	3
BIOL 131	Environmental Science Lab*.....	1
BIOL 140	Human Anatomy.....	4
BIOL 144	Human Anatomy/Physiology.....	5
BIOL 150	Biology of Organisms*.....	5
BIOL 225	Human Physiology*.....	4
BIOL 230	Microbiology Lecture*.....	3
BIOL 231	Microbiology Lab*.....	2

\*Prerequisite/Corequisite required

### (Physical Science)

ASTR 120	Fundamentals of Astronomy.....	3
ASTR 122	Astronomy.....	4
CHEM 120	Chemistry in Society.....	4
CHEM 122	Principles of Chemistry.....	5
CHEM 124	General Chemistry I Lecture*.....	4
CHEM 125	General Chemistry I Lab*.....	1
CHEM 131	General Chemistry II Lecture*.....	4
CHEM 132	General Chemistry II Lab*.....	1
CHEM 140	Principles of Organic Chemistry*.....	5
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography Lecture.....	3
GEOS 141	Physical Geography Lab*.....	2
GEOS 145	World Regional Geography.....	3
PHYS 125	Technical Physics I*.....	4
PHYS 130	General Physics I*.....	5
PHYS 131	General Physics II*.....	5
PHYS 220	Engineering Physics I*.....	5
PHYS 221	Engineering Physics II*.....	5
PSCI 120	Physical Science.....	4

\*Prerequisite/Corequisite required

Any remaining hours for this requirement beyond the one math and one lab science requirement may be satisfied by taking additional courses from the approved math and lab science courses.

## Health and/or Physical Education - 1 hour

HPER	Any Activity Course.....	1
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EMS 121	CPR I - Basic Rescuer.....	1
HMEC 151	Nutrition and Meal Planning.....	3
HPER 192	Wellness for Life.....	1
HPER 200	First Aid/CPR.....	2
HPER 202	Personal/Community Health.....	3
HPER 205	Individual Lifetime Sports.....	2
HPER 240	Lifetime Fitness.....	1
HPER 255	Introduction to Physical Education.....	3

## Associate of Applied Science

The associate of applied science degree from JCCC

- is designed with an emphasis in a specific career program.
- requires completion of a minimum of 64 college-level credit hours within specified course distribution areas, including emphasis of study, with a 2.0 GPA.

The 64 hours of credit necessary to complete the associate of applied science degree include 15 credits of general education requirements plus the courses listed for the specific career program. At a minimum, the distribution must include:

- Communications (3 hours)
- Humanities (3 hours)
- Social Science and/or Economics (3 hours)
- Science and Mathematics (3 hours)
- Health and/or Physical Education (1 hour)

Specific courses that meet the associate of applied science degree requirements are:

## General Education Requirements

**(available for career programs only)**

### Communications - 3 hours

ENGL 121	Composition I*.....	3
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\*Prerequisite/Corequisite required

If your specific degree program requires a communications elective, choose three hours from the following:

ENGL 122	Composition II*.....	3
ENGL 123	Technical Writing I*.....	3
BUS 150	Business Communications*.....	3
SPD 120	Interpersonal Communications.....	3
SPD 121	Public Speaking.....	3
SPD 125	Personal Communication.....	3
SPD 180	Intercultural Communications.....	3

\*Prerequisite/Corequisite required

### Humanities - 3 hours

One course from any of the following categories may count toward the three required hours.

#### A. Literature/Theater

\*\*Note: This course has a prerequisite of ENGL 121.

ENGL 130	Introduction to Literature*.....	3
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\*\*Note: These courses have a prerequisite of ENGL 122.

ENGL 230	Introduction to Fiction*	3
ENGL 231	American Prose*	3
ENGL 235	Drama as Literature*	3
ENGL 241	British Writers*	3
ENGL 250	World Masterpieces*	3
ENGL 254	Masterpieces of the Cinema*	3
ENGL 256	American Poetry*	3
THEA 120	Introduction to Theater	3

## B. Foreign Language

\*\*Note: These courses have prerequisites.

FL 178	Intermediate Russian I*	3
FL 179	Intermediate Russian II*	3
FL 190	Intermediate Japanese I*	3
FL 191	Intermediate Japanese II*	3
FL 192	Intermediate Chinese I*	3
FL 193	Intermediate Chinese II*	3
FL 220	Intermediate German I*	3
FL 221	Intermediate German II*	3
FL 230	Intermediate Spanish I*	3
FL 231	Intermediate Spanish II*	3
FL 240	Intermediate French I*	3
FL 241	Intermediate French II*	3

## C. History

HIST 125	Western Civilization I	3
HIST 126	Western Civilization II	3
HIST 130	European History from 1750	3
HIST 135	Eastern Civilization	3
HIST 140	U.S. History to 1877	3
HIST 141	U.S. History Since 1877	3
HIST 151	World History I: The Traditional World	3
HIST 152	World History II: The Modern World	3
HIST 160	Modern Russian History	3
HIST 162	Modern Latin America	3

## D. Humanities

ART 180	Art History: Ancient/Renaissance	3
ART 182	Art History: Renaissance/Modern	3
ART 184	Art History: Twentieth Century	3
HUM 122	Introduction to Humanities	3
HUM 145	World Humanities I	3
HUM 146	World Humanities II	3
HUM 155	Classical Mythology	3
HUM 164	Civilisation	3
MUS 121	Introduction to Music Listening	3
MUS 125	Introduction to Jazz Listening	3
PHOT 140	History of Photography	3
REL 120	Exploring World Religions	3

## E. Philosophy

PHIL 121	Introduction to Philosophy	3
PHIL 124	Logic and Critical Thinking	3
PHIL 143	Ethics	3
PHIL 154	History of Ancient Philosophy	3
PHIL 176	Philosophy of Religion	3

\*Prerequisite/Corequisite required

## Social Science/Economics - 3 hours

One course from any of the following categories

may count toward the three required hours.

## A. Anthropology

ANTH 125	Cultural Anthropology.....	3
ANTH 126	Physical Anthropology.....	3
ANTH 130	World Cultures.....	3
ANTH 210	Peoples of the World.....	3

## B. Economics

ECON 130	Basic Economics.....	3
ECON 132	Survey of Economics.....	3
ECON 230	Economics I.....	3
ECON 231	Economics II.....	3

## C. Political Science

POLS 122	Political Science.....	3
POLS 124	American National Government.....	3
POLS 126	State and Local Government.....	3
POLS 132	Introduction to Comparative Government.....	3
POLS 135	International Relations.....	3

## D. Psychology

PSYC 121	Applied Psychology.....	3
PSYC 130	Introduction to Psychology.....	3

## E. Sociology

SOC 122	Introduction to Sociology.....	3
SOC 125	Social Problems.....	3
SOC 131	Marriage and the Family.....	3

## Science and/or Mathematics - 3 hours

Any mathematics course except Fundamentals of Mathematics or Introduction to Algebra will satisfy this requirement, or the requirement can be satisfied by any of the following courses.

### A. Life Science

BIOL 122	Principles of Biology Lecture.....	3
BIOL 123	Principles of Biology Lab*.....	1
BIOL 124	Oceanus: The Marine Environment.....	3
BIOL 125	General Botany.....	3
BIOL 127	General Zoology.....	3
BIOL 130	Environmental Science Lecture.....	3
BIOL 131	Environmental Science Lab*.....	1
BIOL 140	Human Anatomy.....	4
BIOL 144	Human Anatomy/Physiology.....	5
BIOL 150	Biology of Organisms*.....	5
BIOL 225	Human Physiology*.....	4
BIOL 230	Microbiology Lecture*.....	3
BIOL 231	Microbiology Lab*.....	2

\*Prerequisite/Corequisite required

### B. Physical Science

ASTR 120	Fundamentals of Astronomy.....	3
ASTR 122	Astronomy.....	4

CHEM 120	Chemistry in Society.....	4
CHEM 122	Principles of Chemistry.....	5
CHEM 124	General Chemistry I Lecture*.....	4
CHEM 125	General Chemistry I Lab*.....	1
CHEM 131	General Chemistry II Lecture*.....	4
CHEM 132	General Chemistry II Lab*.....	1
CHEM 140	Principles of Organic Chemistry*.....	5
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography Lecture.....	3
GEOS 141	Physical Geography Lab*.....	2
GEOS 145	World Regional Geography.....	3
PHYS 125	Technical Physics I*.....	4
PHYS 130	General Physics I*.....	5
PHYS 131	General Physics II*.....	5
PHYS 220	Engineering Physics I*.....	5
PHYS 221	Engineering Physics II*.....	5
PSCI 120	Physical Science.....	4

\*Prerequisite/Corequisite required

Note: MATH 173 is not available for credit to students who have completed MATH 171 and/or MATH 172. Students who have credit in MATH 173 will not receive credit for MATH 171 and/or MATH 172.

## Health and/or Physical Education - 1 hour

HPER	Any Activity Course.....	1
EMS 121	CPR I - Basic Rescuer.....	1
HMEC 151	Nutrition and Meal Planning.....	3
HPER 192	Wellness for Life.....	1
HPER 200	First Aid/CPR.....	2
HPER 202	Personal/Community Health.....	3
HPER 205	Individual Lifetime Sports.....	2
HPER 240	Lifetime Fitness.....	1
HPER 255	Introduction to Physical Education.....	3

## Associate of Applied Science: Kansas AVS/TC Articulated

This degree is designed to facilitate student transfer of technical education programs under the provisions outlined in the Transfer Agreement and Articulation Guide for Kansas Community Colleges, Area Technical Schools and Colleges for the Associate in Applied Science, dated September 1999. Specifically, this degree may be earned by a student wishing to transfer a completed eligible technical program from a Kansas area vocational technical or Kansas technical college. A student must have 15 credits from JCCC in order to receive a degree from Johnson County Community College. The 45 hours of documented transfer credit will be placed on the student's record when the student applies for graduation. Students must also meet JCCC admissions, residency and graduation requirements.

\* The provisions also outline the process for transfer of individual technical course competencies if a parallel program exists at JCCC.

Interested students should contact the JCCC Student Success Center for further information prior to transfer and enrollment.

## Kansas AVS/TC Articulated

Associate of Applied Science Degree		
Sequence of Courses		
Transferred	AVS/TC Program.....	45
ENGL 121	Composition I*.....	3
	Communication Elective.....	3
	Humanities Elective.....	3
	Social Science and/or Economics Electives.....	3
	Science and/or Math Elective.....	3
	Electives.....	3

	Health and/or Physical Education Elective.....	1
TOTAL	PROGRAM CREDIT HOURS.....	64

\*Prerequisite/Corequisite required

## Transfer Programs

### University Transfer Program for Undecided Students

If you are planning to transfer but have not decided upon a major or chosen a four-year school, you should select courses from the general education requirement areas and under the associate of arts degree requirements.

In general, a total of 124 to 128 hours are required for most four-year degrees. If you are still undecided about a major in your second year, you should work closely with a counselor in making a decision that will enable you to transfer without loss of time or credit.

### University Transfer Programs for Specific Majors

Copies of university transfer programs are available in the Success Center on campus or on the transfer information Web site.

### Individual Transfer Program

If you plan to attend a four-year college or university that is not local or if you choose a major not listed under local university transfer programs, you may work with a counselor to develop your own individual transfer program.

## Career and Certificate Programs

### Career Programs

JCCC's career programs provide the opportunity for students to study specific careers and enter the job market directly. Each program has been designed with the assistance of a community advisory committee of men and women currently working in the field who are well aware of the requirements and job potential in today's market.

Although career program courses usually are not intended to be transfer programs, some of the courses may transfer to four-year colleges and universities. Specific information on course transferability can be found in the Success Center on campus or on the transfer information Web site (<http://web.jccc.net/academic/transfer>). Several of the career programs enable students to gain valuable work experience in the community while taking the career program courses.

Students who are interested in a career program should contact a JCCC counselor for more information. Counselors can assist students with entrance requirements, course selection and sequence, and job possibilities. Careful planning and course selection can be just as important in a career program as dedication in the classroom.

### Career and Certificate Program List

Listing of JCCC's career and certificate programs

### Certificate of Completion

To earn a certificate of completion at Johnson County Community College, students must have demonstrated the basic skills competencies as outlined. In addition, students must have successfully completed an approved certificate program with both a cumulative grade point average of 2.0 or better and a JCCC GPA of 2.0 or better. Students must complete a minimum of 50 percent of the required coursework at JCCC.

Students must be enrolled at the college during the time they anticipate completing certificate requirements. An application to complete certificate requirements must be filed in the Success Center on campus by the following dates:

- Feb. 15 for spring graduation
- June 15 for summer graduation
- Oct. 15 for fall graduation

Certificates will be issued at the end of each semester or term. Graduation exercises will be held

once a year at the completion of the spring semester.

Students who have completed the requirements for a certificate in prior semesters of the same academic year will be invited to participate in graduation. Specific course completion certificates will be awarded as appropriate and as specified in the college catalog.

**Postsecondary/Vocational Certificates**

- are designed with an emphasis on a specific career program.

**Postsecondary Certificates**

- provide training in a focused program.
- require successful completion of a minimum of 31 credit hours with a 2.0 or higher GPA.
- must include ENGL 121, Composition I, and MATH 115, Introduction to Algebra, or higher.

**Vocational Certificates**

- provide specialized training.
- require successful completion of the courses specified with at least a 2.0 or higher GPA.
- can range from 3 to 45 credit hours.

## Associate of Applied Science: Kansas AVS/TC Articulated

### Career and Certificate Program List

Accounting, A.A.S.

Administration of Justice, A.A.

Administrative Assistant, A.A.S.

Administrative Assistant with Legal Emphasis, A.A.S.

Administrative Assistant with Medical Emphasis,  
A.A.S.

Administrative Support Specialist Certificate

Automotive Technology, A.A.S.

Automotive Technology Certificate

Biotechnology, A.A.S.



Biotechnology, A.S.

Biotechnology Certificate

Business Administration, A.A.S.

Business Entrepreneurship, A.A.S.

Business Entrepreneurship Certificate

Business Plan Certificate

Certified Medication Aide

Cert Medication Aide Update

Certified Nurse Aide

Certified Nurse Aide Refresher

Chef Apprenticeship, A.A.S.

Civil Engineering Technology, A.A.S.

Communication Design, A.A.S.

Computer-aided Drafting and Design Technology,  
A.A.S.

Computer-aided Drafting Certificate

Computer-aided Drafting Network Administrator  
Certificate

Computer Information Systems, A.A.S.

Construction Management Certificate

Cosmetology Certificate

Cardiopulmonary Resuscitation  
CRT-RRT Transition, AAS  
Database Certificate  
Dental Assisting Certificate  
Dental Hygiene, A.A.S.  
Desktop Publishing Certificate  
Early Childhood Education, A.S.  
Early Childhood Education Certificate  
Electrical Technology, A.A.S.  
Electrical Technology Certificate  
Electrical Technology/Industrial Maintenance Option,  
A.A.S.  
Electronics Technology, A.A.S.  
Emergency Medical Science, A.A.S.  
Emergency Medical Technician Certificate  
Engineered Plumbing Systems Certificate  
Esthetics Certificate  
Fashion Design, A.A.S.  
Fashion Merchandising, A.A.S.  
Fire Services Administration, A.A.

Food and Beverage Management, A.A.S.  
Food and Beverage Management Certificate  
Grounds and Turf Management  
Health Information Technology  
Home Health Aide Certificate  
Horticulture Certificate  
Hotel & Motel Management, A.A.S.  
HVAC Commercial Service Technician, A.A.S.  
HVAC Commercial Service Technician Certificate  
HVAC Residential Service Technician, A.A.S.  
HVAC Residential Service Technician Certificate  
HVAC Installation Technician Certificate  
Industrial Controls Certificate  
Electrical Technology/Industrial Maintenance  
Certificate  
Information Technology, A.A.S.  
Interactive Media, A.A.S.  
Interior Design, A.A.S.  
Interior Design/Sale Representative  
Manufacturing Certificate  
Interior Entrepreneurship, A.A.S.

Interior Merchandising, A.A.S.

Interior Products Sales Representative Certificate

Interpreter Training, A.A.S.

IV Therapy for LPN Certificate

Legal Nurse Consultant Certificate

Mainframe Programmer Analyst Certificate

Marketing and Management, A.A.S.

Medical Office Assistant Certificate

Medical Transcription Certificate

Metal Fabrication Certificate

Metal Fabrication Technology, A.A.S.

Microcomputer Programmer Analyst Certificate

Microcomputer Technical Support Certificate

Mobile Intensive Care Technician Certificate

Multimedia Design Certificate

Nail Technology Certificate

Network Administration: UNIX Certificate

Network Administration: Windows Certificate

Network Connectivity Certificate

Nursing - Registered Nurse, A.A.S.

Occupational Therapy Assistant  
Office Careers Certificate  
Owning/Managing a Virtual Home Office Certificate  
Paralegal, A.A.  
Paralegal Certificate  
Personal Computer Applications Certificate  
Physical Therapist Assistant  
PN to RN Transition, AAS  
Practical Nursing Certificate  
Power Plant Technology, A.A.S.  
Power Plant Technology Certificate  
Radiologic Technology  
Railroad Carman Welding Certificate  
Railroad Electronics, A.A.S.  
Railroad Electronics Certificate  
Railroad Machinist Welding Certificate  
Railroad Maintenance of Way Welding Certificate  
Railroad Operations - Conductor Option, A.A.S.  
Railroad Operations - General Option, A.A.S.  
Railroad Operations - Welding Option, A.A.S.

Railroad Operations - Mechanical Option, A.A.S.

Railroad Structural Welding Certificate

Railroad Supervisors Welding Certificate

Railroad Track Welding Certificate

Rehabilitative Aide Certificat

Respiratory Care, A.A.S.

Retail Sales Representative Certificate

Sales and Customer Service Certificate

Sign Language Communication Certificate

Supervision Management Certificate

Supply Chain Logistics

Surgical Technology

Teleservice Representative Certificate

Teletrac Certificate

Veterinary Technology

Virtual Home Office Certificate

Virtual Medical Office Certificate

Visual Merchandising Certificate

Web Application Certificate

Web Design Certificate

# Web Developer Advanced Certificate

## Accounting, A.A.S.

Accounting is a crucial part of every business operation and the language that businesses speak. The associate of applied science degree program focuses on practical skills often required for entry-level paraprofessional positions. The internship course gives the graduate on-the-job experience working in an approved business. Two-year graduates may find positions as accounting assistants, accounting clerks and general bookkeepers.

The accounting career program (see: [www.jccc.net/home/depts/1202](http://www.jccc.net/home/depts/1202)) is accredited by the Association of Collegiate Business Schools and Programs (ACBSP). For students wishing to transfer to a four-year college accounting or business program, this accreditation makes the transfer a smoother process. For more information, please contact the career facilitator ([skleiner@jccc.net](mailto:skleiner@jccc.net)) or a JCCC counselor.

## Associate of Applied Science Degree

### First Semester

ENGL 121	Composition I*	3
	Social Science and/or Economics Electives	3
ACCT 121	Accounting I	3
MATH 120	Business Math*	3
	or	
MATH 171	College Algebra (or higher)*	3
BOT 101	Computerized Keyboarding	1
	Business Electives	3
	TOTAL CREDIT HOURS	16

### Second Semester

ACCT 122	Accounting II*	3
BUS 150	Business Communication*	3
BUS 261	Business Law I	3
	Business Electives	6
BOT 115	Electronic Calculators	1
	TOTAL CREDIT HOURS	16

### Third Semester

ACCT 222	Managerial Accounting*^	3
	or	
ACCT 231	Intermediate Accounting I*^	3
ACCT 278	Accounting Internship I*	1
ACCT 140	Computerized Accounting Problems*	3
BUS 225	Human Relations	3
PHIL 138	Business Ethics	1
HIST 141	U.S. History Since 1877	3
	Business Electives	2
	TOTAL CREDIT HOURS	16

### Fourth Semester

ACCT 215	Accounting for Nonprofit Organizations*^	3
	or	
ACCT 221	Cost Accounting*^	3
	or	
ACCT 232	Intermediate Accounting II*^	3
ACCT 131	Federal Income Taxes I	3
ACCT 135	Computerized Accounting Applications*	3
ACCT 285	Accounting Capstone*	3
	Business Electives	3
	Health and/or Physical Education Elective	1
	TOTAL CREDIT HOURS	16
	TOTAL PROGRAM CREDIT HOURS	64

Note: Business electives are any courses with the BUS,

BUSE or ECON prefix.

\*Prerequisite/Corequisite required

^The student is required to complete two of the five following accounting courses: ACCT 215, 221, 222, 231 or 232.

## Administration of Justice, A.A.

More than 1 million people are employed in the administration of justice/law enforcement fields in the United States. Employment opportunities are expected to grow as fast or slightly faster than average for all occupations in the field.

JCCC's administration of justice/law enforcement program provides you the opportunity to specialize in law enforcement, corrections or investigations. Successful completion of 64 hours of credit in this two-year program leads to an associate of arts degree. You should contact a counselor when developing a program plan.

## Associate of Arts Degree

### First Semester

ENGL 121	Composition I*	3
	Social Science Course**	3
ADMJ 121	Introduction to Administration of Justice^	3
ADMJ 124	Criminal Justice and Corrections	3
ADMJ 127	Criminology	3
	TOTAL CREDIT HOURS	15

### Second Semester

SPD 120	Interpersonal Communications	3
ENGL 122	Composition II*	3
PHIL 143	Ethics	3
ADMJ 140	Constitutional Case Law^	3
ADMJ 230	Criminal Behavior*	3
	ADMJ Program Electives	3
	TOTAL CREDIT HOURS	18

### Third Semester

FL 130	Elementary Spanish I	5
ADMJ 120	Writing Across Disciplines	1
	ADMJ Program Electives	3
	Science and/or Math Elective***	6
	TOTAL CREDIT HOURS	15

### Fourth Semester

	Humanities Course	3
	(cannot be a philosophy course)	
	Social Science Course**	3
ADMJ 136	Police and the Public^	3
	Science and/or Math Elective***	3
	Health and/or Physical Education Elective	1
	ADMJ Program Electives	3
	TOTAL CREDIT HOURS	16
	TOTAL PROGRAM CREDIT HOURS	64

### (Required Program Electives)

9 hours - any three courses

ADMJ 130	Crime Prevention	3
ADMJ 133	Juvenile Delinquency	3



ADMJ 141	Criminal Law*^	3
ADMJ 143	Crime Analysis	3
ADMJ 145	Fundamentals of Private Security	3
ADMJ 146	Retail Security	3
ADMJ 148	Family Violence and Sexual Abuse	3
ADMJ 154	Fundamentals of Criminal Investigation*	3
ADMJ 170	Introduction to Substance Abuse	3
ADMJ 201	Criminal Justice Communications	3
ADMJ 221	Introduction to Criminalistics*	3
ADMJ 224	Intro to Terrorism	3
ADMJ 281	Readings in Police Science*	3
ADMJ 285	Administration of Justice Internship*	3

\*Prerequisite/Corequisite required

\*\* You must take two courses from the following list, but not more than one course from each group may count toward the required 6 hours:

**(Group 1:)**

POLS 124	American National Government	3
POLS 126	State and Local Government	3

**(Group 2:)**

PSYC 130	Intro to Psychology	3
	(this is a prerequisite for ADMJ 230)	

**(Group 3:)**

SOC 122	Introduction to Sociology	3
SOC 125	Social Problems	3

\*\*\* You must complete a minimum of 9 hours in math and science. See associate of arts general education requirements.

^ If you are certified under the Kansas Law Enforcement Training Act, you are eligible to receive assessment of prior learning credit for some or all of these courses.

## Administrative Assistant, A.A.S.

This degree program prepares students for positions as supervisors and managers in automated office environments. Emphasis is on the development of communications, decision-making, organizational and management skills; and knowledge of software options, hardware components, applications and concepts. This program is designed to prepare you to function in the electronic office by using a mix of vocational, technical and academic training.

## Associate of Applied Science Degree

### Administrative Assistant

#### First Semester

MATH 120	Business Math*	3
ENGL 121	Composition I*	3
BOT 110	Skillbuilding I*	1
BOT 155	Word Processing Applications I*	2
BOT 130	Office Systems Concepts	3
BUS 225	Human Relations	3
CPCA 114	Databases on Microcomputers I*	1
	Health and/or Physical Education Elective	1
	TOTAL CREDIT HOURS	17

## Second Semester

ACCT 121	Accounting I.....	3
CPCA 110	Spreadsheets on Microcomputers I*.....	1
ELEC 124	Microcomputer Hardware*.....	3
BUS 121	Introduction to Business.....	3
BOT 125	Document Formatting*.....	1
BOT 150	Records Management.....	3
CPCA 138	Windows for Microcomputers*.....	1
	TOTAL CREDIT HOURS.....	15

## Third Semester

BUS 122	Introduction to Law.....	3
CPCA 118	Groupware*.....	1
CPCA 141	Internet I*.....	1
BUS 140	Principles of Supervision.....	3
	or	
BUS 141	Principles of Management.....	3
BOT 255	Word Processing Applications II*.....	2
BUS 150	Business Communications*.....	3
CPCA 123	Presentation Graphics I*.....	1
	Humanities Elective.....	3
	TOTAL CREDIT HOURS.....	17

## Fourth Semester

ECON 130	Basic Economic Issues.....	3
	or	
ECON 230	Economics I.....	3
BOT 275	Office Internship I*.....	1
BUS 243	Human Resource Management .....	3
BOT 265	Computerized Office Applications*.....	3
BOT 260	Desktop Publishing for the Office*.....	3
	BOT Electives.....	3
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	65

## BOT Electives

BOT 103	Business English.....	3
BOT 118	Skillbuilding II*.....	1
BOT 175	Conflict in the Workplace.....	1
BOT 180	Business Spreadsheet Applications*.....	1
BOT 185	Business Database Applications*.....	1
BOT 205	Professional Image Development.....	1
BOT 210	Working in Teams.....	1
BOT 280	Office Internship II*.....	1

\*Prerequisite/Corequisite required

## Administrative Assistant with Legal Emphasis, A.A.S.

This degree program prepares students for administrative duties in the law office and other legal settings. The program combines training in the latest technical computer skills with specialized course work unique to the legal profession, including exposure to legal practices, preparation, and practical application of documents and terminology used in the legal office.

## Associate of Applied Science Degree

### First Semester

BUS 122	Introduction to Law.....	3
BOT 155	Word Processing Applications I*.....	2
BOT 130	Office Systems Concepts.....	3
ENGL 121	Composition I*.....	3
CPCA 138	Windows for Microcomputers*.....	1

BOT	115	Electronic Calculators.....	1
CPCA	114	Databases on Microcomputers I*.....	1
		Health and/or Physical Education Elective.....	1
		BOT Elective.....	1
		TOTAL CREDIT HOURS.....	16

## Second Semester

BOT	110	Skillbuilding I*.....	1
BOT	150	Records Management.....	3
MATH	120	Business Math*.....	3
ACCT	111	Small Business Accounting.....	3
		or	
ACCT	121	Accounting I.....	3
BOT	125	Document Formatting*.....	1
BOT	160	Legal Transcription*.....	3
CPCA	118	Groupware*.....	1
		BOT Elective.....	1
		TOTAL CREDIT HOURS.....	16

## Third Semester

LAW	223	Computer Applications in the Law Office*.....	3
BUS	150	Business Communications*.....	3
BUS	225	Human Relations.....	3
BOT	255	Word Processing Applications II*.....	2
CPCA	141	Internet I*.....	1
CPCA	110	Spreadsheets on Microcomputers I*.....	1
		BOT Electives.....	3
		TOTAL CREDIT HOURS.....	16

## Fourth Semester

ECON	130	Basic Economic Issues.....	3
		or	
ECON	230	Economics I.....	3
BOT	275	Office Internship I*.....	1
BOT	265	Computerized Office Applications*.....	3
BUS	140	Principles of Supervision.....	3
		or	
BUS	141	Principles of Management.....	3
		Humanities Elective.....	3
		General Electives.....	3
		TOTAL CREDIT HOURS.....	16
		TOTAL PROGRAM CREDIT HOURS.....	64

## BOT Electives

BOT	103	Business English.....	3
BOT	118	Skillbuilding II*.....	1
BOT	175	Conflict in the Workplace.....	1
BOT	180	Business Spreadsheet Applications*.....	1
BOT	185	Business Database Applications*.....	1
BOT	205	Professional Image Development.....	1
BOT	210	Working in Teams.....	1
BOT	280	Office Internship II*.....	1

\*Prerequisite/Corequisite required

# Administrative Assistant with Medical Emphasis, A.A.S.

This degree program prepares students to pursue an administrative career in the medical profession. The program combines training in the latest technical and computer skills with specialized course work unique to the medical profession. Beginning students and employed medical personnel will find this program invaluable for career advancement.

# Associate of Applied Science Degree

## First Semester

AAC 130	Medical Terminology.....	3
ENGL 121	Composition I*.....	3
BOT 155	Word Processing Applications I*.....	2
BOT 130	Office Systems Concepts.....	3
CPCA 138	Windows for Microcomputers*.....	1
CPCA 118	Groupware*.....	1
CPCA 114	Databases on Microcomputers I*.....	1
	Health and/or Physical Education Elective.....	1
	BOT Elective.....	1
	TOTAL CREDIT HOURS.....	16

## Second Semester

BOT 110	Skillbuilding I*.....	1
BOT 170	Medical Coding and Billing*.....	3
BOT 150	Records Management.....	3
BOT 125	Document Formatting*.....	1
MATH 120	Business Math*.....	3
BUS 225	Human Relations.....	3
BOT 115	Electronic Calculators.....	1
	BOT Elective.....	1
	TOTAL CREDIT HOURS.....	16

## Third Semester

ACCT 111	Small Business Accounting.....	3
	or	
ACCT 121	Accounting I.....	3
BUS 122	Introduction to Law.....	3
BUS 150	Business Communications*.....	3
BOT 255	Word Processing Applications II*.....	2
CPCA 110	Spreadsheets on Microcomputers I*.....	1
CPCA 141	Internet I*.....	1
	Humanities Elective.....	3
	TOTAL CREDIT HOURS.....	16

## Fourth Semester

ECON 130	Basic Economic Issues.....	3
	or	
ECON 230	Economics I.....	3
BOT 165	Medical Transcription*.....	3
BOT 265	Computerized Office Applications*.....	3
BOT 275	Office Internship I*.....	1
BUS 140	Principles of Supervision.....	3
	or	
BUS 141	Principles of Management.....	3
	BOT Electives.....	3
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

## BOT Electives

BOT 103	Business English.....	3
BOT 118	Skillbuilding II*.....	1
BOT 175	Conflict in the Workplace.....	1
BOT 180	Business Spreadsheet Applications*.....	1
BOT 185	Business Database Applications*.....	1
BOT 205	Professional Image Development.....	1
BOT 210	Working in Teams.....	1
BOT 280	Office Internship II*.....	1

\*Prerequisite/Corequisite required

# Administrative Support Specialist Certificate

The administrative support specialist certificate prepares students for executive and/or administrative assistant duties in the office. The program provides training in the latest technical, computer and software skills.

## Vocational Certificate

BOT	110	Skillbuilding I*	1
BOT	130	Office Systems Concepts	3
BOT	125	Document Formatting*	1
CPCA	110	Spreadsheets on Microcomputers I*	1
CPCA	114	Databases on Microcomputers I*	1
CPCA	138	Windows for Microcomputers*	1
BUS	225	Human Relations	3
BOT	155	Word Processing Applications I*	2
BOT	115	Electronic Calculators	1
BOT	120	Machine Transcription*	1
BOT	150	Records Management	3
CPCA	118	Groupware*	1
CPCA	141	Internet I*	1
BOT	255	Word Processing Applications II*	2
BOT	265	Computerized Office Applications*	3
BOT	260	Desktop Publishing for the Office*	3
BOT	275	Office Internship I*	1
		BOT Electives	2
		TOTAL PROGRAM CREDIT HOURS	31

## BOT Electives

BOT	103	Business English	3
BOT	118	Skillbuilding II*	1
BOT	175	Conflict in the Workplace	1
BOT	180	Business Spreadsheet Applications*	1
BOT	185	Business Database Applications*	1
BOT	205	Professional Image Development	1
BOT	210	Working in Teams	1
BOT	280	Office Internship II*	1

\*Prerequisite/Corequisite required

## Automotive Technology, A.A.S.

Automotive technicians generally begin their careers in service repair shops, with continually expanding industrial and service career advancement opportunities. Technicians work with experienced professionals and have frequent contact with the public. This field requires good mechanical aptitude and manual dexterity skills.

The two-year associate of applied science degree, which is certified by the ASE, covers all major areas, including diagnosis and tune-up, chassis, electrical/electronic and hydraulic systems, automatic transmissions, engines, and emissions. Students work on developing the skills needed to advance to a supervisory position, such as customer relations, estimating materials and labor costs, and managing the work of others.

In the Kansas City area, the anticipated job growth is 20 percent by 2005. About 213 annual openings are expected to occur each year. The average hourly wage in 1996 was between \$13.96 and \$18.28.

## Associate of Applied Science Degree

Prior to admission to the automotive technology associate of applied science degree program, the student must have:

AUTO	125	Introduction to Automotive Shop Practices	3
		or	
		Approval of division administrator	

## First Semester

AUTO 163	Automotive Steering and Suspension*	3
AUTO 234	Automotive Electrical Systems*	4
INDT 125	Industrial Safety	3
MATH 120	Business Math*	3
ENGL 121	Composition I*	3
	TOTAL CREDIT HOURS	16

## Second Semester

AUTO 165	Automotive Engine Repair*	4
AUTO 167	Automotive Brake Systems*	2
AUTO 168	Automotive Manual Drivetrain and Axles*	3
ENGL 123	Technical Writing I*	3
	Technical/Related Electives	3
	Health and/or Physical Education Elective	1
	TOTAL CREDIT HOURS	16

## Third Semester

AUTO 250	Automatic Transmissions and Transaxles*	4
AUTO 254	Automotive Engine Performance*	5
MFAB 127	Welding Processes	2
	Humanities Elective	3
	Social Science and/or Economics Elective	3
	TOTAL CREDIT HOURS	17

## Fourth Semester

AUTO 230	Automotive Heating and Air Conditioning*	3
AUTO 260	Automotive Service Management*	3
AUTO 261	Automotive Service Techniques*	3
BUS 140	Principles of Supervision	3
	Technical/Related Electives	3
	TOTAL CREDIT HOURS	15
	TOTAL PROGRAM CREDIT HOURS	64

## Technical/Related Electives

AUTO 121	Small Engine Service	3
AUTO 122	Introduction to Auto Glass	3
AUTO 123	Motorcycle Maintenance and Repair	2
AUTO 128	Automotive Parts Specialist	2
AUTO 130	Diesel Fundamentals*	2
AUTO 201	ASE Certification Seminar	1
AUTO 210	Advanced Engine Repair*	3
AUTO 271	Automotive Technology Internship*	3
AUTO 291	Independent Study	1
MATH 133	Technical Mathematics I*	4
PHYS 125	Technical Physics I*	4
BUSE 142	FastTrac Business Plan	3
CIS 124	Introduction to Computing Concepts/Appli	3
CPCA 105	Introduction to Personal Computing:Win	1
ELEC 120	Introduction to Electronics	3
RRT 165	Railroad Safety, Quality and Environment	3
INDT 155	Workplace Skills	1

\*Prerequisite/Corequisite required

# Automotive Technology Certificate

The automotive technology certificate program is designed to meet the needs of today's beginning and experienced auto technicians. With the completion of the certificate program, the student will have a well-rounded background in the repair required for dealership and independent service personnel. Completion of courses should assist students in preparing for ASE certification tests. Most automotive trades expect applicants to pass one or more of the ASE tests, which will enable

them to qualify for technical positions in service repair.

## Vocational Certificate

Prior to admission to the automotive technology vocational certificate program, the student must have:

AUTO 125	Introduction to Automotive Shop Practices.....	3
	or	
	Approval of division administrator	

### Required Courses

INDT 125	Industrial Safety.....	3
INDT 155	Workplace Skills.....	1
AUTO 163	Automotive Steering and Suspension*.....	3
AUTO 165	Automotive Engine Repair*.....	4
AUTO 167	Automotive Brake Systems*.....	2
AUTO 168	Automotive Manual Drivetrain and Axles*.....	3
AUTO 234	Automotive Electrical Systems*.....	4
AUTO 250	Automatic Transmissions and Transaxles*.....	4
AUTO 254	Automotive Engine Performance*.....	5
AUTO 230	Automotive Heating and Air Conditioning*.....	3
MFAB 127	Welding Processes.....	2
	TOTAL CREDIT HOURS.....	34

\*Prerequisite/Corequisite required

## Biotechnology, A.A.S.

The greater Kansas City area and specifically Johnson County have numerous biological-, pharmaceutical- and chemical-related formulating, manufacturing, research and testing companies. Many of these facilities employ scientific technicians to support the endeavors of their professional scientists and engineers.

JCCC's science technology program is designed to develop scientific support personnel for the metropolitan area.

This program offers specific knowledge and training designed to provide you with entry-level skills for employment as a technician. It also provides the breadth of background sufficient to encourage change and flexibility.

The biotechnology associate of applied science degree program will prepare students to work in biotechnology laboratories associated with universities, medical centers, private research institutions, and a variety of industrial applications. Upon completion of this 78-hour degree, students will be able to find entry-level or higher positions in diverse fields of biotechnology. Along with basic and more advanced science courses, students will take specialized courses such as laboratory safety and biotechnology methods.

## Associate of Applied Science Degree

### First Semester

BIOL 135	Principles of Cell and Molecular Biology.....	4
BIOL 160	Introduction to Biotechnology*.....	2
BIOL 165	Laboratory Safety*.....	1
CHEM 122	Principles of Chemistry.....	5
MATH 133	Technical Mathematics I or higher*.....	4
	TOTAL CREDIT HOURS.....	15

### Second Semester

BIOL 230	Microbiology*.....	3
CIS 124	Intro to Computing Concepts/Applic.....	3
ENGL 121	Composition I*.....	3
PHYS 133	Applied Physics*.....	5
	Social Science/Economics Elective.....	3
	TOTAL CREDIT HOURS.....	17

### Third Semester

BIOL 144	Human Anatomy and Physiology.....	5
BIOL 145	Human Anatomy and Physiology Dissection*.....	1
BIOL 205	General Genetics*.....	4
CHEM 140	Principles of Organic Chemistry*.....	5
ENGL 123	Technical Writing I*.....	3
	TOTAL CREDIT HOURS.....	18

### Fourth Semester

BIOL 260	Biotechnology Methods*.....	5
BIOL 265	Biotechnology Internship*.....	4
CHEM 250	Biochemistry*.....	4
	Humanities Elective.....	3
	Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	17
	TOTAL PROGRAM CREDIT HOURS.....	67

\*Prerequisite/Corequisite required

## Biotechnology, A.S.

The greater Kansas City area and specifically Johnson County have numerous biological-, pharmaceutical- and chemical-related formulating, manufacturing, research and testing companies. Many of these facilities employ scientific technicians to support the endeavors of their professional scientists and engineers.

JCCC's science technology program is designed to develop scientific support personnel for the metropolitan area.

This program offers specific knowledge and training designed to provide you with entry-level skills for employment as a technician. It also provides the breadth of background sufficient to encourage change and flexibility.

The biotechnology associate of science degree program will prepare students who wish to pursue a baccalaureate degree in the biological sciences. Upon completion of this 78-hour degree, students will be able to find entry-level or higher positions in the diverse field of biotechnology. Along with basic and more advanced science courses, students will take specialized courses in subjects such as laboratory safety and biotechnology methods.

## Associate of Science Degree

### First Semester

MATH 181	Statistics*.....	3
BIOL 135	Principles of Cell and Molecular Biology.....	4
CHEM 124	Chemistry I Lecture*.....	4
CHEM 125	Chemistry I Lab*.....	1
SPD 120	Interpersonal Communications.....	3
	or	
SPD 121	Public Speaking.....	3
	or	
SPD 125	Personal Communication.....	3
	or	
SPD 180	Intercultural Communication.....	3
ENGL 121	Composition I*.....	3
	TOTAL CREDIT HOURS.....	18

### Second Semester

BIOL 160	Introduction to Biotechnology*.....	2
BIOL 150	Biology of Organisms*.....	5
CHEM 131	Chemistry II Lecture*.....	4
CHEM 132	Chemistry II Lab*.....	1
ENGL 123	Technical Writing I*.....	3
	Humanities Elective.....	3
	TOTAL CREDIT HOURS.....	18



## Summer

BIOL 230	Microbiology*	3
	Social Science/Economics Elective	3
	TOTAL CREDIT HOURS	6

## Third Semester

BIOL 165	Laboratory Safety*	1
CHEM 220	Organic Chemistry I*	5
PHYS 130	General Physics I*	5
BIOL 205	General Genetics*	4
	Humanities Elective	3
	TOTAL CREDIT HOURS	18

## Fourth Semester

BIOL 260	Biotechnology Methods*	5
CHEM 250	Biochemistry*	4
PHYS 131	General Physics II*	5
	Social Science/Economics Elective	3
	Physical Education Elective	1
	TOTAL CREDIT HOURS	18

## (Optional Course)

BIOL 265	Biotechnology Internship (Optional)	4
	TOTAL PROGRAM CREDIT HOURS	78
with the optional course		
	TOTAL PROGRAM CREDIT HOURS	82

\*Prerequisite/Corequisite required

# Biotechnology Certificate

Greater Kansas City and specifically Johnson County have numerous biological-, pharmaceutical- and chemical-related formulating, manufacturing, research and testing companies. Many of these facilities employ scientific technicians to support the endeavors of their professional scientists and engineers.

JCCC's science technology program is designed to develop scientific support personnel for the metropolitan area.

This program offers specific knowledge and training designed to provide you with entry-level skills for employment as a technician. It also provides the breadth of background sufficient to encourage change and flexibility.

The biotechnology vocational certificate is for students seeking employment in the biotechnology industry either in private or academic research laboratories. This certificate will demonstrate to potential employers that the student has experience in performing a variety of techniques necessary for the day-to-day operation.

# Vocational Certificate

## First Semester

BIOL 135	Principles of Cell and Molecular Biology	4
BIOL 160	Introduction to Biotechnology*	2
BIOL 165	Laboratory Safety*	1
CHEM 122	Principles of Chemistry	5
MATH 133	Technical Mathematics I or higher*	3
	TOTAL CREDIT HOURS	15

## Second Semester

BIOL 230	Microbiology*	3
BIOL 260	Biotechnology Methods*	5
CHEM 140	Principles of Organic Chemistry*	5

PHYS 133	Applied Physics*	5
	TOTAL CREDIT HOURS	18

### Third Semester

BIOL 265	Biotechnology Internship* (optional)	4
	TOTAL PROGRAM CREDIT HOURS	33

\*Prerequisite/Corequisite required

## Business Administration, A.A.S.

Business is more competitive than ever before. People running businesses will be judged by how well they manage change, stay ahead of trends and learn the latest theories. JCCC's business administration career program can train you in the many skills required to manage a variety of businesses.

Focusing on the development of decision-making, organizational and supervisory skills, the program offers professional courses in management, marketing, economics, accounting, finance, communications, business law and data processing. These are combined with a core of general education courses to ensure that students receive a well-rounded curriculum.

Graduates have opportunities in entry-level management and supervisory positions in a variety of businesses. Johnson County's continued growth as the business center for the area means job opportunities are available.

## Associate of Applied Science Degree

### First Semester

ENGL 121	Composition I*	3
MATH 120	Business Math or higher*	3
BUS 121	Introduction to Business	3
BUS 225	Human Relations	3
CIS 124	Intro to Computing Concepts & Application	3
	and Choose 1 credit hour from CPCA or CDTP course selections higher than CPCA 105 and CPCA 106 or four 1-credit-hour courses from CPCA or CDTP or	
CIS 134	Programming Fundamentals	4
	TOTAL CREDIT HOURS	16

### Second Semester

ACCT 121	Accounting I	3
BUS 141	Principles of Management	3
	or	
BUS 145	Small Business Management	3
BUS 150	Business Communications*	3
ECON 230	Economics I	3
HIST 141	U.S. History Since 1877	3
	Health and/or Physical Education Elective	1
	TOTAL CREDIT HOURS	16

### Third Semester

ACCT 122	Accounting II*	3
PHIL 138	Business Ethics	1
ECON 231	Economics II	3
BUS 230	Marketing	3
BUS 261	Business Law I	3
HUM 122	Introduction to Humanities	3
	TOTAL CREDIT HOURS	16

### Fourth Semester

ACCT	222	Managerial Accounting*	3
BUS	123	Personal Finance	3
		or	
BUS	215	Savings and Investments	3
		or	
BUS	250	Introduction to Corporate Finance	3
BUS	263	Business Law II*	3
BUS	243	Human Resource Management	3
		or	
BUS	235	Introduction to International Business	3
BIOL	130	Environmental Science	3
		Elective	1
		TOTAL CREDIT HOURS	16
		TOTAL PROGRAM CREDIT HOURS	64

### Recommended Electives

BUS	120	Management Attitudes and Motivation	3
BUS	140	Principles of Supervision	3

\*Prerequisite/Corequisite required

## Business Entrepreneurship, A.A.S.

The small business sector is one of the fastest growing in the nation's economy. With an ever-increasing number of adults today self-employed, many residents in Johnson County either work for a small business or plan to start their own. JCCC's business entrepreneurship program can help prospective entrepreneurs launch new ventures or if you are an entrepreneur who already has your business established, you can strengthen your managerial and business skills to grow your business.

You will learn the fundamentals of starting and operating your own business. The program includes basic business skills as well as specific courses in starting and managing an entrepreneurial business. Course work covers evaluating a business opportunity, preparing a business plan, legal issues for small business, planning advertising and sales promotions, marketing a product or service, developing an accounting system and financial management for the entrepreneurial company.

You also will complete two internships in a small business. You can apply what you learn in the classroom to your job and take your work experiences back to the classroom for analysis.

## Associate of Applied Science Degree

### First Semester

BUSE	180	Opportunity Analysis	2
ENGL	121	Composition I*	3
MATH	120	Business Math or higher*	3
BUS	230	Marketing	3
BUS	225	Human Relations	3
		Electives	3
		TOTAL CREDIT HOURS	17

### Second Semester

BUS	145	Small Business Management	3
ACCT	111	Small Business Accounting	3
		or	
ACCT	121	Accounting I	3
ECON	130	Basic Economic Issues	3
		or	
ECON	230	Economics I	3
		or	
ECON	231	Economics II	3
		or	
ECON	132	Survey of Economics	3
BUS	140	Principles of Supervision	3
BUSE	160	Legal Issues for Small Business	2
MKT	133	Salesmanship	3

		or	
MKT	134	Creative Retail Selling.....	3
		or	
MKT	234	Services Marketing*.....	3
		TOTAL CREDIT HOURS.....	17

### Third Semester

BUS	150	Business Communications*.....	3
CIS	124	Intro to Computing Concepts/Applications.....	3
		and	
		Choose 1 credit hour from CPCA or CDTP course	
		selections higher than CPCA 105 and CPCA 106	
		or	
		four 1-credit-hour courses from the	
		CPCA or CDTP course selections	
BUSE	210	Entrepreneurship Internship I*.....	1
BUSE	131	Financial Management for Small Business*.....	2
PHIL	138	Business Ethics.....	1
		Health and/or Physical Education Elective.....	1
		Electives.....	3
		TOTAL CREDIT HOURS.....	15

### Fourth Semester

BUSE	190	Small Business Analysis*.....	2
BUSE	215	Entrepreneurship Internship II*.....	1
BUSE	142	FastTrac Business Plan.....	3
HIST	141	U.S. History Since 1877.....	3
		Humanities Elective.....	3
		Electives.....	4
		TOTAL CREDIT HOURS.....	16
		TOTAL PROGRAM CREDIT HOURS.....	65

### Recommended Electives

BUS	120	Management Attitudes and Motivation.....	3
BUS	121	Introduction to Business.....	3
BUS	123	Personal Finance.....	3
BUS	235	Introduction to International Business.....	3
BUS	141	Principles of Management.....	3
BUS	243	Human Resource Management.....	3
BUS	261	Business Law I.....	3
BUS	263	Business Law II*.....	3
CPCA	105	Introduction to Personal Computers: Win.....	1
CPCA	108	Word Processing on Microcomputers I*.....	1
CPCA	110	Spreadsheets on Microcomputers I*.....	1
CPCA	111	Spreadsheets on Microcomputers II*.....	1
CPCA	114	Databases on Microcomputers I*.....	1
CPCA	115	Databases on Microcomputers II*.....	1
CPCA	141	Internet I*.....	1
CPCA	151	Internet II*.....	1
FASH	132	Marketing Communications.....	3
FASH	231	Merchandising Planning and Control*.....	3
HMG	121	Perspectives Hospitality Management.....	3
MKT	121	Retail Management.....	3
SPD	120	Interpersonal Communications.....	3
SPD	121	Public Speaking.....	3

\*Prerequisite/Corequisite required

## Business Entrepreneurship Certificate

Students in business entrepreneurship certificate programs learn the fundamentals of starting and operating their own businesses. Course work includes evaluating a business idea, preparing a business plan, financial management, legal issues, marketing a product or service and developing an accounting system.

# Vocational Certificate

## First Semester

ACCT 111	Small Business Accounting.....	3
	or	
ACCT 121	Accounting I.....	3
BUSE 180	Opportunity Analysis.....	2
BUS 230	Marketing.....	3
CIS 124	Intro to Computing Concepts and Application.....	3
	or	
	Any three 1-credit hour courses from CPCA or CDTP course selections	
MATH 120	Business Math or higher*.....	3
	Electives.....	3
	TOTAL CREDIT HOURS.....	17

## Second Semester

BUS 145	Small Business Management.....	3
BUSE 131	Financial Management/Small Business*.....	2
BUSE 160	Legal Issues for Small Businesses.....	2
BUSE 190	Small Business Analysis*.....	2
BUSE 210	Entrepreneurship Internship I*.....	1
	or	
BUSE 215	Entrepreneurship Internship II*.....	1
BUSE 142	FastTrac Business Plan.....	3
MKT 133	Salesmanship.....	3
	or	
MKT 134	Creative Retail Selling.....	3
	or	
MKT 234	Services Marketing*.....	3
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	33

\*Prerequisite/Corequisite required

# Business Plan Certificate

The business plan certificate program focuses on evaluating an idea for a business and concludes with writing a business plan to start and/or grow a business.

## Vocational Certificate

BUSE 180	Opportunity Analysis.....	2
BUSE 142	FastTrac Business Plan.....	3
	TOTAL PROGRAM CREDIT HOURS.....	5

# Certified Medication Aide

This 80-hour course covers information related to many commonly prescribed medications. Students learn the classification, side effects and techniques of administration, including preparations and accurate distribution of medications.

The safety of clients in long-term care is also discussed and demonstrated by students in this course. Enrollees in this course must show proof of Kansas CNA certification and complete a reading level exam/assessment prior to admission. The Kansas CMA examination is administered to successful completers of this course.

The employment outlook for the future is excellent. Facilities employing the CMA include long-term care nursing centers as well as other types of group homes and agencies.

## Area Vocational School Certificate

80 hours of instruction	
AVHO 104	Certified Medication Aide*

\*Prerequisite/Corequisite required

## **Cert Medication Aide Update**

Certified medication aides in Kansas are required to obtain 10 hours of continuing education every two years to renew the CMA certificate. This course meets the state requirements for recertification. This update course includes review of commonly used drugs and their interactions with foods and other drugs.

Students will discuss and identify legal implications and regulations related to administration and record keeping. Biological effects of medications on the elderly and basic safety principles are reviewed and discussed with other CMAU course participants. A roster of CMAs who complete the update course will be submitted to the Department of Health and Environment for certificate renewal.

## **Area Vocational School Certificate**

10 contact hours

AVHO 108 Certified Medication Aide Update\*

\*Prerequisite/Corequisite required

## **Certified Nurse Aide**

This 96-hour course provides classroom and clinical instruction for basic care of clients in long-term and acute-care facilities. Students will learn skills for daily hygiene, bedside care, vital-sign measurement, positioning and safe transfer of clients. You will learn about common health problems and chronic illnesses. Clinical practice sessions are conducted in the nursing home setting.

Employment for workers with CNA skills and training is abundant in long-term care facilities. Acute-care hospitals also employ basic patient care aides who are willing to learn advanced skills.

Enrollees for this course must pass a reading level exam/assessment prior to admission. Upon successful completion of the course, students will be scheduled to take the Kansas CNA examination.

## **Area Vocational School Certificate**

96 contact hours

AVHO 102 Certified Nurse Aide

## **Certified Nurse Aide Refresher**

The CNA in Kansas is required to work at least eight hours a year for the CNA certificate to remain active. If the CNA does not work for two years, a 10-hour refresher course must be completed. This course meets the state requirement to activate the CNA certificate.

This course includes five hours of classroom instruction and five hours of laboratory experience. Students will discuss the nurse aide's responsibility in the current health care system and the importance of resident's rights. The student will demonstrate safety measures, infection control procedures, personal care skills, measurement of vital signs and transfers, positioning and turning.

## **Area Vocational School Certificate**

10 contact hours

AVHO 103 Certified Nurse Aide Refresher course\*

\*Prerequisite/Corequisite required

## **Chef Apprenticeship, A.A.S.**

The hospitality management program at JCCC is a comprehensive study of the food service and public lodging industries. The program is accredited by the American Culinary Federation

Educational Institute Accrediting Commission.

The chef apprenticeship program at the college is sponsored by the American Culinary Federation and the U.S. Department of Labor. The three-year program has special admission requirements. You must be 18 years old and have a high school diploma or the equivalent.

The career program features formal course work along with the opportunity to actually practice such skills as baking, menu planning, food purchasing, beverage control and food preparation. After job placement, you join the American Culinary Federation Educational Institute for registered apprentice membership. Likewise, you register with the Department of Labor and will be officially indentured to supervising chefs and the sponsoring American Culinary Federation affiliate chapter for 6,000 hours. The program consists of 74 credit hours and leads to an associate of applied science degree.

## Associate of Applied Science Degree

### First Semester

HMG T 121	Hospitality Management Fundamentals.....	3
HMG T 123	Basic Food Preparation.....	3
MATH 120	Business Math or higher*.....	3
CPCA 105	Introduction to Personal Computing: Windows.....	1
	or	
CPCA 106	Introduction to Personal Computing: Mac.....	1
HMG T 281	Culinary Practicum I*.....	2
	TOTAL CREDIT HOURS.....	12

### Second Semester

HMG T 273	Seminar in Hospitality Management: Accounting*.....	3
HMG T 230	Intermediate Food Preparation*.....	3
HMEC 151	Nutrition and Meal Planning.....	3
HMG T 282	Culinary Practicum II*.....	2
	TOTAL CREDIT HOURS.....	11

### Summer

ENGL 121	Composition I*.....	3
SPD 120	Interpersonal Communication.....	3
	or	
SPD 125	Personal Communication.....	3
	TOTAL CREDIT HOURS.....	6

### Third Semester

HMG T 130	Hospitality Law.....	3
HMG T 271	Seminar in Hospitality Management: Purchasing.....	3
HMG T 145	Food Production Specialties*.....	3
HMG T 285	Culinary Practicum III*.....	2
	TOTAL CREDIT HOURS.....	11

### Fourth Semester

HMG T 226	Garde-manger*.....	3
HMG T 223	Fundamentals of Baking*.....	3
HMG T 277	Seminar in Hospitality Management: Menu Planning Sales Promo*.....	3
HMG T 286	Culinary Practicum IV*.....	2
	TOTAL CREDIT HOURS.....	11

### Fifth Semester

HMG T 231	Advanced Food Preparation*.....	4
HMG T 279	Beverage Control.....	3
PSYC 121	Applied Psychology.....	3
	or	

PSYC 130	Introduction to Psychology.....	3
HMG 287	Culinary Practicum V*.....	2
	TOTAL CREDIT HOURS.....	12

### Sixth Semester

HMG 128	Supervisory Management.....	3
HMG 228	Advanced Hospitality Management*.....	3
HMG 288	Culinary Practicum VI*.....	2
	Humanities Elective.....	3
	TOTAL CREDIT HOURS.....	11
	TOTAL PROGRAM CREDIT HOURS.....	74

\*Prerequisite/Corequisite required

## Civil Engineering Technology, A.A.S.

Civil engineering technicians use theory and practical application in planning, designing, construction, inspecting and maintaining civil engineering projects. These projects include roadways, buildings, sanitary sewers, treatment plants, power distribution, bridges and land development.

JCCC's civil engineering technology program offers a broad base of instruction in mathematics, engineering design, drawing interpretation, computer-aided drafting, construction methods and communication skills. The program will qualify graduates for a variety of entry-level positions in design firms, construction companies or public agencies. Successful completion of 66 hours from the civil engineering technology curriculum will lead to an associate of applied science degree.

## Associate of Applied Science Degree

### First Semester

DRAF 129	Interpreting Architectural Drawings.....	2
ENGR 131	Engineering Graphics I*.....	4
MATH 133	Technical Mathematics I*.....	4
	or	
MATH 171	College Algebra*.....	3
	and	
MATH 172	Trigonometry*.....	3
	or	
MATH 173	Precalculus*.....	5
CET 125	Construction Specifications*.....	2
CET 105	Construction Methods.....	3
	Health/Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	15

### Second Semester

CET 129	Construction Management.....	3
DRAF 225	Civil Drafting*.....	3
ENGL 121	Composition I*.....	3
PHYS 125	Technical Physics I*.....	4
	or	
PHYS 130	General Physics I*.....	5
	or	
PHYS 220	Engineering Physics I*.....	5
MATH 134	Technical Mathematics II*.....	5
	or	
MATH 181	Statistics*.....	3
	or	
MATH 225	Math as a Decision Making Tool*.....	3
	or	
MATH 241	Calculus I*.....	5
	TOTAL CREDIT HOURS.....	16

### Third Semester



CET	127	Construction Estimating*	3
CET	211	Technical Statics and Design*	3
ENGR	180	Engineering Land Surveying I*	3
		Technical Electives	3
ENGL	123	Technical Writing I*	3
		TOTAL CREDIT HOURS	15

#### Fourth Semester

CET	140	Civil Engineering Materials*	3
CET	270	Fluid Mechanics*	3
DRAF	252	Structural Drafting*	3
		Humanities Elective	3
		Social Science/Economics Elective	3
		Technical Electives	3
		TOTAL CREDIT HOURS	18
		TOTAL PROGRAM CREDIT HOURS	64

#### (Approved Technical Electives)

BIOL	130	Environmental Science Lecture	3
BIOL	131	Environmental Science Lab*	1
CET	120	Engineered Plumbing Systems I	3
CET	122	Engineered Plumbing Systems II	3
CPCA	105	Introduction to Personal Computers: Win	1
CPCA	108	Word Processing on Microcomputers I*	1
CPCA	110	Spreadsheets on Microcomputers I*	1
CPCA	114	Databases on Microcomputers I*	1
CPCA	121	Introduction to Project Management*	1
CPCA	128	Personal Computer Applications	3
CPCA	138	Windows for Microcomputers*	1
DRAF	124	Technical Drafting*	4
DRAF	140	Topics in CAD I	2
DRAF	230	Intermediate CAD*	3
DRAF	231	Computer-aided Drafting 3-D*	3
DRAF	242	Topics in CAD II*	2
GEOS	130	General Geology	5
GEOS	140	Physical Geography Lecture	3
GEOS	141	Physical Geography Lab*	2
HVAC	155	Workplace Skills	1
INDT	125	Industrial Safety	3

\*Prerequisite/Corequisite required

## Communication Design, A.A.S.

The communication design field is highly competitive for both salaried and freelance positions. There is a demand for artists with above-average talents and graphic art skills. Opportunities in the field range from entry-level layout and production to art director positions.

Demonstrated abilities are most often the key to obtaining a position in the communication design field. JCCC has structured its communication design program to help the student develop a comprehensive portfolio. The student's work will be critiqued by a team of professionals every semester. These professionals working in the field, along with the faculty, will help develop the student's skills in creative problem solving and in the use of materials, processes, tools and equipment. Outstanding studio and computer facilities are available for working on class projects. The two-year curriculum consisting of 69 credit hours leads to an associate of applied science degree.

## Associate of Applied Science Degree

### Transformation Semester

ART	124	Design 2D	3
CD	120	Introduction to Communication Design	3
CDTP	131	Desktop Publishing I: QuarkXpress*	1
		TOTAL CREDIT HOURS	7

## First Semester--Fall

ART	129	Design Color.....	3
CD	130	Drawing and Media Methods 1*.....	3
CD	132	Typography*.....	3
PHOT	121	Fundamentals of Photography.....	3
ENGL	121	Composition I*.....	3
		TOTAL CREDIT HOURS.....	15

## Second Semester--Spring

ART	127	Design 3D*.....	3
CD	131	Drawing and Media Methods 2*.....	3
CD	134	Layout Design*.....	3
CD	140	Technical Processes*.....	3
		Humanities Electives.....	3
		TOTAL CREDIT HOURS.....	15

## Third Semester--Fall

CIM	135	Digital Imaging and Video*.....	3
		or	
PHOT	123	Studio Photography*.....	3
CD	230	Drawing and Media Methods 3*.....	3
CD	231	Advanced Typography*.....	3
CD	235	Production Methods*.....	3
		Social Science and/or Economics Elective.....	3
		Health and/or Physical Education Elective.....	1
		TOTAL CREDIT HOURS.....	16

## Fourth Semester--Spring

CD	236	Electronic Production*.....	3
CD	244	Communication Systems*.....	3
CD	245	Advanced Design Practice*.....	3
CD	272	Professional Preparation*.....	3
		Science and/or Math Elective.....	3
		Technical/Studio Elective.....	1
		TOTAL CREDIT HOURS.....	16
		TOTAL PROGRAM CREDIT HOURS.....	69

## Technical/Studio Electives

CDTP	151	Desktop Publishing II: QuarkXpress*.....	1
CDTP	171	Desktop Publishing III: QuarkXpress*.....	1
CDTP	135	Desktop Photo Manipulation I: Photoshop*.....	1
CDTP	145	Desktop Illustration I: Illustrator*.....	1
CDTP	155	Desktop Photo Manipulation II: Photoshop*.....	1
CDTP	165	Desktop Illustration II: Illustrator*.....	1
CDTP	185	Desktop Illustration III: Illustrator*.....	1
CWEB	105	Introduction to Web Pages: Dreamweaver.....	1
CWEB	115	Intermediate Web Pages: Dreamweaver.....	1
CWEB	130	Introduction to Flash.....	1
CPCA	123	Presentation Graphics*.....	1
PHOT	122	Advanced Photography*+.....	3
PHOT	127	Color Photography*+.....	3
CIM	135	Electronic Photography/Digital Video*.....	3
ART	135	Painting I.....	3
ART	136	Painting II*.....	3
ART	172	Watercolor Painting.....	3
ART	231	Life Drawing I*.....	3
ART	232	Life Drawing II*.....	3
CD	275	Communication Design Internship*^.....	1

\*Prerequisite/Corequisite required

^A communication design major may apply to this internship course if the student is also enrolled in or has completed all fourth-semester studio courses.

+Could be taken in the second year--anytime after completion of PHOT 121.

# Computer-aided Drafting and Design Technology, A.A.S.

Drafting technicians are engineering communication specialists who apply mathematics, computer applications and manual skills to develop specifications and drawings for the manufacturing and construction of virtually everything made in the world. JCCC's drafting technology program offers students up-to-date equipment in facilities located in the Industrial Training Center on the JCCC campus. In addition, the program offers departmental specialty courses. The program provides students with the skills necessary to produce detailed shop drawings, land plats, erection drawings and designs for manufacturing, building, production, commercial building and site construction as well as detailed drawings and designs of components, assemblies and systems used in manufactured products.

Industrial growth and increasingly complex design problems will greatly increase the demand for design and drafting services, particularly using CAD equipment. Employers are most interested in applicants with drafting and mechanical skills, a background in CAD techniques and courses in math, science and engineering technology.

The two-year curriculum enables students to use the latest computer-aided design equipment. Course projects and laboratory procedures are similar to those used in industry.

An associate of applied science degree is awarded upon the successful completion of 68 credit hours.

## Associate of Applied Science Degree

Prerequisite:

DRAF 120	Introduction to Drafting.....	2
BOT 101	Computerized Keyboarding.....	1
DRAF 130	Introduction to CAD Concepts: AUTOCAD*.....	3
CPCA 105	Introduction to Personal Computers: Win.....	1
CPCA 138	Windows for Microcomputers*.....	1
CPCA 141	Internet I*.....	1

### First Semester

DRAF 129	Interpreting Architectural Drawings.....	2
DRAF 123	Interpreting Machine Drawings*.....	2
DRAF 135	Graphic Analysis (using CAD)*.....	3
DRAF 230	Intermediate CAD: AUTOCAD*.....	3
ENGL 121	Composition I*.....	3
MATH 133	Technical Mathematics I*.....	4
	TOTAL CREDIT HOURS.....	17

### Second Semester

DRAF 238	Architectural Drafting*.....	3
DRAF 231	CAD 3-D*.....	3
DRAF 252	Structural Drafting*.....	3
	Technical Electives.....	3
MATH 134	Technical Mathematics II*.....	5
	TOTAL CREDIT HOURS.....	17

### Third Semester

CET 211	Technical Statics and Design*.....	3
DRAF 222	Mechanical Drafting*.....	3
DRAF 250	Electrical Drafting*.....	3
	Health and/or Physical Education Elective.....	1
ENGL 123	Technical Writing I*.....	3
PHYS 125	Technical Physics I*.....	4
	TOTAL CREDIT HOURS.....	17

## Fourth Semester

DRAF 228	Industrial Design Applications*	3
DRAF 243	Architectural Desktop*	2
	or	
DRAF 244	Land Development Desktop*	2
	or	
DRAF 245	Mechanical Desktop*	2
DRAF 225	Civil Drafting*	3
	Social Science and/or Economics Elective	3
	Humanities Elective	3
	Technical Electives	3
	TOTAL CREDIT HOURS	17
	TOTAL PROGRAM CREDIT HOURS	68

## Technical Electives

CPCA 108	Word Processing on Microcomputers I*	1
CPCA 110	Spreadsheets on Microcomputers I*	1
CPCA 111	Spreadsheets on Microcomputers II*	1
CPCA 114	Databases on Microcomputers I*	1
CPCA 115	Databases on Microcomputers II*	2
CPCA 117	Databases on Microcomputers III*	1
CPCA 121	Introduction to Project Management*	1
CPCA 123	Presentation Graphics*	1
CPCA 125	Word Processing on Microcomputers II*	1
CPCA 151	Internet II*	1
CPCA 158	Internet Application and Utilities*	3
CPCA 161	Introduction to WEB pages*	1
DRAF 140	Topics in CAD I	2
DRAF 232	CAD Applications Workstation Environment*	2
DRAF 233	CAD Administration	2
DRAF 240	Introduction to AutoLISP*	2
DRAF 242	Topics in CAD II*	2
DRAF 243	Architectural Desktop*	2
DRAF 244	Land Development Desktop*	2
DRAF 245	Mechanical Desktop*	2
DRAF 271	Drafting Internship I*	3
DRAF 272	Drafting Internship II*	3
CET 105	Construction Methods	3
CET 125	Construction Specifications*	2
CET 127	Construction Estimating*	3
CET 129	Construction Management	3
CET 270	Fluid Mechanics*	3
MFAB 152	Manufacturing Materials and Processes	3
ENGR 180	Engineering Land Surveying I*	3

\*Prerequisite/Corequisite required

## Computer-aided Drafting Certificate

This certificate makes it possible for those students who already have a drafting or engineering degree, or those who have sufficient work experience, to obtain certification in CAD.

## Vocational Certificate

### (Sequence of Required Courses)

CPCA 105	Introduction to Personal Computers: Win	1
CPCA 138	Windows for Microcomputers*	1
CPCA	Elective	1
DRAF 130	Introduction to CAD Concepts*	3
DRAF 230	Intermediate Computer-aided Drafting*	3
DRAF 231	Computer-aided Drafting 3-D*	3
	TOTAL PROGRAM CREDIT HOURS	12

\*Prerequisite/Corequisite required

# Computer-aided Drafting Network Administrator Certificate

This certificate is designed to cover the duties of a local area network administrator in a computer-aided drafting and design environment. It is directed toward the individual who has other primary job responsibilities but also must support the network. It provides instruction in specific network products, as well as hands-on investigation of utilities and tools not permissible in a production environment. It provides instruction on topics, procedures and issues necessary for someone to manage a CAD department.

## Vocational Certificate

### Required Courses

IT	200	Networking Technologies.....	3
ELEC	124	Microcomputer Hardware.....	3
IT	205	Implementing Windows Client.....	3
IT	221	Windows Server*.....	3
DRAF	232	CAD Applications Workstation Environment*.....	2
DRAF	233	CAD Administration.....	2
TOTAL PROGRAM CREDIT HOURS.....			16

\*Prerequisite/Corequisite required

# Computer Information Systems, A.A.S.

Employment opportunities for programmer analysts continue to grow as the need for sophisticated information systems increases in the business environment. Increased demand will focus on the areas of object-oriented programming, database management and client-server applications.

JCCC's information systems program focuses on developing the skills needed for entry-level programmer analysts and related positions. The associate of applied science degree in information systems offers an integrated program of study designed to prepare professionals with skills that are equally applicable to the different hardware platforms: microcomputer, mainframe computer or minicomputer. With its emphasis on practical experience and on currency in the areas of software and curriculum, the program has much to offer the information systems professional who wishes to upgrade or broaden his or her knowledge of the field.

The associate of applied science degree is awarded for successful completion of 69 or 70 credit hours.

## Associate of Applied Science Degree

Prior to admission to the information systems program, the student must take the following prerequisite or have taken an equivalent transfer course:

CIS	134	Programming Fundamentals.....	4
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### Required Courses

#### First Semester

CS	200	Concepts of Programming Algorithms Using C++*.....	4
or			
CS	205	Concepts of Programming Algorithms Using Java*.....	4
CIM	133	Screen Design*.....	4
ACCT	121	Accounting I.....	3
ENGL	121	Composition I*.....	3
MATH	171	College Algebra*.....	3
or			
Any Precalculus/Calculus Course*.....			3
TOTAL CREDIT HOURS.....			17

#### Second Semester

Level One Programming Language

	Option.....	4
CS 210	Discrete Structures I*.....	3
CIS 162	Database Programming*.....	4
CIS 242	Intro to System Design and Analysis*.....	3
SPD 125	Personal Communication.....	3
	or	
ENGL 123	Technical Writing I*.....	3
	TOTAL CREDIT HOURS.....	17

### Third Semester

	Level Two Programming Language	
	Option.....	4
CIS 258	Operating Systems*.....	3
	or	
CIS 204	Unix Operating System*.....	3
	CIS Elective.....	3
	Humanities/Art Elective.....	3
	Social Science and/or Economic Electives.....	3
	Health and/or Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	17

### Fourth Semester

	Level Three Programming Language	
	Option.....	4
CIS 264	Application Development and Programming*.....	4
CIS 260	Database Management*.....	4
CIS 262	Project Management*.....	3
	CIS Elective.....	3
	TOTAL CREDIT HOURS.....	18
	TOTAL PROGRAM CREDIT HOURS.....	69

Each student should select one option area from the following list.

All three levels of programming language must be from the same option area.

#### Level One Programming Language Options:

##### Option in C++:

CIS 235	Object-oriented Programming Using C++*.....	4
	or	
CS 250	Basic Data Structures Using C++*.....	4

##### Option in COBOL:

CIS 148	COBOL I*.....	4
CIS 140	Editor for COBOL*.....	1

##### Option in JAVA:

CS 255	Basic Data Structures Using Java*.....	4
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##### Option in VISUAL BASIC:

CIS 138	Visual Basic.Net*.....	4
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#### Level Two Programming Language Options:

##### Option in C++:

CIS 235	Object-oriented Programming Using C++*.....	4
	or	
CS 250	Basic Structures Using C++*.....	4

##### Option in COBOL:

CIS 248	COBOL II*.....	4
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##### Option in JAVA:

CIS 240	Advanced Topics in Java I*.....	4
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##### Option in VISUAL BASIC:

CIS 238 Visual Basic Intermediate Topics\*.....4

Level Three Programming Language Options:

Option in C++:

CIS 269 GUI Programming\*.....4

Option in COBOL:

CIS 253 CICS.....4

Option in JAVA:

CIS 280 Advanced Topics in Java II\*.....4

Option in VISUAL BASIC:

CIS 277 Active Server Pages.Net\*.....4

Six to eight hours of computer information systems electives are to be selected from the following list:

CS 200 Concepts of Programming Algorithms Using C++\*.....4

CS 201 Concepts of Programming Algorithms Using C#\*.....4

CS 205 Concepts of Programming Algorithms Using Java\*.....4

CS 250 Basic Data Structures Using C++\*.....4

CS 255 Basic Data Structures Using Java\*.....4

CS 211 Discrete Structures II\*.....3

CIS 138 Visual Basic.Net\*^.....4

CIS 145 Assembler Language for Microcomputers\*.....4

CIS 148 COBOL I\*^.....4

CIS 150 Assembler Language I\*.....4

CIS 204 Unix Operating Systems\*^.....3

CIS 206 Programming in PERL\*.....4

CIS 215 OS/VS Job Control Language\*.....3

CIS 235 Object-oriented Programming Using C++\*.....4

CIS 238 Visual Basic Intermediate Topics\*.....4

CIS 240 Advanced Topics in Java I\*.....4

CIS 243 Object-oriented Analysis and Design\*^.....4

CIS 244 Advanced Topics in C++\*.....4

CIS 248 COBOL II\*.....4

CIS 253 CICS\*.....4

CIS 254 Unix System Administration\*.....4

CIS 258 Operating Systems\*^.....3

CIS 269 GUI Programming\*.....4

CIS 270 Information Systems Internship\*^.....3

CIS 275 Web-enabled Database Programming\*.....4

CIS 277 Active Server Pages.Net\*.....4

CIS 280 Advanced Topics in Java II\*.....4

CFOR 150 Introduction to Computer Forensics\*.....3

IT 200 Networking Technologies.....3

IT 210 Network Administration.....3

\*Prerequisite/Corequisite required  
^ recommended electives

## Construction Management Certificate

The construction management certificate is a two-semester program designed to address the management training needs of supervisors in the construction industry. Necessary management skills include construction methods, estimating and management; personnel supervision; business management; and financial and data management. Construction management practices are directed toward those encountered by small- to medium-sized contractors.

## Vocational Certificate

### First Semester

DRAF 129 Interpreting Architectural Drawings.....2

CET 105	Construction Methods.....	3
ACCT 111	Small Business Accounting.....	3
	or	
ACCT 121	Accounting I.....	3
BUS 140	Principles of Supervision.....	3
MATH 120	Business Math or higher*.....	3
	TOTAL CREDIT HOURS.....	14

## Second Semester

CET 125	Construction Specifications*.....	2
CET 127	Construction Estimating*.....	3
CET 129	Construction Management.....	3
	Management Electives.....	4
	Computer Electives.....	3
	TOTAL CREDIT HOURS.....	15
	TOTAL PROGRAM CREDIT HOURS.....	29

## (Approved Management Electives)

BUS 141	Principles of Management.....	3
BUS 145	Small Business Management.....	3
BUS 243	Personnel Management.....	3
BUS 261	Business Law I.....	3
BUSE 131	Financial Management for Small Business*.....	2
BUSE 160	Legal Issues for Small Business.....	2

## (Approved Computer Electives)

CPCA 105	Introduction to Personal Computers: Win.....	1
CPCA 108	Word Processing on Microcomputers I*.....	1
CPCA 110	Spreadsheets on Microcomputers I*.....	1
CPCA 114	Databases on Microcomputers I*.....	1
CPCA 121	Introduction to Project Management*.....	1
CPCA 128	Personal Computer Applications.....	3
CPCA 138	Windows for Microcomputers*.....	1

\*Prerequisite/Corequisite required

# Cosmetology Certificate

The field of cosmetology relies on creative people who use their ability to visualize shapes and forms for hair design and personal care. Cosmetologists need manual dexterity, an understanding of chemistry and superior client communication skills. This program provides theory and skill development in shampooing, cutting, shaping, curling and coloring hair, as well as manicuring and esthetics.

Employment opportunities are available in beauty salons, department stores, health care and hotel facilities. Entrepreneurship opportunities are also available for cosmetologists who choose to pursue this pathway. Additional employment choices include nail artist, complexion care, cosmetic or beauty supply sales and services, manufacturing technician and color chemist.

Enrollment is limited in the program. Admission requires an interview, testing and a physical examination. Contact the salon at 913-469-8500, ext. 4723 or 2390, for additional information.

# Area Vocational School Certificate

1500 contact hours

AVCO 110 Introduction to Cosmetology

AVCO 112 Clinical Cosmetology

AVCO 114 Advanced Cosmetology\*

\*Prerequisite/Corequisite required

# Cardiopulmonary Resuscitation

Designed for healthcare workers



# Area Vocational School Certificate

8 contact hours  
AVHO 110 CPR for Health Care Providers

## CRT-RRT Transition, AAS

This curriculum is designed to meet the educational needs of currently certified respiratory therapists who seek to become registry eligible. The prerequisite courses must be completed prior to enrolling for any required respiratory course work. However, candidates are encouraged to apply before the prerequisites are completed and seek counsel regarding course credit that may be possible through the Prior Learning Assessment evaluation process, which is based on prior respiratory care training and work experiences. Prospective students are encouraged to contact JCCC program personnel at 913-469-2583 for additional information and application materials.

## Associate of Applied Science Degree

### CRT-RRT Transition Curriculum Requirements

#### Prerequisites

CHEM 122	Principles of Chemistry.....	5
ENGL 121	Composition I*.....	3
MATH 116	Intermediate Algebra or Higher Math Course*.....	3
PSCI 120	Physical Science (or a Physics course w/a lab).....	4
BIOL 140	Human Anatomy.....	4
BIOL 225	Human Physiology*.....	4
BIOL 230	Microbiology Lecture*.....	3
BIOL 231	Microbiology Lab*.....	2
	Social Science Elective.....	3
	Communications Elective.....	3
	Humanities Elective.....	3
	TOTAL CREDIT HOURS.....	37

The courses preceded by an "^" indicate that course credit may be possible through Prior Learning Assessment evaluation

#### Respiratory Care Course Requirements:

RC 125	^Beginning Principles of Respiratory Care*.....	4
RC 130	^Respiratory Care Equipment*.....	4
RC 135	^Cardiopulmonary Medicine I*.....	1
RC 220	^Clinical Cardiopulmonary Physiology*.....	2
RC 230	^Clinical Topics and Procedures I*.....	4
RC 235	^Cardiopulmonary Medicine II*.....	2
RC 236	^Cardiopulmonary Medicine III*.....	2
RC 240	^Cardiopulmonary Pharmacology*.....	2
RC 271	^Clinical Practice I*.....	6
EMS 121	^Basic Rescuer - CPR.....	1
RC 233	Respiratory Care of Children*.....	2
RC 245	RRT Clinical Topics and Procedures*.....	4
RC 274	RRT Clinical Practice Transition*.....	4
	TOTAL CREDIT HOURS.....	36
	TOTAL PROGRAM CREDIT HOURS.....	73

\* Prerequisite/Corequisite required

Note: Metropolitan Community College students should seek specific counsel through PVCC counselors or the JCCC academic director for appropriate course plans and numbers.

## Database Certificate

Completion of this certificate, offered through the computer information systems program, will help to prepare students for future careers as database specialists or for one of many other information systems careers in which knowledge of database concepts, products and technologies is important. Students will be able to design and build personal databases using Access. The student

will acquire a strong foundational knowledge in an object-oriented programming language (Visual Basic) and will work with Web-enabled databases, SQL and other database products, as well as attaining formal systems analysis and design skills.

## Vocational Certificate

Prior to admission in the database vocational certificate program the student must take the following prerequisite or have taken an equivalent transfer course:

CPCA 105 Introduction to Personal Computers: Win.....1

### First Semester

CIS 134 Programming Fundamentals.....4  
 CPCA 114 Databases on Microcomputers I\*.....1  
 CPCA 115 Databases on Microcomputers II\*.....2  
 CPCA 141 Internet I\*.....1  
 TOTAL CREDIT HOURS.....8

### Second Semester

CPCA 138 Windows for Microcomputers\*.....1  
 CIS 138 Visual Basic.Net\*.....4  
 CWEB 135 Web Databases I using Access\*.....1  
 CWEB 145 Web Databases II using Access\*.....1  
 CPCA 117 Databases on Microcomputers III\*.....1  
 TOTAL CREDIT HOURS.....8

### Third Semester

CIS 238 Visual Basic Intermediate Topics\*.....4  
 CIS 162 Database Programming\*.....4  
 TOTAL CREDIT HOURS.....8

### Fourth Semester

CIS 260 Database Management\*.....4  
 CIS 242 Introduction to Systems Design and Analysis\*.....3  
 TOTAL CREDIT HOURS.....7  
 TOTAL PROGRAM CREDIT HOURS.....31

\*Prerequisite/Corequisite required

## Dental Assisting Certificate

One of the most exciting features of a dental assistant career is the variety of work experiences you'll have, including working chair-side with dentists, taking radiographs, mixing dental materials, performing laboratory procedures, taking dental impressions, creating models, and fabricating bleaching trays and mouth guards. The demand for dental assistants and other professionals that dentists rely on to serve patients has increased dramatically.

The dental assistant program has accreditation from the American Dental Association (ADA), Commission on Dental Accreditation. Graduating from an ADA-accredited dental assisting program allows you to take the Dental Assisting National Board examination without the two years of full-time work experience that would otherwise be required.

JCCC offers the cooperative dental assisting certificate program for Johnson County residents with Penn Valley Community College. You must be accepted into the program at both JCCC and Penn Valley Community College. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the certificate-granting institution. Contact Penn Valley Community College at 816-759-4231 for an application packet, which includes deadlines, program prerequisites and admission requirements.

## Vocational Certificate

**(Specific Program Requirements-must be taken at JCCC)**

ENGL 121	Composition I*	3
PSYC 130	Introduction to Psychology	3
SPD 121	Public Speaking	3

**(Specific Program Requirements taken at Penn Valley)**

KDA 100	Developmental Dentistry*	3
KDA 105	Dental Laboratory Procedures*	2
KDA 110	Chairside Assisting I*	5
KDA 115	Dental Radiology*	3
KDA 125	Clinical Practice I*	2
KDA 126	Dental Assistant Seminar I*	1
KDA 200	Body Structure and Function*	2
KDA 205	Dental Biomaterials*	2
KDA 210	Chairside Assisting II*	2
KDA 215	Dental Radiology II*	1
KDA 225	Dental Office Management*	2
KDA 250	Clinical Practice II*	4
KDA 260	Dental Assistant Seminar II*	1
	TOTAL PROGRAM CREDIT HOURS	39

\*Prerequisite/Corequisite required

## Dental Hygiene, A.A.S.

A key member of the professional dental team, the licensed dental hygienist is on the "front line" of patient care, responsible for providing educational, clinical and therapeutic services that promote total health through good oral health. The growing public awareness of the benefits of oral health, combined with the growth of corporate dental plans, has significantly increased the demand for dental care and has made dental hygiene one of the country's fastest-growing careers. The demand for dental hygienists is expected to grow 48 percent by 2006. Competitive salaries and flexible work schedules are added benefits. Students in JCCC's dental hygiene program prepare for careers as preventive dental professionals who have a choice of working in a variety of settings. Graduates get jobs in school systems, nursing homes and dental supply firms, as well as private dental offices.

Fully accredited by the American Dental Association Commission on Dental Accreditation, this 79-credit-hour program requires four semesters and one summer session of full-time study. Successful completion leads to an associate of applied science degree. All dental hygiene students gain important practical experience working in JCCC's state-of-the-art clinical facility under the supervision of licensed dental hygienists and dentists.

Enrollment is limited. The deadline for fall semester applications is Feb. 1. For an application, call the dental hygiene program at 913-469-3808. The program Web site is <http://www.jccc.net/home/depts/001253>.

## Associate of Applied Science Degree

Before beginning clinical courses

CHEM 122	Principles of Chemistry	5
ENGL 121	Composition I*	3
SOC 122	Introduction to Sociology	3
PSYC 130	Introduction to Psychology	3
BIOL 230	Microbiology*	3
	TOTAL CREDIT HOURS	17

Note: CHEM 122 or BIOL 230 and one of the other prerequisites must be completed by Feb 1.

### First Semester

DHYG 121	Clinical Dental Hygiene I:Preclinic*	5
DHYG 125	Developmental Dentistry*	2
DHYG 135	Dental Materials*	2
BIOL 146	General/Head and Neck Anatomy*	4

TOTAL CREDIT HOURS.....13

**Second Semester**

DHYG 140 Clinical Dental Hygiene II\*.....4  
DHYG 142 Dental Radiology\*.....2  
DHYG 146 Periodontics\*.....3  
DHYG 148 Dental Health Education\*.....2  
BIOL 225 Human Physiology\*.....4  
TOTAL CREDIT HOURS.....15

**Summer**

BIOL 235 General Nutrition\*.....3  
(corequisite: BIOL 225)  
Humanities Elective.....3  
Mathematics Elective.....3  
TOTAL CREDIT HOURS.....9

**Third Semester**

DHYG 221 Clinical Dental Hygiene III\*.....6  
DHYG 225 Pathology\*.....3  
DHYG 230 Dental Therapeutics\*.....3  
DHYG 240 Community Dental Health\*.....2  
TOTAL CREDIT HOURS.....14

**Fourth Semester**

DHYG 245 Nitrous Oxide Analgesia\*.....1  
DHYG 250 Clinical Dental Hygiene IV\*.....6  
SPD 120 Interpersonal Communication.....3  
or  
SPD 121 Public Speaking.....3  
or  
SPD 125 Personal Communication.....3  
Health and/or Physical Education Elective.....1  
TOTAL CREDIT HOURS.....11  
TOTAL PROGRAM  
CREDIT HOURS.....79

\*Prerequisite/Corequisite required

**Desktop Publishing Certificate**

Individuals with or without a college degree whose goal is to acquire or improve their personal desktop computer application skills will accomplish that goal in this program. Emphasis is on acquiring results-oriented career business and industry skills. The program is intended for those seeking entry-level positions as well as those currently employed who want to enhance their job skills. It provides current employers or prospective employers tangible evidence of computer competency. Application courses for the certificate are based on a combination of the Windows and Macintosh operating environments. Students will be encouraged to develop a cross-platform mastery.

**Vocational Certificate**

**Required Courses**

CPCA 105 Introduction to Personal Computing: Win.....1  
CPCA 106 Introduction to Personal Computing: Mac.....1  
CPCA 134 Managing Your Macintosh\*.....1  
or  
CPCA 138 Windows for Microcomputers\*.....1  
CPCA 123 Presentation Graphics: PowerPoint\*.....1  
CDTP 135 Desktop Photo Manipulation I: Photoshop\*.....1  
CDTP 155 Desktop Photo Manipulation II: Photoshop\*.....1

CDTP 145	Desktop Illustration I: Illustrator*	1
CDTP 165	Desktop Illustration II: Illustrator*	1

Select six courses of the following eleven:

CDTP 140	Desktop Publishing I: InDesign*	1
CDTP 160	Desktop Publishing II: InDesign*	1
CDTP 131	Desktop Publishing I: QuarkXPress*	1
CDTP 151	Desktop Publishing II: QuarkXPress*	1
CDTP 171	Desktop Publishing III: QuarkXPress*	1
CDTP 175	Desktop Photo Manipulation III: Photoshop*	1
CDTP 180	Photoshop for the Web: Image Ready*	1
CDTP 185	Desktop Illustration III: Illustrator*	1
CPCA 108	Word Processing on Microcomputers I*	1
CPCA 125	Word Processing on Microcomputers II*	1
CPCA 134	Managing Your Macintosh*	1
	or	
CPCA 138	Windows for Microcomputers*	1
	TOTAL PROGRAM CREDIT HOURS	14

\*Prerequisite/Corequisite required

## Early Childhood Education, A.S.

The Early Childhood Education associate's degree program is for those students who currently are employed or aspire to work in early childhood care and education programs. Completion of JCCC's associate of science degree program provides students the credentials to advance in quality early childhood care and education settings. The program has three areas of specialization: administration, care and education of young children with special needs, and infant/toddler care, and education. Credits will transfer to most Kansas universities. Excellent practical education opportunities are available to students in the program.

Prerequisite

Students must meet the requirements for employment in early childhood care and education centers in Kansas (stated in the Kansas Licensing Regulations for Preschools and Child Care Centers).

## Associate of Science Degree

### First Semester

EDUC 130	Foundations of Early Childhood Education	3
ENGL 121	Composition I*	3
	Math **	3
PSYC 130	Introduction to Psychology	3
SPD 121	Public Speaking	3
	TOTAL CREDIT HOURS	15

### Second Semester

EDUC 131	Early Childhood Curriculum I*	3
EDUC 250	Child Health, Safety, Nutrition	3
	Health/Physical Education**	1
	Science course with Lab***	4
PSYC 215	Child Development*	3
	or	
PSYC 218	Human Development*	3
	TOTAL CREDIT HOURS	14

### Summer

ENGL 122	Composition II*	3
	Humanities Elective	3
	TOTAL CREDIT HOURS	6

### Third Semester

EDUC 231	Early Childhood Curriculum II*	3
EDUC 210	Creative Experiences for Young Children*	3
EDUC 260	Observing & Interacting w/ Young Children*	3
ANTH 130	World Cultures	3
	or	
ANTH 125	Cultural Anthropology	3
	or	
SOC 131	Marriage and Family	3
	Science or Math	3
	TOTAL CREDIT HOURS	15

### Fourth Semester

EDUC 235	Parenting*	2
EDUC 284	Seminar: Early Childhood*	3
EDUC 285	Internship: Early Childhood*	3
	Humanities Elective	3
	Specialization courses	6
	TOTAL CREDIT HOURS	17
	TOTAL PROGRAM CREDIT HOURS	69

### (Area of Specialization) select one

#### (Child Care Administration)

ACCT 121	Accounting I	3
EDUC 280	Administration of Early Childhood Programs	3

#### (Children with Special Needs)

EDUC 220	Survey of the Exceptional Child	3
EDUC 215	Young Children with Special Needs	3

#### (Infant and Toddler Care and Education)

EDUC 270	Early Childhood Development	3
EDUC 225	Infant and Toddler Education and Care*	3

#### (School-age Programs)

EDUC 240	School-age Programs and Curriculum I*	3
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\*Prerequisite/Corequisite required

#### (^Recommended Math course information)

The mathematics requirement will be satisfied by any mathematics course except MATH 111, Fundamentals of Mathematics, and MATH 115, Introduction to Algebra.

Specific recommended course

MATH 171	College Algebra*	3
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#### (\*\*Recommended HPER course, if not certified in CPR)

HPER 200	First Aid/CPR	2
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#### (\*\*\*Recommended courses for the science requirement)

#### Life Science

BIOL 122	Principles of Biology Lecture	3
BIOL 123	Principles of Biology Lab*	1
BIOL 130	Environmental Science Lecture	3
BIOL 131	Environmental Science Lab*	1

## Physical Science

ASTR 122	Astronomy.....	4
GEOS 130	General Geology.....	5
GEOS 140	Physical Geography Lecture.....	3
GEOS 141	Physical Geography Lab*.....	2
PSCI 120	Physical Science.....	4

## Early Childhood Education Certificate

This certificate is for students seeking employment in early childhood care and education programs and for current early childhood care and education teachers/administrators who want to upgrade their skills and increase their knowledge in this area of study. The program does not need to be completed in one year.

Students must be first aid/CPR certified to receive the early childhood education certificate. The first aid/CPR certification may be obtained through agencies such as The Midwest WholeChild Development Group or your local hospital; you may also enroll in HPER 200 first aid/CPR at JCCC. Students must meet the requirements for employment in early childhood care and education centers in Kansas (stated in the Kansas Licensing Regulations for Preschool and Child Care Centers).

## Postsecondary Certificate

### First Semester

EDUC 130	Foundations of Early Childhood Education.....	3
EDUC 131	Early Childhood Curriculum I*.....	3
EDUC 270	Early Childhood Development.....	3
ENGL 121	Composition I*.....	3
SPD 120	Interpersonal Communications**.....	3
	or	
SPD 121	Public Speaking.....	3
	TOTAL CREDIT HOURS.....	15

### Summer Session

EDUC 210	Creative Experiences for Young Children*.....	3
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### Second Semester

EDUC 231	Early Childhood Curriculum II*.....	3
EDUC 250	Child Health, Safety and Nutrition.....	3
MATH 120	Business Math*.....	3
EDUC 235	Parenting*.....	2

### (Select one of the following courses:)

EDUC 205	Concepts in Early Childhood Education*^.....	3
EDUC 240	School-age Programs Curriculum I*.....	3
EDUC 280	Administration of Early Childhood Programs.....	3
EDUC 215	Young Children with Special Needs.....	3
EDUC 225	Infant and Toddler Education and Care*.....	3
	TOTAL CREDIT HOURS.....	14
	TOTAL PROGRAM CREDIT HOURS.....	32

\*Prerequisite/Corequisite required

\*\*Course is not considered credit in the associate of science early childhood education degree program.

^Course is not considered credit in associate of science early childhood education degree program. Credit for experience is available.

# Electrical Technology, A.A.S.

The use of electrical technology in residential, commercial and industrial applications continues to grow rapidly. Electricians install and maintain electrical systems for a variety of purposes, including lighting, appliances, climate control, security and communications.

JCCC offers a 64-credit-hour associate of applied science degree program and a 28-credit-hour vocational certificate program. Both programs emphasize hands-on training integrated with a knowledge of theory and study of the National Electrical Code that prepares students to take a national licensure exam.

The associate of applied science degree program prepares students to enter the electrical trade in four types of electrical occupations: residential, commercial, industrial and maintenance. The program also prepares students for continued education in electrical contracting/management, electrical design and industrial/electronic controls.

## Associate of Applied Science Degree

### First Semester

ELTE 122	National Electrical Code I.....	4
ELTE 125	Residential Wiring Methods*.....	4
ELTE 123	Electromechanical Systems.....	4
INDT 125	Industrial Safety.....	3
	TOTAL CREDIT HOURS.....	15

### Second Semester

ELTE 200	Commercial Wiring Methods*.....	4
ENGL 121	Composition I*.....	3
MATH 133	Technical Mathematics I*.....	4
PCPA 105	Introduction to Personal Computers: Win.....	1
	Related Electives.....	4
	TOTAL CREDIT HOURS.....	16

### Third Semester

DRAF 129	Interpreting Architectural Drawings.....	2
ELTE 205	Industrial Electrical Wiring.....	4
ELTE 210	Code Certification Review.....	3
ELTE 271	Electrical Internship I.....	3
HPER 200	First Aid/CPR.....	2
	Social Science and/or Economics Elective.....	3
	TOTAL CREDIT HOURS.....	17

### Fourth Semester

ENGL 123	Technical Writing I.....	3
ELTE 215	Generators, Transformers and Motors.....	4
CET 105	Construction Methods.....	3
	Humanities Elective.....	3
	Related Electives.....	3
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

### Related Electives

ELTE 291	Independent Study*.....	1
PCPA 128	Personal Computer Applications.....	3
DRAF 120	Introduction to Drafting.....	2
DRAF 130	Introduction to CAD Concepts: AUTOCAD.....	3
DRAF 250	Electrical Drafting.....	3
ELEC 120	Introduction to Electronics.....	3
ELEC 125	Digital Electronics I.....	3
ELEC 131	Introduction to Sensors and Actuators.....	3
ELEC 133	Programmable Controllers.....	3
ELEC 165	Advanced Programmable Controllers*.....	3
ELEC 185	LAN Cabling and Installation.....	3



HVAC 121	Basic Principles of HVAC.....	4
INDT 155	Workplace Skills.....	1
MFAB 121	Introduction to Welding.....	4
BUS 140	Principles of Supervision.....	3
BUS 145	Small Business Management.....	3
BUSE 142	FastTrac Business Plan.....	3
PHYS 125	Technical Physics I.....	4
RRT 165	Railroad Safety, Quality and Environment.....	3

\*Prerequisite/Corequisite required

## Electrical Technology Certificate

The electrical technology vocational certificate program is a one-year program that students can complete in two semesters. Designed to give students the basic skills to gain employment as a construction or maintenance electrician, the curriculum includes an internship with local employers.

### Vocational Certificate

#### First Semester

ELTE 122	National Electrical Code I.....	4
ELTE 125	Residential Wiring Methods*.....	4
ELTE 123	Electromechanical Systems.....	4
INDT 125	Industrial Safety.....	3
	TOTAL CREDIT HOURS.....	15

#### Second Semester

ELTE 200	Commercial Wiring Methods*.....	4
ELTE 210	Code Certification Review*.....	3
ELTE 271	Electrical Internship I*.....	3
	Technical Electives.....	3
	TOTAL CREDIT HOURS.....	13
	TOTAL PROGRAM CREDIT HOURS.....	28

#### Technical Electives

ELTE 205	Industrial Electrical Wiring*.....	4
ELTE 291	Independent Study*.....	1
ELTE 215	Generators, Transformers and Motors*.....	4
ELEC 185	LAN Cabling and Installation.....	3
CET 105	Construction Methods.....	3
DRAF 120	Introduction to Drafting.....	2
DRAF 129	Interpreting Architectural Drawings.....	2
ELEC 120	Introduction to Electronics.....	3
ELEC 124	Microcomputer Hardware.....	3
ELEC 125	Digital Electronics I.....	3
ELEC 131	Introduction to Sensors and Actuators.....	3
ELEC 133	Programmable Controllers.....	3
ELEC 165	Advanced Programmable Controllers*.....	3
HVAC 121	Basic Principles of HVAC*.....	4
INDT 155	Workplace Skills.....	1
MFAB 121	Introduction to Welding.....	4

\*Prerequisite/Corequisite required

## Electrical Technology/Industrial Maintenance Option, A.A.S.

Industrial maintenance requires people employed in the field to be trained in a variety of areas, including welding, electricity, HVAC, gasoline or diesel engines, and generators. Often, the needs will change due to growth in a company or the expansion of services provided. This degree option will allow a student to choose from numerous courses to custom build a program that will fit the needs of an employer. It will also allow students employed in an industrial maintenance position to

broaden their skill areas and achieve an associate of applied science degree.

# Associate of Applied Science Degree

## First Semester

DRAF 129	Interpreting Architectural Drawings.....	2
	or	
MFAB 180	Blueprint and Symbols Reading for Welders.....	2
	or	
HVAC 143	Reading Blueprints and Ladder Diagrams.....	2
ENGL 121	Composition I*.....	3
INDT 125	Industrial Safety.....	3
HVAC 123	Electromechanical Systems.....	4
MATH 133	Technical Mathematics I*.....	4
	TOTAL CREDIT HOURS.....	16

## Second Semester

CPCA 128	Personal Computer Applications.....	3
ELTE 122	National Electrical Code I.....	4
ENGL 123	Technical Writing I*.....	3
INDT 155	Workplace Skills.....	1
	Technical Electives.....	5
	TOTAL CREDIT HOURS.....	16

## Third Semester

ECON 130	Basic Economic Issues.....	3
MFAB 121	Introduction to Welding.....	4
	or	
MFAB 127	Welding Processes.....	2
SPD 120	Interpersonal Communications.....	3
	Related Electives.....	3
	Technical Electives.....	3
	TOTAL CREDIT HOURS.....	16

## Fourth Semester

EMS 121	CPR I-Basic Life Support Health Care Provider.....	1
	Humanities Elective.....	3
	Related Electives.....	3
	Technical Electives.....	9
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

## Technical Electives

AUTO 165	Automotive Engine Repair*.....	4
AUTO 210	Advanced Engine Repair*.....	3
CET 105	Construction Methods.....	3
ELEC 120	Introduction to Electronics.....	4
ELEC 133	Programmable Controllers.....	3
ELEC 165	Advanced Programmable Controllers*.....	3
ELTE 200	Commercial Wiring Methods*.....	4
ELTE 205	Industrial Electrical Wiring*.....	4
ELTE 271	Electrical Internship I*.....	3
HVAC 150	Refrigerant Management and Certification.....	1
HVAC 121	Basic Principles of HVAC*.....	4
HVAC 146	Plumbing Systems Applications.....	3
HVAC 221	Commercial Systems: Air Conditioning*.....	4
HVAC 223	Commercial Systems: Heating*.....	4
HVAC 271	HVAC Internship*.....	3
MFAB 125	Advanced Gas and Arc Welding*.....	4
MFAB 170	Basic Machine Tool Processes.....	4
MFAB 240	Metallurgy.....	2
MFAB 140	Maintenance Repair Welding*.....	3

MFAB 271	Metal Fabrication Internship*	3
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## Related Electives

BUS 140	Principles of Supervision	3
BUS 141	Principles of Management	3
CET 129	Construction Management	3
CET 140	Civil Engineering Materials*	3
	(must take concurrent with Math 133)	
CPCA 105	Introduction to Personal Computers: Win	1
CPCA 121	Introduction to Project Management*	1
CPCA 141	Internet I*	1
IT 200	Networking Technologies	3

\*Prerequisite/Corequisite required

## Electronics Technology, A.A.S.

Electronics technology influences almost every aspect of modern life. Skilled electronics technicians are needed to support growth in this industry. These technicians must be able to fabricate, test, install, operate and maintain highly technical systems such as communications systems, computers and computer networks, and industrial process control systems. The program focuses on the underlying principles of electronic devices, circuit analysis and digital electronics and will provide a broad systems view of electronics.

Students in the electronics program will work with outstanding facilities and the latest laboratory equipment. Graduates of the program will have the opportunity for employment in one of today's most challenging and exciting career fields.

Program graduates also have the opportunity to pursue a baccalaureate degree (B.S.E.E.T.) in electronics engineering technology through the transfer of JCCC electronics technology and other courses to participating four-year institutions. Students contemplating this option should seek early counseling and prepare a program plan with specific course selections in anticipation of four-year institution requirements. Students should be prepared to enroll in higher-level math and physics courses when compared with current electronics technology program requirements.

Students who are transferring to JCCC with significant numbers of electronic technology credits should be aware that at least 9 credit hours of approved electronic technology courses must be completed at JCCC before the A.A.S. degree will be awarded. In addition, because of changes in technology, students who desire to graduate using electronics technology courses completed more than seven years ago should seek counseling regarding the current relevance of those courses.

## Associate of Applied Science Degree

### First Semester

ELEC 120	Introduction to Electronics	3
ELEC 124	Microcomputer Hardware	3
ELEC 125	Digital Electronics I	4
MATH 133	Technical Mathematics I (or higher)*	4
ENGL 121	Composition I*	3
	TOTAL CREDIT HOURS	17

### Second Semester

ELEC 122	Circuit Analysis I*	3
ELEC 225	Digital Electronics II*	3
MATH 134	Technical Mathematics II (or higher)*	5
SPD 125	Personal Communications	3
	Humanities Elective	3
	TOTAL CREDIT HOURS	17

### Third Semester

ELEC 130	Electronic Devices I*	4
ELEC 140	Circuit Analysis II*	3
ELEC 175	Telecommunications*	3
ENGL 123	Technical Writing I*	3

Social Science/Economics Elective.....	3
TOTAL CREDIT HOURS.....	16

**Fourth Semester**

ELEC 230	Electronic Devices II*.....	3
ELEC 240	Electronic Communication Systems*.....	4
ELEC 245	Microprocessors*.....	3
PHYS 125	Technical Physics I (or higher)*.....	4
	Health and/or Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	15
	TOTAL PROGRAM CREDIT HOURS.....	65

\*Prerequisite/Corequisite required

**Emergency Medical Science, A.A.S.**

People who work in the field of emergency medical science (EMS) often enter people’s lives during critical times of illness and injury. Their ability to act knowledgeably, compassionately, quickly and calmly can stabilize chaotic, frightening situations.

JCCC offers three progressively intensive options for learning the skills of emergency medical science. All three options prepare you for state certification examinations.

JCCC’s financial aid program includes scholarships, grants and loans if you are eligible. Financial aid is particularly important in the MICT program, since long hours usually prohibit you from holding a full-time job.

**EMS First Responder Course**

EMS first responder students receive classroom and skills training in cardiopulmonary resuscitation (CPR), patient assessment, and fracture and airway management. This class is recommended for:

- people without a medical background who wish to enter the EMT program
- anyone who wishes to learn basics of emergency medical care
- firefighters, police officers, lifeguards and others from agencies involved in public safety
- employees involved in company safety programs

Students successfully completing this course will be allowed to sit for the certification examination administered by the Kansas Board of Emergency Medical Services.

The EMS First Responder class is offered as the need arises – in general, once each semester.

EMS 128	EMS First Responder.....	5
	TOTAL CREDIT HOURS.....	5

**Emergency Medical Technician Course**

This program is designed for individuals interested in providing medical care to patients in the pre-hospital setting. It will provide the participants with opportunities to gain information, skills and attitudes necessary for certification and practice as an emergency medical technician (EMT) in the state of Kansas.

The program has been approved by the Kansas Board of Emergency Medical Services. It addresses information and techniques currently considered to be the responsibility of the EMT, according to the United States Department of Transportation, National Standard Curriculum. The program consists of lecture instruction, practical skill training and clinical experience.

Classroom instruction includes anatomy, physiology, recognition and care of actual medical emergencies and trauma-related injuries. Skills in performing CPR, bandaging, splinting, childbirth techniques and other emergency care procedures are taught. An extrication session will give students hands-on experience with auto accident situations and provide the opportunity to observe an air evacuation of a patient. Upon instructor recommendation, students will participate in a clinical observation in a hospital setting. Additionally, students will arrange to participate as an observer with a local EMS service. Students participate in seven hours of lecture and two hours of lab a week. Students are also required to attend approximately two Saturday classes lasting between four and eight hours each. Saturday dates and times will be announced during the first class session.

Students successfully completing this course will be allowed to sit for the certification examinations administered by the Kansas Board of Emergency Medical Services.

**Prerequisites**

EMS 128 or equivalent, or be an active member in a health-related occupation (firefighter, rescue,

ambulance, law enforcement, industrial first-aid personnel or other health-related field), or attained the minimum of an associate's degree.

EMS 130 Emergency Medical Technician Course.....9

TOTAL PROGRAM CREDIT HOURS.....9

### **EMT Practicum**

EMT Practicum is designed to give the EMT-B, recently certified or those with limited field experience, the additional skills and confidence needed to successfully compete for a position as an EMT-B with an EMS service. Skills will include ambulance operation, driving, map reading, insurance billing and unit maintenance. This course will also provide high-fidelity scenario training in all aspects of the EMS call, as well as extensive field lab time with a local EMS service.

Students will become directly involved in their own training by leading and participating in realistic medical emergency scenarios with "actors" playing life-like patients and bystanders. Numerous field internship shifts on a licensed ambulance are part of the training. Students will work through all phases of an ambulance call. They will be presented with complex patient-care situations that require the development of critical thinking and decision-making skills. Students will be tested on their ability to lead a team of pre-hospital caregivers in the diagnosis, proper treatment and evacuation of a patient. Scenario simulations will be set up to be as life-like as possible.

### **Prerequisite**

EMS 130 EMT-B or equivalent and a copy of current EMT-B card

EMS 133 EMT Practicum.....3

TOTAL PROGRAM CREDIT HOURS.....3

### **Mobile Intensive Care Technician (Paramedic) Program**

This advanced emergency medical care program consists of four courses, including a clinical rotation in a hospital setting and a field internship with an ambulance service. You learn emergency procedures such as cardiac monitoring and defibrillation and the administration of medications and IV fluids. Successful completion of this program and subsequent certification exams will enable graduates to work as skilled paramedics and to provide sophisticated, advanced pre-hospital life support.

JCCC's MICT program is fully accredited by the Committee on Accreditation of Educational Programs for the EMS Professions (CoAEMSP). If you are interested, contact the Admissions office for an application packet, which includes deadlines, admission requirements and options for meeting academic criteria.

This is a selective admission program with limited enrollment. If you are accepted into the program, you take classes in the spring, summer and fall, completing the program in December.

Students successfully completing this program will be allowed to sit for the certification examinations administered by the Kansas Board of Emergency Medical Services.

## **Associate of Applied Science Degree**

### **(Prior to beginning professional courses)**

Successful completion of an EMT course and successful completion of the following courses:

BIOL 144	Human Anatomy and Physiology.....	5
	or	
BIOL 140	Human Anatomy.....	4
	and	
BIOL 225	Human Physiology*.....	4
ENGL 121	Composition I*.....	3
SOC 125	Social Problems.....	3
	or	
	Social Science/Economics Elective.....	3
PHIL 143	Ethics.....	3
	or	
	Humanities Elective.....	3
	Health/Physical Education Elective.....	1
	Electives.....	2
	{depending on which science	
	class(es) are taken}	
	TOTAL GENERAL EDUCATION	
	CREDIT HOURS.....	17

## First Semester

EMS 220	MICT I*	10
EMS 225	MICT II*	10
	TOTAL CREDIT HOURS	20

## Second Semester

EMS 230	MICT III (Clinicals)*	12
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## Third Semester

EMS 271	MICT IV (Field Internship)*	15
	TOTAL PROFESSIONAL CREDIT HOURS	47
	TOTAL PROGRAM CREDIT HOURS	64

\*Prerequisite/Corequisite required

# Emergency Medical Technician Certificate

## Vocational Certificate

EMS 130	Emergency Medical Technician*	9
	TOTAL PROGRAM CREDIT HOURS	9

\*Prerequisite/Corequisite required

# Engineered Plumbing Systems Certificate

This certificate is designed to address the needs of engineers and technicians in the plumbing design industry. Successful completion of this certificate will help the student prepare for the Certified in Plumbing Engineering (CIPE) examination.

## Vocational Certificate

### First Semester

CET 120	Engineered Plumbing Systems I	3
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### Second Semester

CET 122	Engineered Plumbing Systems II	3
CET 270	Fluid Mechanics*	3
	TOTAL PROGRAM CREDIT HOURS	9

\*Prerequisite/Corequisite required

# Esthetics Certificate

Theory and skill development in sanitation, skin sciences skin treatments, waxing, makeup, and business practices are offered. Upon completion of this program, students are prepared for the Kansas State Board of Cosmetology for Estheticians licensure written and practical exams. Admission requires an interview, testing and a physical examination. Contact the salon at 913-469-8500, ext. 4721 or 2390, for additional information.

## Area Vocational School Certificate

650 contact hours  
AVCO 118 Esthetics

# Fashion Design, A.A.S.

Rome, Paris, New York and Tokyo are centers of the fashion world. In today's fast-paced fashion market, these cities aren't that far ahead of your local shopping mall. Fashion is on the move -- in New York, Paris and Johnson County.

At JCCC, the fashion curriculum is designed to prepare you for a career in retail management, retail sales, apparel and textile design, promotion, display, illustration, and representative positions.

The program includes professional courses in merchandising, design, apparel construction, management, visual merchandising, creative selling and merchandise evaluation. To complement your education, you will also study important basic subjects such as business math, English, economics and marketing.

An associate of applied science degree is awarded after successful completion of the 64-credit-hour curriculum in fashion merchandising or fashion design. The program also offers an 18-credit-hour certificate in visual merchandising. Seminars in career options and industry topics are available. Required work-study internships in the fashion business of your choice will give you experience in technical, creative and merchandising skills and make you more marketable in the industry.

With an associate's degree or certificate, you'll be ready to apply your energy and creativity in an industry that rewards both. Or, if you prefer to continue your education, you can complete a bachelor's degree through a transfer program to a college or university.

## Associate of Applied Science Degree

### First Semester

FASH 121	Fashion Fundamentals.....	3
FASH 123	Apparel Construction I.....	4
FASH 135	Image Management.....	1
FASH 220	CAD Apparel Design.....	3
FASH 277	Fashion Seminar: Career Options.....	2
ENGL 121	Composition I*.....	3
	TOTAL CREDIT HOURS.....	16

### Second Semester

FASH 124	Apparel Construction II*.....	4
FASH 130	Fashion Illustration I.....	3
FASH 150	Textiles.....	3
FASH 224	History of Costume.....	3
	Health and/or Physical Education Elective.....	1
	Fashion Elective.....	3
	TOTAL CREDIT HOURS.....	17

### Third Semester

FASH 127	CAD: Pattern Design I.....	4
	or	
FASH 140	Garment Design I*.....	3
FASH 283	Fashion Internship I.....	1
MATH 120	Business Math or higher*.....	3
	Fashion Electives.....	3
	Elective.....	4
	TOTAL CREDIT HOURS.....	15

### Fourth Semester

FASH 242	Consumer Product Evaluation.....	3
FASH 280	Capstone: Industry Topics*.....	3
FASH 284	Fashion Internship II.....	1
BUS 150	Business Communications*.....	3
	Humanities Electives.....	3
	Social Science and/or Economics Elective.....	3
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	64

## (Suggested Fashion Electives)

FASH 128	CAD: Pattern Design II*	4
FASH 143	Tailoring*	4
FASH 230	Fashion Illustration II*	3
FASH 268	Field Study: The Market Center*	3
BUS 225	Human Relations	3
MKT 134	Creative Retail Selling	3

\*Prerequisite/Corequisite required

## Fashion Merchandising, A.A.S.

Rome, Paris, New York and Tokyo are centers of the fashion world. In today's fast-paced fashion market, these cities aren't that far ahead of your local shopping mall. Fashion is on the move -- in New York, Paris and Johnson County.

At JCCC, the fashion curriculum is designed to prepare you for a career in retail management, retail sales, apparel and textile design, promotion, display, illustration, and representative positions.

The program includes professional courses in merchandising, design, apparel construction, management, visual merchandising, creative selling and merchandise evaluation. To complement your education, you will also study important basic subjects such as business math, English, economics and marketing.

An associate of applied science degree is awarded after successful completion of the 64-credit-hour curriculum in fashion merchandising or fashion design. The program also offers an 18-credit-hour certificate in visual merchandising. Seminars in career options and industry topics are available. Required work-study internships in the fashion business of your choice will give you experience in technical, creative and merchandising skills and make you more marketable in the industry.

With an associate's degree or certificate, you'll be ready to apply your energy and creativity in an industry that rewards both. Or, if you prefer to continue your education, you can complete a bachelor's degree through a transfer program to a college or university.

## Associate of Applied Science Degree

### First Semester

FASH 277	Fashion Seminar: Career Options	2
FASH 283	Fashion Internship I	1
FASH 121	Fashion Fundamentals	3
FASH 220	CAD Apparel Design	3
MKT 134	Creative Retail Selling	3
ENGL 121	Composition I*	3
FASH 135	Image Management	1
TOTAL CREDIT HOURS		16

### Second Semester

FASH 242	Consumer Product Evaluation	3
FASH 284	Fashion Internship II	1
Health and/or Physical Education Elective		1
MATH 120	Business Math or higher*	3
FASH 150	Textiles	3
FASH 125	Visual Merchandising	3
BUS 150	Business Communications*	3
TOTAL CREDIT HOURS		17

### Third Semester

BUS 225	Human Relations	3
FASH 285	Fashion Internship III	1
FASH 132	Marketing Communications	3
MKT 121	Retail Management	3
ECON 130	Basic Economic Issues	3
or		
ECON 230	Economics I	3



Electives.....	3
TOTAL CREDIT HOURS.....	16

## Fourth Semester

FASH 286	Fashion Internship IV.....	1
BUS 230	Marketing.....	3
FASH 231	Merchandising Planning and Control*.....	3
FASH 280	Capstone: Industry Topics*.....	3
	Humanities Elective.....	3
	Electives.....	3
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	65

## Recommended Electives

FASH 123	Apparel Construction I.....	4
FASH 130	Fashion Illustration I.....	3
FASH 140	Garment Design I*.....	3
FASH 224	History of Costume.....	3
FASH 268	Field Study:The Market Center*.....	3
	*Prerequisite/Corequisite required	

## Fire Services Administration, A.A.

The goal of the fire science program at Johnson County Community College is to provide comprehensive education and training, specifically designed to:

- Promote the academic and professional development of fire service company-level officers.
- Prepare those seeking employment with fire service agencies of Johnson County. The program serves to provide higher academic education, technical training and lifelong learning for members of Johnson County fire-related organizations and those seeking employment in those organizations.

The fire science program at JCCC, in close cooperation with the Johnson County Fire Chiefs Association and the University of Kansas fire service training program, has developed a degree for advancement in the fire service and for further study toward the baccalaureate degree at a four-year institution, should you elect to pursue your education goals beyond the associate's level.

The program emphasizes general education in addition to technical education and is built around a core of fire science courses carefully selected by the members of the Fire Science Advisory Committee to prepare for your career growth. Technical electives may be pursued through courses available under a continuing cooperative agreement between area fire science programs or through other degree-granting institutions that are accredited by the International Fire Service Accreditation Congress. The transfer of credit from other institutions is governed by JCCC policy. You may fulfill technical education requirements through the advanced standing credit process.

JCCC also offers course work that will prepare you to take the Fire Fighter I and II certification examinations offered by the University of Kansas Fire Service Training program. This course work includes FIRE 175, Essentials of Fire Fighting; EMS 130; HPER 240, Lifetime Fitness I; or equivalent. HPER 240, Lifetime Fitness I, is the prerequisite/corequisite for FIRE 175, Essentials of Fire Fighting.

Note: Mechanisms have been developed to compensate for the effect of students working 24-hour shifts.

## Associate of Arts Degree

### Prerequisite

Prior to admission into any FIRE course, the student must possess an International Fire Service Accreditation Congress certification as a firefighter or be an active member in a fire-related occupation.

### First Semester

ENGL 121	Composition I*	3
BUS 140	Principles of Supervision	3
MATH 171	College Algebra (equivalent or higher)*	3
FIRE 162	Fire Tactics and Strategy	3
	Social Science Elective	3
	Health and/or Physical Education Elective	1
	TOTAL CREDIT HOURS	16

## Second Semester

ENGL 122	Composition II*	3
BUS 141	Principles of Management	3
FIRE 224	Incident Command Systems	3
	Humanities Elective	3
	Physical Science, with lab	4
	TOTAL CREDIT HOURS	16

## Third Semester

FIRE 135	Building and Fire Codes	3
FIRE 130	Fire Investigation	1
FIRE 222	Fire Law	3
	Technical Electives	3
	Oral Communication	3
	Science and/or Math Elective	3
	TOTAL CREDIT HOURS	16

## Fourth Semester

FIRE 220	Fire Administration	3
FIRE 250	Instructional Methods	3
	Technical Electives	4
	Humanities Electives	3
	Social Science Elective	3
	TOTAL CREDIT HOURS	16
	TOTAL PROGRAM CREDIT HOURS	64

## Technical Electives

FIRE 175	Essentials of Fire Fighting*	9
EMS 128	EMS First Responder	5
EMS 130	Emergency Medical Technician*	9
EMS 220	MICT I*	10
EMS 225	MICT II*	10
CS 200	Concepts of Programming Algorithms (C++)*	4
CS 205	Concepts of Program Algorithms Using Java*	4
CS 210	Discrete Structures I*	3
CIS 162	Database Programming*	4
CIS 242	Systems Design and Analysis*	3
CIS 243	Object-oriented Analysis and Design*	4
CIS 258	Operating Systems*	3
CIS 204	UNIX OS and Perl*	3
BUS 120	Management Attitudes and Motivation	3
BUS 121	Introduction to Business	3
BUS 145	Small Business Management	3
BUS 150	Business Communications*	3
BUS 225	Human Relations	3
BUS 230	Marketing	3
BUS 243	Human Resource Management	3
BUS 261	Business Law I	3

\*Prerequisite/Corequisite required

## Food and Beverage Management, A.A.S.

The hospitality management program at JCCC is a comprehensive study of the food service and public lodging industries. The program is accredited by the American Culinary Federation

Educational Institute Accrediting Commission.

The JCCC food and beverage management program prepares graduates to enter restaurant, club or food service management as a trainee or assistant manager. Courses in the 65-credit-hour program include supervisory management, hospitality accounting, hospitality law, food management, design techniques and advanced hospitality management. In addition, students learn food preparation skills through courses in basic and intermediate food preparation, menu planning, purchasing, nutrition and beverage control. Individuals considering this field should enjoy a very active environment and a lot of contact with people.

## Associate of Applied Science Degree

### First Semester

HMGT 121	Hospitality Management Fundamentals.....	3
HMGT 123	Basic Food Preparation.....	3
ENGL 121	Composition I*.....	3
HMGT 271	Seminar in Hospitality Management: Purchasing.....	3
MATH 120	Business Math or higher*.....	3
CPCL 105	Introduction to Personal Computing:Win.....	1
	or	
CPCL 106	Introduction to Personal Computing:Mac.....	1
	TOTAL CREDIT HOURS.....	16

### Second Semester

HMGT 230	Intermediate Food Preparation*.....	3
HMGT 128	Supervisory Management.....	3
HMGT 273	Seminar in Hospitality Management: Accounting*.....	3
PSYC 121	Applied Psychology.....	3
	or	
PSYC 130	Introduction to Psychology.....	3
HMEC 151	Nutrition and Meal Planning.....	3
	TOTAL CREDIT HOURS.....	15

### Summer

HMGT 275	Seminar in Hospitality Management: Internship.....	3
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### Third Semester

HMGT 277	Seminar in Hospitality Management: Menu Planning Sales Promo*.....	3
HMGT 145	Food Production Specialties*.....	3
HMGT 221	Design Techniques*.....	3
HMGT 279	Beverage Control.....	3
HMGT 130	Hospitality Law.....	3
	TOTAL CREDIT HOURS.....	15

### Fourth Semester

HMGT 126	Food Management*.....	4
HMGT 228	Advanced Hospitality Management*.....	3
HMGT 250	Introduction to Catering.....	3
SPD 120	Interpersonal Communication.....	3
	or	
SPD 125	Personal Communication.....	3
	Humanities Requirement.....	3
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	65

\*Prerequisite/Corequisite required

## Food and Beverage Management Certificate

The food and beverage management certificate program is a one-year program that students can complete in two semesters. Designed to give students basic skills hospitality industry employers are seeking for entry-level positions, the program includes an internship, which allows the student to gain actual experience with local employers.

## Postsecondary Certificate

ENGL 121	Composition I*.....	3
HMG1 121	Hospitality Management Fundamentals.....	3
HMG1 123	Basic Food Preparation.....	3
HMG1 126	Food Management*.....	4
HMG1 128	Supervisory Management.....	3
HMG1 230	Intermediate Foods*.....	3
HMG1 271	Seminar in Hospitality Management: Purchasing.....	3
HMG1 273	Seminar in Hospitality Management: Accounting*.....	3
HMG1 275	Seminar in Hospitality Management: Internship.....	3
MATH 120	Business Math*.....	3
	TOTAL CREDIT HOURS.....	31

\*Prerequisite/Corequisite required

## Grounds and Turf Management

The program offers training in professional grounds management and golf course management, providing a study of soils, fertilizers, grasses, trees and pesticide application procedures. The program also prepares grounds professionals to take the state of Kansas pesticide applicator's exam.

The JCCC grounds and turf management program is a cooperative program with Longview Community College for Johnson County residents leading to a certificate and/or an associate of applied science degree. You must be accepted by both JCCC and Longview to be admitted to this program. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact Longview Community College at 816-672-2364 for an application packet, which includes deadlines, admission requirements and options for meeting academic criteria.

## Associate of Applied Science Degree

Degree granted by Longview Community College

### (General Education Requirements-must can be taken at JCCC)

ECON 130	Basic Economic Issues.....	3
ENGL 121	Composition I*.....	3
MATH 120	Business Math*.....	3
HPER 190	Golf.....	1
PSYC 130	Introduction to Psychology.....	3
SPD 121	Public Speaking.....	3

### American Institutions

HIST 140	U.S. History to 1877.....	3
	or	
HIST 141	U.S. History since 1877.....	3
	or	
POLS 122	Political Science.....	3
	or	
POLS 124	American National Government.....	3
	or	
POLS 126	State and Local Government.....	3
SOSC 153	Readings in Social Science-Missouri Constitutions (must take at MCC).....	1

### **(Specific Program Requirements-must be taken at JCCC)**

BIOL 125	General Botany.....	5
CHEM 122	Principles of Chemistry.....	5
HORT 120	Introduction to Urban Agribusiness.....	3
HORT 130	Landscape Design and Maintenance.....	3
HORT 140	Turfgrass Management I.....	3
HORT 214	Woody Plants I, Deciduous.....	3
HORT 255	Landscape Pest Control.....	3

### **(Specific Program Requirements-must be taken at Longview)**

KAGB 115	Soil Fertility and Fertilizers.....	3
KAGB 145	Irrigation and Installation.....	3
BIOL 202	Ecology.....	5

### **(9 Hours from the courses listed below:)**

May be taken at JCCC

HORT 215	Woody Plants II, Evergreens^.....	3
	or	
HORT 220	Herbaceous Plants.....	3
HORT 240	Turfgrass Management II*^.....	3
	^may be taken at JCCC and/or Longview	

Must be taken at Longview

KAGB 151	Special Topics in Horticulture I.....	3
KAGB 152	Special Topics in Horticulture II.....	3
KAGB 153	Special Topics in Horticulture III.....	3
KAGB 200	Occupational Internship.....	3
KAGB 206	Advanced Landscape Design*.....	3
	TOTAL PROGRAM CREDIT HOURS.....	64

\*Prerequisite/Corequisite required

## **Health Information Technology**

A health information technician has the technical skills needed to maintain the components of health information systems consistent with the medical, administrative, ethical, legal accreditation and regulatory requirements of the health care delivery system. Area hospitals and a variety of other health facilities in the community offer field experience in all procedures performed by the health information technician. When the 69-credit-hour program has been completed and the associate of applied science degree obtained, you will be eligible to take the accreditation examination of the American Association of Health Information Management.

Health information technology is a cooperative program between JCCC and Penn Valley Community College for Johnson County residents. You must be accepted into the program by both JCCC and Penn Valley. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact Penn Valley Community College at 816-759-4231 for an application packet, which includes deadlines, program prerequisites and admission requirements.

## **Associate of Applied Science Degree**

Degree granted by Penn Valley Community College

### **(General Education Requirements-must be taken at JCCC)**

BIOL 144	Human Anatomy and Physiology.....	5
BIOL 227	Human Pathophysiology*.....	4
ENGL 121	Composition I*.....	3
SPD 121	Public Speaking.....	3
PSYC 130	-Intro to Psych (strongly recommended).....	3

### **American Institutions**

HIST 140	U.S. History to 1877.....	3
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	or		
HIST 141	U.S. History since 1877.....	3	
	or		
POLS 122	Political Science.....	3	
	or		
POLS 124	American National Government.....	3	
	or		
POLS 126	State and Local Government.....	3	
SOSC 153	Readings in Social Science-Missouri Constitutions (must take at MCC).....	1	

**(Specific Program Requirements-must be taken at JCCC)**

BOT 155	Word Processing Applications I*.....	2	
CIS 124	Intro Computer/Concepts and Applications.....	3	
	or		
CPCA 110	Spreadsheet on Microcomputers I*.....	1	
	and		
CPCA 114	Databases on Microcomputers I*.....	1	
	and		
CPCA 141	Internet I*.....	1	

**(Specific Program Requirements-must be taken at Penn Valley)**

KMRT 101	Intro to the Medical Records Profession.....	2	
KMRT 102	Health Record Systems, Analysis/Control.....	3	
KMRT 103	Medical Terminology for Medical Records.....	3	
KMRT 106	Health Statistics.....	3	
KMRT 108	Legal Aspects of Medical Records.....	2	
KMRT 109	Directed Practice I.....	2	
KMRT 110	Pharmacology.....	1	
KMRT 111	Intro Medical Insurance & Office Procedure.....	1	
KMRT 200	Intro to Classification Systems*.....	1	
KMRT 201	Quality Management.....	3	
KMRT 202	Class Syst, Nomenclatures, Indexes & Regis I.....	4	
KMRT 203	Directed Practice II.....	2	
KMRT 206	Specialized Health Records Systems.....	2	
KMRT 207	Class Syst, Nomenclatures, Indexes & Regis II.....	3	
KMRT 208	Directed Practice III.....	2	
KMRT 210	Class Syst and Nomenclatures Ambulatory Care*.....	3	
KMRT 211	Organization & Administration in Health Info.....	3	
	TOTAL PROGRAM CREDIT HOURS.....	69	

\*Prerequisite/Corequisite required

## Home Health Aide Certificate

Home health care services are in demand, and continued growth in employment opportunities is expected into the next century. Home health aides may be required to provide support services for all age levels in the home setting. This 21-hour course will provide you with information necessary for nutritional meal planning, task modification, emotional support and personal services to clients and families needing health care assistance at home.

Enrollees for home health aide training must show proof of certification as a Kansas CNA and complete a reading comprehension exam/assessment prior to admission. The HHA course includes a practicum with local home health agencies. Completers will be scheduled to take the Kansas HHA certification examination.

## Area Vocational School Certificate

21 contact hours

AVHO 106 Home Health Aide\*

\*Prerequisite/Corequisite required

## Horticulture Certificate

Programs in some career areas are made available by means of cooperative agreements with other educational institutions. These cooperative agreements have resulted in the sharing of programming, curriculum and staffing in the greater Kansas City area and have promoted increased economies of operations for cooperating institutions. The horticultural certificate program is a cooperative program with the Metropolitan Community Colleges.

The 30-credit-hour certificate granted by Johnson County Community College is a certificate program designed to prepare students for a career in the "greening industry." Upon completion of this certificate, students will possess the competencies to be successful at entry-level or higher positions in landscape design and maintenance, lawn care, garden centers and nurseries, wholesale greenhouse growers, and greenhouse operations and other related occupations.

## Vocational Certificate

### First Semester

HORT 214	Woody Plants I, Deciduous.....	3
HORT 220	Herbaceous Plants.....	3
	TOTAL CREDIT HOURS.....	6

### Second Semester

HORT 215	Woody Plants II, Evergreens.....	3
HORT 225	Plant Problems*.....	3
HORT 130	Landscape Design and Maintenance.....	3
	TOTAL CREDIT HOURS.....	9

### Third Semester

HORT 230	Landscape Maintenance Techniques*.....	4
HORT 140	Turf Management I.....	3
	TOTAL CREDIT HOURS.....	7

### Fourth Semester

HORT 150	Fruits, Vegetables and Herb Crops.....	2
HORT 160	Garden Center Operations.....	3
BUS 145	Small Business Management.....	3
	TOTAL CREDIT HOURS.....	8
	TOTAL PROGRAM CREDIT HOURS.....	30

\*Prerequisite/Corequisite required

## Hotel & Motel Management, A.A.S.

The hospitality management program at JCCC is a comprehensive study of the food service and public lodging industries. The program is accredited by the American Culinary Federation Educational Institute Accrediting Commission.

The JCCC hotel/motel management program prepares the graduate to enter hotel/motel management, usually as a trainee or department supervisor. Courses in supervisory management, hotel accounting, hotel sales and marketing, and advanced hospitality management provide a comprehensive management background. In addition the students learn basic skills through courses in housekeeping, front office management, basic and intermediate food preparation, and beverage control.

Individuals considering this field should enjoy a very active environment and a lot of contact with people.

## Associate of Applied Science Degree

### First Semester

HMG T 121	Hospitality Management Fundamentals.....	3
HMG T 123	Basic Food Preparation.....	3
HMEC 151	Nutrition and Meal Planning.....	3
PCPA 105	Introduction to Personal Computing:Win.....	1

	or		
CPCA 106	Introduction to Personal Computing:Mac.....	1	
ENGL 121	Composition I*.....	3	
HMG 132	Seminar in Housekeeping.....	3	
	TOTAL CREDIT HOURS.....	16	

## Second Semester

HMG 271	Seminar in Hospitality Management: Purchasing.....	3	
HMG 230	Intermediate Food Preparation*.....	3	
HMG 265	Front Office Management.....	3	
MATH 120	Business Math or higher*.....	3	
HMG 128	Supervisory Management.....	3	
	TOTAL CREDIT HOURS.....	15	

## Summer

HMG 275	Seminar in Hospitality Management: Internship.....	3	
SPD 120	Interpersonal Communication.....	3	
	or		
SPD 125	Personal Communication.....	3	
	TOTAL CREDIT HOURS.....	6	

## Third Semester

HMG 273	Seminar in Hospitality Management: Accounting*.....	3	
HMG 203	Hotel Sales and Marketing*.....	3	
PSYC 121	Applied Psychology.....	3	
	or		
PSYC 130	Introduction to Psychology.....	3	
HMG 279	Beverage Control.....	3	
HMG 145	Food Production Specialties*.....	3	
	TOTAL CREDIT HOURS.....	15	

## Fourth Semester

HMG 126	Food Management*.....	4	
HMG 228	Advanced Hospitality Management*.....	3	
HMG 130	Hospitality Law.....	3	
	Humanities Requirement.....	3	
HMG 268	Hotel Accounting*.....	3	
	TOTAL CREDIT HOURS.....	16	
	TOTAL PROGRAM CREDIT HOURS.....	68	

\*Prerequisite/Corequisite required

# HVAC Commercial Service Technician, A.A.S.

Modern residential, commercial, institutional and manufacturing operations depend on carefully monitored temperature conditions and well-trained installation and service technicians. Government researchers say graduates of training programs that emphasize hands-on experience will have a definite advantage when seeking employment in heating, ventilation and air conditioning technology. JCCC provides you the opportunity to work on actual equipment while pursuing a degree or certificate program. The 64-credit-hour associate of applied science degree program focuses on developing an awareness of basic mathematical and scientific principles. The curriculum is concerned with the manner by which these principles affect the control of temperature and the quality of air, design, testing, installation and development of heating and cooling systems.

If you select the commercial maintenance technician degree, you will learn the special emphasis is on energy conservation through computer management. The theory of operation as well as installation, service and repair of rooftop air conditioners, cooling towers, steam boilers and commercial systems air conditioning are part of the curriculum. In addition to the 31 core hours, the following courses are required for the A.A.S. degree, facilities maintenance technician option.



# Associate of Applied Science Degree

## First Semester

HVAC 121	Basic Principles of HVAC*	4
HVAC 123	Electromechanical Systems	4
HVAC 143	Reading Blueprint and Ladder Diagrams	2
HVAC 155	Workplace Skills	1
INDT 125	Industrial Safety	3
ENGL 121	Composition I*	3
EMS 121	CPR I-Basic Life Support Healthcare Provider	1
	TOTAL CREDIT HOURS	18

## Second Semester

HVAC 146	Plumbing Systems Applications	3
HVAC 150	Refrigerant Management/Certification	1
HVAC 167	Sheet Metal Layout & Fabrication	3
HVAC 221	Commercial Systems:Air Conditioning*	4
HVAC 231	HVAC Rooftop Units*	3
	TOTAL CREDIT HOURS	14

## Third Semester

MATH 133	Technical Mathematics I*	4
	Social Science and/or Economic Elective	3
HVAC 223	Commercial Systems: Heating*	4
ELTE 122	National Electrical Code I	4
PCPA 105	Introduction to Personal Computers: Win	1
	TOTAL CREDIT HOURS	16

## Fourth Semester

HVAC 229	Advanced Control Systems*	4
ELTE 205	Industrial Electrical Wiring*	4
	Technical Elective	2
	Humanities Elective	3
	General Education Elective	3
	TOTAL CREDIT HOURS	16
	TOTAL PROGRAM CREDIT HOURS	64

## Technical Electives

HVAC 125	Energy Alternatives	2
HVAC 271	HVAC Internship*	3
HVAC 291	Independent Study	1
ELTE 125	Residential Wiring Methods*	4

## (General Education Electives)

ENGL 123	Technical Writing I*	3
SPD 120	Interpersonal Communication	3

\*Prerequisite/Corequisite required

# HVAC Commercial Service Technician Certificate

The postsecondary certificate program is designed to prepare you for the basic job skills needed to service and maintain heating and air conditioning equipment. Students who elect the facilities maintenance technician certificate option learn the theory of operation and how to service, repair and design rooftop air conditioners, cooling towers, steam boilers and commercial systems air conditioners. This knowledge is reinforced by working on actual equipment in the laboratory. Completion of this program will allow the student to seek employment as a commercial maintenance and service technician in the heating/air conditioning trade.

# Postsecondary Certificate

ENGL 121	Composition I*	3
HVAC 121	Basic Principles of HVAC*	4
HVAC 123	Electromechanical Systems	4
HVAC 143	Reading Blueprint and Ladder Diagrams	2
HVAC 150	Refrigerant Management and Certification	1
HVAC 167	Sheet Metal Layout and Fabrication	3
HVAC 221	Commercial Systems: Air Conditioning*	4
HVAC 223	Commercial Systems: Heating*	4
HVAC 229	Advanced Controls Systems*	4
HVAC 231	HVAC Rooftop Units*	3
INDT 125	Industrial Safety	3
HVAC 155	Workplace Skills	1
MATH 115	Introduction to Algebra*	3
TOTAL PROGRAM CREDIT HOURS		39

\*Prerequisite/Corequisite required

## HVAC Residential Service Technician, A.A.S.

Modern residential, commercial, institutional and manufacturing operations depend on carefully monitored temperature conditions and well-trained installation and service technicians.

Government researchers say graduates of training programs that emphasize hands-on experience will have a definite advantage when seeking employment in heating, ventilation and air conditioning technology. JCCC provides you the opportunity to work on actual equipment while pursuing a degree or certificate program. The 64-credit-hour associate of applied science degree program focuses on developing an awareness of basic mathematical and scientific principles. The curriculum is concerned with the manner by which these principles affect the control of temperature and the quality of air, design, testing, installation and development of heating and cooling systems.

If you select the residential degree, you will learn the theory of operation as well as installation, duct design, service and repair of gas and electric furnaces, heat pumps and central air conditioners. In addition to the 31 core hours, the following courses are required for the A.A.S. degree, residential option.

## Associate of Applied Science Degree

### First Semester

HVAC 121	Basic Principles of HVAC*	4
HVAC 123	Electromechanical Systems	4
HVAC 143	Reading Blueprint and Ladder Diagrams	2
HVAC 155	Workplace Skills	1
INDT 125	Industrial Safety	3
ENGL 121	Composition I*	3
EMS 121	CPR I-Basic Life Support Healthcare Provider	1
TOTAL CREDIT HOURS		18

### Second Semester

HVAC 146	Plumbing Systems Applications	3
HVAC 150	Refrigerant Management and Certification	1
HVAC 137	Residential Systems: Air Conditioning*	4
HVAC 124	Equipment Selection and Duct Design*	4
HVAC 167	Sheet Metal Layout and Fabrication	3
TOTAL CREDIT HOURS		15

### Third Semester

MATH 133	Technical Mathematics I*	4
Social Science and/or Economics Elective		3
HVAC 127	Residential Systems: Heating*	4
HVAC 148	HVAC Installation and Start-up Procedures*	3
Technical Elective		3
TOTAL CREDIT HOURS		17

## Fourth Semester

HVAC 235	Residential Heat Pump Systems*	4
	Humanities Elective	3
	Technical Electives	4
	General Education Elective	3
	TOTAL CREDIT HOURS	14
	TOTAL PROGRAM CREDIT HOURS	64

### (Technical Electives)

AUTO 230	Automotive Heating and Air Conditioning*	3
ELTE 122	National Electrical Code I	4
ELTE 125	Residential Wiring Methods*	4
HVAC 125	Energy Alternatives	2
HVAC 271	HVAC Internship*	3
HVAC 291	Independent Study	1

### (General Education Electives)

ENGL 123	Technical Writing I*	3
SPD 120	Interpersonal Communication	3

\*Prerequisite/Corequisite required

## HVAC Residential Service Technician Certificate

The postsecondary certificate program is designed to prepare you for the basic job skills needed to service residential heating and air conditioning equipment. Students who elect the residential service certificate option learn the theory of operation and how to service, repair and design gas furnaces, central air conditioners, heat pumps and rooftop air conditioning systems. This knowledge is reinforced by working on actual equipment in the laboratory. Completion of this program will allow the student to seek employment as a residential maintenance and service technician in the heating/air conditioning trade.

## Postsecondary Certificate

### Required Courses

ENGL 121	Composition I*	3
HVAC 121	Basic Principles of HVAC*	4
HVAC 123	Electromechanical Systems	4
HVAC 124	Equipment Selection and Duct Design*	4
HVAC 150	Refrigerant Management and Certification	1
HVAC 137	Residential Systems: Air Conditioning*	4
HVAC 127	Residential Systems: Heating*	4
HVAC 235	Residential Heat Pump Systems*	4
HVAC 167	Sheet Metal Layout and Fabrication	3
HVAC 155	Workplace Skills	1
MATH 115	Introduction to Algebra*	3
	Technical Electives	3
	TOTAL PROGRAM CREDIT HOURS	38

### Technical Electives

HVAC 125	Energy Alternatives	2
HVAC 143	Reading Blueprints and Ladder Diagrams	2
HVAC 271	HVAC Internship*	3
HVAC 291	Independent Study	1
CPCA 105	Intro to Personal Computers: Win	1
INDT 125	Industrial Safety	3

\*Prerequisite/Corequisite required

## HVAC Installation Technician Certificate

The heating, ventilation and air conditioning vocational certificate program is a one-year program you can complete in two semesters. The program is designed as a fast track to employment for both new students into the job market and those who have been displaced from their jobs due to changes in the employment market. Upon successful completion of the program, you will be equipped with the entry-level technical skills necessary to enter the job market as an installation technician in the heating/air conditioning trade.

## Vocational Certificate

### Required Courses

HVAC 121	Basic Principles of HVAC*	4
HVAC 123	Electromechanical Systems	4
HVAC 167	Sheet Metal Layout and Fabrication	3
HVAC 155	Workplace Skills	1
INDT 125	Industrial Safety	3
HVAC 148	HVAC Installation and Start-up Procedures*	3
HVAC 146	Plumbing Systems Applications	3
HVAC 143	Reading Blueprint and Ladder Diagrams	2
HVAC 124	Equipment Selection and Duct Design*	4
HVAC 150	Refrigerant Management and Certification	1
	TOTAL PROGRAM CREDIT HOURS	28

\*Prerequisite/Corequisite required

## Industrial Controls Certificate

This certificate is designed to focus on programmable logic controllers and a variety of input and output devices. The certificate is a 9-credit-hour, 3-course sequence involving both the hardware and programming aspects of controllers used in industrial processes. Lectures provide a theoretical basis and laboratory projects offer experience in controller program planning, documentation and troubleshooting.

## Vocational Certificate

### Required Courses

ELEC 131	Introduction to Sensors and Actuators	3
ELEC 133	Programmable Controllers	3
ELEC 165	Advanced Programmable Controllers*	3
	TOTAL PROGRAM CREDIT HOURS	9

\*Prerequisite/Corequisite required

## Electrical Technology/Industrial Maintenance Certificate

Industrial maintenance mechanics are employed in the die-casting, plastics, food processing, printing, precision metal and woodworking industries. The vocational certificate course work includes a broad curriculum of industrial electricity, welding, HVAC and blueprint reading. Emphasis will be hands-on training in the repairing and testing of equipment. This also allows students employed in an industrial maintenance position to broaden their skill areas and achieve a vocational certificate.

## Vocational Certificate

### Required Courses

DRAF 129	Interpreting Architectural Drawings	2
	or	
MFAB 180	Blueprint and Symbols Reading for Welders	2
	or	
HVAC 143	Reading Blueprints and Ladder Diagrams	2
ELTE 123	Electromechanical Systems	4
INDT 125	Industrial Safety	3

MFAB 121	Introduction to Welding.....	4
	or	
MFAB 127	Welding Processes.....	2
	Technical Electives.....	11
	TOTAL PROGRAM CREDIT HOURS.....	24
	CREDIT HOURS.....	24

### Technical Electives

ELEC 120	Introduction to Electronics.....	3
ELEC 133	Programmable Controllers.....	3
ELEC 165	Advanced Programmable Controllers*.....	3
ELTE 122	National Electrical Code I.....	4
ELTE 200	Commercial Wiring Methods*.....	4
ELTE 205	Industrial Electrical Wiring*.....	4
HVAC 121	Basic Principles of HVAC*.....	4
CET 105	Construction Methods.....	3
MFAB 125	Advanced Gas and Arc Welding*.....	4
MFAB 140	Maintenance Repair Welding*.....	3
MFAB 170	Basic Machine Tool Processes.....	4
MFAB 240	Metallurgy.....	2
INDT 155	Workplace Skills.....	1

\*Prerequisite/Corequisite required

## Information Technology, A.A.S.

Information technology connects people, departments and companies for communication purposes. The technology of local area networks gives employees the ability to share and retrieve information at the group level. Combining local area networks with the Internet and telecommunications resources gives employees unlimited intranet access to information throughout the company and beyond. The associate of applied science degree in information technology provides students with a foundation in designing, installing and implementing computer networking resources. Course requirements include network operations and product-specific requirements for Netware, Windows, Unix and Cisco.

## Associate of Applied Science Degree

### First Semester

IT 200	Networking Technologies.....	3
IT 205	Implementing Windows Client.....	3
ELEC 185	LAN Cabling and Installation.....	3
ELEC 124	Microcomputer Hardware.....	3
ENGL 121	Composition I*.....	3
	Health and/or Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	16

### Second Semester

IT 210	Netware Administration*.....	3
IT 221	Windows Server*.....	3
IT 246	Introduction to Routers*.....	3
CPCA 121	Introduction to Project Management*.....	1
MATH 171	College Algebra (or higher)*.....	3
ENGL 122	Composition II*.....	3
	or	
ENGL 123	Technical Writing*.....	3
	TOTAL CREDIT HOURS.....	16

### Third Semester

IT 225	Windows Active Directory Services*.....	3
IT 230	Unix Administration and Networking*.....	3
IT 245	Network Infrastructure*.....	3
CIS 134	Programming Fundamentals.....	4
	Humanities Elective.....	3

TOTAL CREDIT HOURS.....16

### Fourth Semester

IT 250 Networking Seminar\*.....3  
SPD 121 Public Speaking.....3  
or  
SPD 125 Personal Communication.....3  
Social Science and/or Economics Elective.....3  
Technical Elective.....7  
TOTAL CREDIT HOURS.....16  
TOTAL PROGRAM CREDIT HOURS.....64

### Technical Electives

IT 227 SQL Server Administration\*.....3  
IT 247 Introduction to Wide-area Networks\*.....3  
IT 271 Information Technology Internship I\*.....3  
IT 272 Information Technology Internship II\*.....3  
ELEC 120 Introduction to Electronics.....3  
ELEC 150 Introduction to Telecommunications.....3  
ELEC 250 Microcomputer Maintenance\*.....3  
CS 200 Concepts of Programming Algorithms\*.....4  
CIS 138 Visual Basic for Windows\*.....4  
CIS 162 Database Programming: VBA Access\*.....4  
CIS 204 Unix Operating System and PERL\*.....3  
CIS 238 Visual Basic Intermediate Topics\*.....4  
CPCA Any CPCA Course (except CPCA 105 & CPCA 106)  
\*Prerequisite/Corequisite required

## Interactive Media, A.A.S.

The interactive media program provides instruction in the design and development process for different types of interactive media, acquiring and managing assets, the history and theory of communication forms, authoring for interactive media, interface design, and project management. This program is designed to build a common foundation of experience while allowing the student to elect asset and authoring courses as well as general electives that best serve his or her individual needs. Depending on individual choices and talents, students who complete the interactive media program should be prepared for employment in a variety of positions with the interactive media field.

## Associate of Applied Science Degree

### First Semester

ENGL 121 Composition I\*.....3  
CIM 130 Interactive Media Concepts.....2  
CIM 140 Interactive Media Assets\*.....4  
CIM 133 Screen Design\*.....4  
Electives.....3  
TOTAL CREDIT HOURS.....16

### Second Semester

ENGL 140 Writing for Interactive Media\*.....3  
CIM 152 Interactive Authoring I: Authorware\*.....4  
or  
CIM 154 Interactive Authoring I: Director\*.....4  
or  
CIM 156 Interactive Authoring I: Web\*.....4  
CIM 200 Interactive Communication Forms\*.....3  
Humanities Elective.....3  
Asset Elective.....4  
TOTAL CREDIT HOURS.....17

### Third Semester

CIM 230	Interactive Media Development*	4
CIM 250	Interface Design*	4
	Social Science and/or Economic Elective	3
	Asset Elective	4
	Electives	3
	TOTAL CREDIT HOURS	18

### Fourth Semester

CIM 270	Interactive Media Project*	4
CIM 271	Career Preparation*	2
	Science and/or Mathematics	3
	Health and/or Physical Education	1
	Electives	3
	TOTAL CREDIT HOURS	13
	TOTAL PROGRAM CREDIT HOURS	64

### Asset Electives

CIM 135	Digital Imaging and Video*	3
MUS 156	MIDI Music Composition I	3
CIM 152	Interactive Authoring I: Authorware*	4
	or	
CIM 154	Interactive Authoring I: Director*	4
	Note:Whichever course not already taken as a requirement	
	or	
CIM 156	Interactive Authoring I: Web*	4
CIS 162	Database Programming*	4
BUS 141	Principles of Management	3
CIM 235	Advanced Digital Video*	3
CIM 252	Interactive Authoring II: Authorware*	4
CIM 254	Interactive Authoring II: Director*	4

\*Prerequisite/Corequisite required

## Interior Design, A.A.S.

Five options in JCCC's interior design program offer students opportunities to choose a career path from a wide variety of exciting fields. Three associate of applied science degree options -- interior design, interior merchandising and interior entrepreneurship -- offer design, retail and business proprietorship skills. Two certificate programs, the interior products sales certificate and the interior design sales and marketing representative certificate, are available for students who need skills for immediate employment or who want a broader knowledge base for their current employment.

JCCC's program offers courses in interior products, creative retail selling, business management, manual and CAD drafting, and product presentation, combined with a basic curriculum of business math, English and art history. Two required work-study internships help develop technical, creative and business skills.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

## Associate of Applied Science Degree

### First Semester

ITMD 121	Interior Design I	3
DRAF 261	Graphic Communications I for Interior Design	3
ITMD 133	Furniture & Ornament/Antiquity to Renaissance	3
MATH 120	Business Math or higher*	3
ITMD 125	Interior Textiles	3
ENGL 121	Composition I*	3
	TOTAL CREDIT HOURS	18

### Second Semester

ITMD	122	Interior Design II*	3
DRAF	264	CAD: Interior Design*	3
ITMD	132	Interior Products	3
MKT	134	Creative Retail Selling	3
ITMD	231	Furniture & Ornament/Renaiss to 20th Century	3
BUS	150	Business Communications*	3
TOTAL CREDIT HOURS			18

### Third Semester

ITMD	223	Contract Design*	3
ITMD	275	Seminar: Budgeting and Estimating*	2
ITMD	282	Interiors Internship I*	1
ART	180	Introduction to Art History	3
ECON	130	Basic Economic Issues	3
or			
ECON	230	Economics I	3
ITMD	140	Draperies, Treatment and Construction*	1
ITMD	145	Upholstery Construction*	1
ITMD	147	Lighting Design and Planning*	1
TOTAL CREDIT HOURS			15

### Fourth Semester

ITMD	234	Kitchen and Bath: Planning and Design*	3
ITMD	273	Seminar: Practices and Procedures*	2
ITMD	148	History of Asian Furniture and Design	2
ITMD	150	Asian Rugs and Carpets	1
ITMD	284	Interiors Internship II*	1
DRAF	266	Graphic Communications II for Interior Design*	3
ITMD	239	Capstone: Portfolio and Presentation*	2
FASH	135	Image Management	1
or			
ITMD	180	Leadership in Design	1
Health and/or Physical Education Elective			1
TOTAL CREDIT HOURS			15
TOTAL PROGRAM CREDIT HOURS			67

### Recommended Electives

ITMD	127	Elements of Floral Design	1
ITMD	175	Advanced Floral Design*	1
ITMD	250	20th-century Designers	1
ITMD	295	Field Study: Design and Merchandising*	3
ITMD	296	Interior Design:The Orient (travel for credit)	3
*Prerequisite/Corequisite required			

## Interior Design/Sale Representative Manufacturing Certificate

The interior design retail sales/manufacturers representative certificate is a 32-credit-hour program designed for students employed in or seeking positions in the retail or wholesale interior design market.

## Vocational Certificate

### First Semester

ITMD	121	Interior Design I	3
ITMD	125	Interior Textiles	3
ITMD	132	Interior Products	3
MATH	120	Business Math or higher*	3
MKT	134	Creative Retail Selling	3
FASH	135	Image Management	1
ITMD	282	Interiors Internship I*	1



**Second Semester**

MKT 121	Retail Management.....	3
FASH 125	Visual Merchandising.....	3
SPD 120	Interpersonal Communications.....	3
	or	
BUS 225	Human Relations.....	3
ITMD 275	Seminar: Budget and Estimating*.....	2
ITMD 284	Interiors Internship II*.....	1
ITMD	Elective.....	3
	TOTAL CREDIT HOURS.....	15
	TOTAL PROGRAM CREDIT HOURS.....	32

**Recommended Electives**

ITMD 127	Floral Design.....	1
ITMD 140	Draperies, Treatments and Construction*.....	1
ITMD 145	Upholstery Construction*.....	1
ITMD 147	Lighting Design and Planning*.....	1
ITMD 231	Furniture & Ornament/Renaiss to 20th Century.....	3
ITMD 273	Seminar: Practices and Procedures*.....	2

\*Prerequisite/Corequisite required

**Interior Entrepreneurship, A.A.S.**

Five options in JCCC's interior design program offer students opportunities to choose a career path from a wide variety of exciting fields. Three associate of applied science degree options -- interior design, interior merchandising and interior entrepreneurship--offer design, retail and business proprietorship skills. Two certificate programs, the interior products sales certificate and the interior design sales and marketing representative certificate, are available for students who need skills for immediate employment or who want a broader knowledge base for their current employment.

JCCC's program offers courses in interior products, creative retail selling, business management, manual and CAD drafting, and product presentation, combined with a basic curriculum of business math, English and art history. Two required work-study internships help develop technical, creative and business skills.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

**Associate of Applied Science Degree**

**First Semester**

ITMD 121	Interior Design I.....	3
ITMD 133	Furniture & Ornament/Antiquity to Renaissance.....	3
DRAF 261	Graphic Communications for Interior Design.....	3
MATH 120	Business Math or higher*.....	3
ITMD 125	Interior Textiles.....	3
ENGL 121	Composition I*.....	3
	TOTAL CREDIT HOURS.....	18

**Second Semester**

ITMD 122	Interior Design II*.....	3
DRAF 264	CAD:Interior Design*.....	3
ITMD 132	Interior Products.....	3
MKT 134	Creative Retail Selling.....	3
ITMD 231	Furniture & Ornament/Renaiss to 20th Century.....	3
BUS 150	Business Communications*.....	3
	TOTAL CREDIT HOURS.....	18

**Third Semester**

	Interiors Elective.....	3
ITMD 275	Seminar: Budget and Estimating*.....	2
ITMD 282	Interiors Internship I*.....	1
ART 180	Introduction to Art History.....	3
ECON 130	Basic Economic Issues.....	3
	or	
ECON 230	Economics I.....	3
	Business/Business Entrepreneurship/ Marketing Elective.....	3
	TOTAL CREDIT HOURS.....	15

### Fourth Semester

ITMD 234	Kitchen and Bath:Planning and Design*.....	3
	or	
ITMD 223	Contract Design*.....	3
ITMD 273	Seminar: Practices and Procedures*.....	2
ITMD 284	Interiors Internship II*.....	1
	Business/Business Entrepreneurship/ Marketing Electives.....	6
ITMD 239	Capstone: Portfolio and Presentation*.....	2
FASH 135	Image Management.....	1
	or	
ITMD 180	Leadership in Design.....	1
	Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	67

### Recommended Electives

ITMD 127	Elements of Floral Design.....	1
ITMD 295	Field Study: Design and Merchandising*.....	3
ITMD 296	Interior Design:The Orient (travel for credit).....	3
ITMD 140	Draperies, Treatments and Construction*.....	1
ITMD 145	Upholstery Construction*.....	1
ITMD 147	Lighting Design and Planning*.....	1
ITMD 148	History of Asian Furniture and Design.....	2
ITMD 150	Asian Rugs and Carpets.....	1
ITMD 175	Advanced Floral Design*.....	1
ITMD 250	20th-Century Designers.....	1
ACCT 111	Small Business Accounting.....	3
ACCT 121	Accounting I.....	3
BUS 141	Principles of Management.....	3
BUS 145	Small Business Management.....	3
BUS 230	Marketing.....	3
BUSE 131	Financial Management for Small Business*.....	2
BUSE 142	FastTrac Business Plan.....	3
BUSE 160	Legal Issues for Small Business.....	2
MKT 121	Retail Management.....	3
MKT 221	Sales Management*.....	3

\*Prerequisite/Corequisite required

## Interior Merchandising, A.A.S.

Five options in JCCC's interior design program offer students opportunities to choose a career path from a wide variety of exciting fields. Three associate of applied science degree options -- interior design, interior merchandising and interior entrepreneurship -- offer design, retail and business proprietorship skills. Two certificate programs, the interior products sales certificate and the interior design sales and marketing representative certificate, are available for students who need skills for immediate employment or who want a broader knowledge base for their current employment.

JCCC's program offers courses in interior products, creative retail selling, business management, manual and CAD drafting, and product presentation, combined with a basic curriculum of business math, English and art history. Two required work-study internships help develop technical, creative and business skills.

Faculty have worked in the field, which equips them to offer valuable firsthand knowledge of what it takes to succeed.

# Associate of Applied Science Degree

## First Semester

ITMD 121	Interior Design I.....	3
ITMD 133	Furniture & Ornament/Antiquity to Renaissance.....	3
DRAF 261	Graphic Communications for Interior Design.....	3
MATH 120	Business Math or higher*.....	3
ITMD 125	Interior Textiles.....	3
ENGL 121	Composition I*.....	3
	TOTAL CREDIT HOURS.....	18

## Second Semester

ITMD 122	Interior Design II*.....	3
DRAF 264	CAD:Interior Design*.....	3
ITMD 132	Interior Products.....	3
MKT 134	Creative Retail Selling.....	3
ITMD 231	Furniture & Ornament/Renaiss to 20th Century.....	3
BUS 150	Business Communications*.....	3
	TOTAL CREDIT HOURS.....	18

## Third Semester

	Interiors Elective.....	3
ITMD 275	Seminar: Budget and Estimating*.....	2
ITMD 282	Interiors Internship I*.....	1
ART 180	Introduction to Art History.....	3
ECON 130	Basic Economic Issues.....	3
	or	
ECON 230	Economics I.....	3
	Business/Marketing Elective.....	3
	TOTAL CREDIT HOURS.....	15

## Fourth Semester

	Interiors Elective.....	3
ITMD 273	Seminar: Practices and Procedures*.....	2
ITMD 284	Interiors Internship II*.....	1
	Business/Marketing Elective.....	3
FASH 125	Visual Merchandising.....	3
ITMD 239	Capstone: Portfolio and Presentation*.....	2
FASH 135	Image Management.....	1
	or	
ITMD 180	Leadership in Design.....	1
	Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	16
	TOTAL PROGRAM CREDIT HOURS.....	67

## Recommended Electives

ITMD 127	Elements of Floral Design.....	1
ITMD 295	Field Study:Design and Merchandising*.....	3
ITMD 296	Interior Design:The Orient (travel for credit).....	3
ITMD 140	Draperies, Treatments and Construction*.....	1
ITMD 145	Upholstery Construction*.....	1
ITMD 147	Lighting Design and Planning*.....	1
ITMD 148	History of Asian Furniture and Design.....	2
ITMD 150	Asian Rugs and Carpets.....	1
ITMD 175	Advanced Floral Design*.....	1
ITMD 223	Contract Design*.....	3
	or	
ITMD 234	Kitchen and Bath:Planning and Design*.....	3
ITMD 250	20th-Century Designers.....	1
BUS 141	Principles of Management.....	3
BUS 145	Small Business Management.....	3
BUS 230	Marketing.....	3
MKT 121	Retail Management.....	3

MKT 221	Sales Management*	3
*Prerequisite/Corequisite required		

## Interior Products Sales Representative Certificate

The interior products sales representative vocational certificate is a 17-credit-hour program designed for students employed in or seeking positions in the interior design retail market. The required courses are already included in the approved curriculum of the interior design program.

### Vocational Certificate

ITMD 121	Interior Design I	3
ITMD 125	Interior Textiles	3
ITMD 132	Interior Products	3
MATH 120	Business Math or higher*	3
MKT 134	Creative Retail Selling	3
FASH 135	Image Management	1
ITMD 282	Interiors Internship I*	1
TOTAL PROGRAM CREDIT HOURS		17
*Prerequisite/Corequisite required		

## Interpreter Training, A.A.S.

The employment outlook for sign language interpreters is promising. As the population grows, so will the need for interpreters. Another factor in the predicted increase in employment opportunities is the effort many social service agencies, school systems, medical services and industries are making to provide interpreter services.

JCCC's program concentrates on preparing students to provide entry-level interpretation and transliteration for the deaf, hard of hearing and non-deaf communities. During the last semester of the program, students participate in a practicum class in which they interpret under supervision in a variety of situations. Upon successful completion of this program, and a required evaluation, students will earn an associate of applied science degree.

This is a selective admission program with limited enrollment. The deadline for fall semester applications is in the spring. If you are interested, contact the Admissions office for an application packet, which includes prerequisites, deadlines, admission requirements and academic criteria.

## Associate of Applied Science Degree

### First Semester

INTR 125	American Sign Language I*	5
INTR 130	Orientation to Interpreting*	3
INTR 145	Deaf Culture*	3
	Health and/or Physical Educ Elect	1
ENGL 122	Composition II*	3
TOTAL CREDIT HOURS		15

### Second Semester

INTR 132	American Sign Language II*	5
INTR 135	American Sign Language Theory*	3
	Science and/or Math Elective	3
INTR 142	Fingerspelling I*	3
	Social Science and/or Economic Elective	3
TOTAL CREDIT HOURS		17

### Third Semester

INTR 140	American Sign Language III*	5
INTR 250	Interpreting I*	6
INTR 225	Phys & Psycholog Aspects of Interpreting*	2
INTR 242	Fingerspelling II*	2
INTR 181	Interpreter Practicum I*	1

**Fourth Semester**

INTR 230 American Sign Language IV\*.....4  
 INTR 255 Interpreting II\*.....6  
 INTR 281 Interpreter Practicum II\*.....3  
 Humanities Elective.....3  
 TOTAL CREDIT HOURS.....16  
 TOTAL PROGRAM CREDIT HOURS.....64

\*Prerequisite/Corequisite required

**IV Therapy for LPN Certificate**

This 48-hour course is designed to prepare the student for clients who require intravenous fluid therapy. Students are required to have at least one year of experience as a licensed nurse prior to taking this course. This course meets the Kansas requirements for nurses seeking certification in IV therapy.

During this course, you will review basic physiology of the circulatory system and learn principles of site selection for veins appropriate to assess for IV therapy. A pharmacology review will include action, interaction, breakdown and allergic responses to medications commonly administered via the intravenous route.

Equipment and supplies routinely used to initiate and administer IV therapy will be used in instruction. Principles of infection control, correct legal documentation and calculation of infusion rates will be taught.

You will use the laboratory setting to demonstrate the basic skills of initiating intravenous therapy along with a clinical session in a hospital setting. Upon completion of clinical requirements, a written comprehensive examination must be completed to earn IV therapy certification.

**Area Vocational School Certificate**

48 contact hours

AVHO 115 I.V. Therapy for LPNs\*

\*Prerequisite/Corequisite required

**Legal Nurse Consultant Certificate**

A legal nurse consultant (LNC) is a registered nurse who possesses both medical and legal knowledge. The LNC assists members of the legal profession with medical malpractice, personal injury and workers' compensation cases. The LNC functions in two roles: a consulting expert and a testifying expert.

Prior to admission, you must have earned a registered nurse degree and have satisfied JCCC and American Bar Association general education requirements. Students will have fulfilled these general education requirements if they have 18 hours of general education. LNC applicants must also possess a current state license to practice nursing and have completed 2,500 hours of clinical work as a registered nurse.

**Vocational Certificate**

LAW 225 Legal Nurse Consultant Profession\*.....1  
 LAW 121 Introduction to Law.....3  
 or  
 BUS 122 Introduction to Law.....3  
 LAW 131 Legal Research\*.....3  
 LAW 250 Medicolegal Research and Writing\*.....3  
 LAW 260 Personal Injury Law\*.....3  
 LAW 270 Administrative Law\*.....3  
 LAW 271 Legal Ethics, Interviewing and Investigation\*.....3

Note: Students must take one of the following courses:

LAW 140 Alternative Dispute Resolution\*.....3  
 LAW 142 Torts\*.....3

LAW 148	Criminal Law*	3
LAW 152	Real Estate Law*	3
LAW 162	Family Law*	3
LAW 171	Law Office Management*	3
LAW 212	Business Organization*	3
LAW 241	Wills, Trust and Probate*	3
LAW 245	Elder Law*	3
LAW 266	Employment Law*	3
LAW 268	Bankruptcy*	2
TOTAL PROGRAM CREDIT HOURS		22

\*Prerequisite/Corequisite required

## Mainframe Programmer Analyst Certificate

Prior to admission to the mainframe programmer/analyst vocational certificate program, the student must take the following prerequisite or have taken an equivalent transfer course.

### Vocational Certificate

Prerequisite:

CIS 134	Programming Fundamental	4
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### Required Courses

#### First Semester

CIS 140	Editor for COBOL*	1
CIS 148	COBOL I*	4
TOTAL CREDIT HOURS		5

#### Second Semester

CS 200	Concepts of Programming Algorithms Using C++*	4
CIS 242	Introduction to System Design and Analysis*	3
CIS 248	COBOL II*	4
TOTAL CREDIT HOURS		11

#### Third Semester

CIS 253	CICS*	4
CIS 258	Operating Systems*	3
CIS 260	Database Management*	4
PCPA 121	Introduction to Project Management*	1
TOTAL CREDIT HOURS		12
TOTAL PROGRAM CREDIT HOURS		28

\*Prerequisite/Corequisite required

## Marketing and Management, A.A.S.

Merchandising, marketing and management-related fields have recently experienced tremendous growth and expansion in Johnson County. Surveys indicate that few other areas offer greater opportunity to qualified people. In fact, employment of people in this field is expected to increase faster than the average for all occupations nationwide.

JCCC's Marketing and Management program prepares you for jobs in this field. Graduates of JCCC's program are ready for entry-level management or sales positions in retail, wholesale or manufacturing and marketing services.

Through marketing and management courses and in the case studies capstone course, you learn the latest in business trends. You also learn the importance of good customer service and the skills needed to deliver that service. The curriculum reflects current industry standards, including an emphasis on personal computer use, interpersonal communications and human relations.

Because all marketing and management students work at least 15 hours a week each semester in a store or business, you can apply what you learn in the classroom to your job. You also can take

your work experiences back to the classroom for analysis and a greater understanding of the problems businesses face. You acquire basic merchandising information and learn how to work with people. By integrating coursework and on-the-job experience, you are given the knowledge, skills and attitudes necessary to reach your career objectives.

## Associate of Applied Science Degree

### First Semester

BUS	121	Introduction to Business.....	3
BUS	225	Human Relations.....	3
MKT	133	Salesmanship.....	3
		or	
MKT	134	Creative Retail Selling.....	3
ENGL	121	Composition I*.....	3
MATH	120	Business Math or higher*.....	3
MKT	284	Marketing and Management Internship I.....	1
		TOTAL CREDIT HOURS.....	16

### Second Semester

BUS	150	Business Communications*.....	3
BUS	230	Marketing.....	3
MKT	121	Retail Management.....	3
ACCT	121	Accounting I.....	3
		or	
ACCT	111	Small Business Accounting.....	3
CIS	124	Intro to Computing Concepts and Applications.....	3
		and	
		Choose 1 credit hour from CPCA or	
		CDTP courses selections higher than	
		CPCA 105 and CPCA 106	
		or	
		any four 1-credit-hour courses from the	
		CPCA or CDTP course selections	
		Health and/or Physical Education Elective.....	1
MKT	286	Marketing and Management Internship II.....	1
		TOTAL CREDIT HOURS.....	18

### Third Semester

BUS	141	Principles of Management.....	3
MKT	202	Consumer Behavior*.....	3
HUM	122	Introduction to Humanities.....	3
PHIL	138	Business Ethics.....	1
ECON	130	Basic Economic Issues.....	3
		or	
ECON	230	Economics I**.....	3
		or	
ECON	132	Survey of Economics.....	3
MKT	221	Sales Management*.....	3
MKT	288	Marketing and Management Internship III.....	1
		TOTAL CREDIT HOURS.....	17

### Fourth Semester

MKT	234	Services Marketing*.....	3
HIST	141	U.S. History Since 1877.....	3
BUS	261	Business Law I.....	3
AAC	150	Job Search Skills.....	1
MKT	289	Marketing and Management Internship IV.....	1
MKT	290	Capstone: Marketing & Management Case Studies*.....	3
		TOTAL CREDIT HOURS.....	14
		TOTAL PROGRAM	
		CREDIT HOURS.....	65

\*Prerequisite/Corequisite required

\*\*Recommended for students who intend to transfer to a baccalaureate degree program

# Medical Office Assistant Certificate

This certificate program is designed for students who want to work in doctors' offices and hospital offices. This program will provide training for students going into entry-level positions or those upgrading existing skills.

## Vocational Certificate

### Required Courses

AAC	130	Medical Terminology.....	3
BOT	103	Business English.....	3
BOT	110	Skillbuilding I*.....	1
BOT	125	Document Formatting*.....	1
BOT	155	Word Processing Application I*.....	2
BOT	165	Medical Transcription*.....	3
BOT	170	Medical Billing and Coding*.....	3
		TOTAL PROGRAM CREDIT HOURS.....	16
		CREDIT HOURS.....	16

\*Prerequisite/Corequisite required

# Medical Transcription Certificate

The certificate program will prepare the student for entry-level employment as a medical transcriptionist by providing the basic knowledge and skills required to transcribe medical dictation with accuracy and clarity, meet timelines, and apply the principles of professional and ethical conduct.

## Vocational Certificate

BOT	122	Medical Keyboarding*.....	1
BOT	130	Office Systems Concepts.....	3
BOT	155	Word Processing Applications I*.....	2
BOT	255	Word Processing Applications II*.....	2
BOT	103	Business English.....	3
AAC	130	Medical Terminology.....	3
BOT	165	Medical Transcription*.....	3
BOT	270	Advanced Medical Transcription*.....	3
BOT	170	Medical Coding and Billing*.....	3
BOT	220	Pharmacology Terminology*.....	2
BIOL	140	Human Anatomy.....	4
BOT	275	Office Internship I*.....	1
		TOTAL PROGRAM CREDIT HOURS.....	30

\*Prerequisite/Corequisite required

# Metal Fabrication Certificate

The welding/metal fabrication vocational certificate program teaches welding skills in the areas of shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), oxyacetylene welding (OAW) and cutting (OFC), plasma arc cutting (PAC), shielded metal arc welding (SMAW), gas metal arc welding (GMAW), and gas tungsten arc welding (GTAW). The students also will receive training in safety and basic blueprint reading. This should give the student the skills needed to successfully enter the field of welding.

## Vocational Certificate

### Required Courses

INDT	125	Industrial Safety.....	3
MFAB	180	Blueprint and Symbols Reading for Welders.....	2
MFAB	121	Introduction to Welding.....	4
MFAB	125	Advanced Gas and Arc Welding*.....	4

or



MFAB 140	Maintenance Repair Welding*	3
MFAB 130	Gas Metal Arc Welding I	4
MFAB 160	Gas Tungsten Arc Welding*	4
MFAB 230	Gas Metal Arc Welding II*	4
INDT 155	Workplace Skills	1
	TOTAL PROGRAM CREDIT HOURS	25

\*Prerequisite/Corequisite required

## Metal Fabrication Technology, A.A.S.

The welding technology/metal fabrication program provides students the opportunity to learn practical knowledge and skill competencies associated with welding, metal fabrication and related processes. The JCCC welding technology/metal fabrication curriculum is designed to prepare students for various phases and levels of occupational skills. The program also offers currently employed professional welders the opportunity to upgrade their skills by taking advanced welding courses during day and evening schedules. Opportunities for those who wish to become welders, cutters and machine operators should be good through the year 2005, as the number of qualified (certified) welders graduating from technical schools and community colleges is expected to be in balance with the number of job openings. Welding technology/metal fabrication offers the service of two Certified Welding Inspectors (CWIs) for the inspection and testing of welds. JCCC welding technology professors can customize welding programs to provide course materials utilizing processes, materials or welding positions that meet particular company needs.

JCCC provides well-equipped laboratories that enable students to receive instruction in blueprint and symbol reading for welders. The welding technology program consists of individual welding processes that allow students time to master each. After students master the Introduction to Welding course, other welding processes can be selected to meet individual needs. They are oxyacetylene welding (OAW) and cutting (OFC), plasma arc cutting (PAC), shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), gas tungsten arc welding (GTAW), basic machining, metallurgy and allied processes. The program is accredited as an American Welding Society Participating Organization in the Training and Testing of Entry Level Welders. Eligible students may elect to test under AWS QC10 certification guidelines and, if successful, be listed in the AWS National Registry of Entry Level Welders.

## Associate of Applied Science Degree

### First Semester

INDT 125	Industrial Safety	3
MFAB 121	Introduction to Welding	4
ENGL 121	Composition I*	3
MATH 133	Technical Mathematics I*	4
CPCA 105	Introduction to Personal Computers: Win	1
MFAB 180	Blueprint and Symbols Reading for Welders	2
	TOTAL CREDIT HOURS	17

### Second Semester

MFAB 125	Advanced Gas and Arc Welding*	4
	or	
MFAB 140	Maintenance Repair Welding*	3
ENGL 123	Technical Writing I*	3
PHYS 125	Technical Physics I*	4
MFAB 152	Manufacturing Materials and Processes	3
HPER 200	First Aid/CPR	2
INDT 155	Workplace Skills	1
	TOTAL CREDIT HOURS	16

### Third Semester

MFAB 130	Gas Metal Arc Welding I	4
MFAB 170	Basic Machine Tool Processes	4
BUS 140	Principles of Supervision	3
	Social Science Elective	3
	Related Elective	3
	TOTAL CREDIT HOURS	17

## Fourth Semester

MFAB 160	Gas Tungsten Arc Welding*	4
MFAB 240	Metallurgy	2
	Humanities Elective	3
	Related Electives	6
	TOTAL CREDIT HOURS	15
	TOTAL PROGRAM CREDIT HOURS	65

## Related Electives

AUTO 121	Small Engine Service	3
BUS 120	Management Attitudes and Motivation	3
BUS 145	Small Business Management	3
BUSE 142	FastTrac Business Plan	4
CET 105	Construction Methods	3
CIS 124	Intro to Computing Concepts and Applications	3
ELEC 131	Introduction to Sensors and Actuators	3
ELEC 133	Programmable Controllers	3
ENGL 210	Technical Writing II*	3
HVAC 167	Sheet Metal Layout and Fabrication	3
INDT 140	Quality Improvement Using SPC	2
MATH 134	Technical Mathematics II*	5
MFAB 127	Welding Processes	2
MFAB 230	Gas Metal Arc Welding II*	4
MFAB 271	Metal Fabrication Internship*	3
RRT 165	Railroad Safety, Quality and Environment	3

\*Prerequisite/Corequisite required

## Microcomputer Programmer Analyst Certificate

Prior to admission to the microcomputer programmer/analyst vocational certificate program, the student must take the following prerequisite or have taken an equivalent transfer course, have passed the waiver test, or have obtained a waiver from the program administrator.

## Vocational Certificate

Prerequisite:

CIS 134	Programming Fundamentals	4
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## First Semester

CS 200	Concepts of Programming Algorithms Using C++*^	4
	or	
CS 205	Concepts of Programming Algorithms Using Java*~	4
CS 210	Discrete Structures I*	3
CIS 162	Database Programming*	4
	TOTAL CREDIT HOURS	11

## Second Semester

CIS 235	Object-oriented Programming Using C++*^	4
	or	
CS 250	Basic Data Structures Using C++*^	4
	or	
CS 255	Basic Data Structures Using Java*~	4
CIS 242	Introduction to System Design and Analysis*	3
CIS 204	Unix Operating System*	3
	TOTAL CREDIT HOURS	10

## Third Semester

CIS 269	GUI Programming*	4
	or	

CIS	240	Advanced Topics in Java I*	4
CIS	262	Project Management*	3
CIS	260	Database Management*	4
		TOTAL CREDIT HOURS	11
		TOTAL PROGRAM CREDIT HOURS	32

\*Prerequisite/Corequisite required  
 ^ CS 200 students must take either CS 250 or CIS 235  
 ~ CS 205 students must take CS 255

## Microcomputer Technical Support Certificate

The microcomputer technical support vocational certificate is designed to provide an entry-level set of competencies that will allow the recipient to quickly perform satisfactorily in computer system help desk environment. This 6-course sequence will expose the student to significant aspects of computer hardware, computer networks and interconnection computer software, as well as interpersonal skills. Lectures will provide a theoretical foundation of microcomputer performance while a variety of laboratory projects will offer experience in system organization, interconnection and troubleshooting.

### Vocational Certificate

ELEC	124	Microcomputer Hardware	3
CPCA	128	Personal Computer Applications	3
ELEC	185	LAN Cabling and Installation	3
IT	205	Implementing Windows Client	3
ELEC	250	Microcomputer Maintenance*	3
BUS	225	Human Relations	3
		or	
SPD	125	Personal Communication	3
		TOTAL PROGRAM CREDIT HOURS	18

\*Prerequisite/Corequisite required

## Mobile Intensive Care Technician Certificate

Prior to beginning profession courses:

An associate's degree or higher, successful completion of an EMT course, and successful completion of a college-level anatomy/physiology course are required.

### Mobile Intensive Care Technician (Paramedic) Program

This advanced emergency medical care program consists of four courses, including a clinical rotation in a hospital setting and a field internship with an ambulance service. You learn emergency procedures such as cardiac monitoring and defibrillation and the administration of medications and IV fluids. Successful completion of this program and subsequent certification exams will enable graduates to work as skilled paramedics and to provide sophisticated, advanced pre-hospital life support.

JCCC's MICT program is fully accredited by the Committee on Accreditation of Educational Programs for the EMS Professions (CoAEMSP). If you are interested, contact the Admissions office for an application packet, which includes deadlines, admission requirements and options for meeting academic criteria.

This is a selective admission program with limited enrollment. If you are accepted into the program, you take classes in the spring, summer and fall, completing the program in December.

Students successfully completing this program will be allowed to sit for the certification examinations administered by the Kansas Board of Emergency Medical Services.

### Vocational Certificate

#### First Semester

EMS	220	MICT I*	10
EMS	225	MICT II*	10
		TOTAL CREDIT HOURS	20

## Second Session

EMS 230 MICT III (Clinicals)\*.....12

## Third Semester

EMS 271 MICT IV (Field Internship)\*.....15  
TOTAL PROGRAM CREDIT HOURS.....47

\*Prerequisite/Corequisite required

## Multimedia Design Certificate

The multimedia design certificate provides instruction in the design and development process needed to deliver information and media, primarily via CD-ROM and DVD. This includes acquiring and managing assets (text, graphics, sound and video), the history and theory of communication forms, screen design, multimedia authoring, interface design and project management.

Students who complete the multimedia design certificate should be prepared for employment in a variety of positions within the interactive media field. Potential positions in multimedia design include writer/editor/researcher, graphics professional, photography/imaging/video professional, music/audio professional, animator, programmer, information designer, interface designer and/or project manager.

## Vocational Certificate

CIM 130 Interactive Media Concepts.....2  
CIM 140 Interactive Media Assets\*.....4  
CIM 133 Screen Design\*.....4  
CIM 152 Interactive Authoring I:Authorware\*.....4  
or  
CIM 154 Interactive Authoring I:Director\*.....4  
CIM 200 Interactive Communication Forms\*.....3  
CIM 230 Interactive Media Development\*.....4  
CIM 250 Interface Design\*.....4  
CIM 270 Interactive Media Project\*.....4  
TOTAL CREDIT HOURS.....29

\*Prerequisite/Corequisite required

## Nail Technology Certificate

The program provides theory and skill development in artistic application of artificial nail services which includes the application of fiberglass and silk wraps, tips with overlay, sculptured nails, and gels. Pedicures, manicures, and identifying the various diseases and disorders of the nails will also be taught. Upon completion of this program, students are prepared for the Kansas State Board of Cosmetology Onychology licensure written and practical exams. Admission requires an interview, testing and a physical examination. Contact the Salon at 913-469-8500, ext. 6402 or 2390, for additional information.

## Area Vocational School Certificate

350 contact hours  
AVCO 102 Nail Technology

## Network Administration: UNIX Certificate

This certificate is a 24-credit-hour program that students can complete in three semesters. The certificate will provide students with competencies necessary to install, troubleshoot and administer Unix systems in an enterprise environment. These skills are sought in the industry today, with Unix operating systems claiming the majority of new implementations in the enterprise environment.

# Vocational Certificate

IT	200	Networking Technologies.....	3
ELEC	185	LAN Cabling and Installation.....	3
ELEC	124	Microcomputer Hardware.....	3
IT	205	Implementing Windows Client.....	3
IT	230	Unix Administration and Networking*.....	3
IT	231	Unix Administration in the Enterprise*.....	3
		Technical Electives.....	6
		TOTAL CREDIT HOURS.....	24

## Technical Electives

IT	210	Netware Administration*.....	3
IT	221	Windows Server*.....	3
IT	227	SQL Server Administration*.....	3
IT	245	Network Infrastructure*.....	3
IT	246	Introduction to Routers*.....	3
IT	247	Introduction to Wide-area Networks*.....	3
IT	250	Networking Seminar*.....	3
IT	271	Information Technology Internship I*.....	3
IT	272	Information Technology Internship II*.....	3
ELEC	120	Introduction to Electronics.....	3
ELEC	150	Introduction to Telecommunications.....	3
ELEC	250	Microcomputer Maintenance*.....	3
CS	200	Concepts of Programming Algorithms*.....	4
CIS	134	Programming Fundamentals.....	4
CIS	138	Visual Basic for Windows*.....	4
CIS	162	Database Programming: VBA Access*.....	4
CIS	204	Unix Operating System and PERL*.....	3
CIS	238	Visual Basic Intermediate Topics*.....	4
CPCA		Any CPCA Course* (except CPCA 105)	

\*Prerequisite/Corequisite required

# Network Administration: Windows Certificate

The networking administration: windows vocational certificate is a 27-credit-hour program that students can complete in three semesters. The program is designed to give students the hands-on skills needed to install, troubleshoot and administer a local area network with Windows operating system. Course work parallels the requirements for the Microsoft Certified Systems Associate (MCSA) certification exams.

# Vocational Certificate

IT	200	Networking Technologies.....	3
ELEC	185	LAN Cabling and Installation.....	3
ELEC	124	Microcomputer Hardware.....	3
IT	205	Implementing Windows Client.....	3
IT	221	Windows Server*.....	3
IT	225	Windows Active Directory Services*.....	3
IT	245	Network Infrastructure*.....	3
		Technical Electives.....	6
		TOTAL PROGRAM CREDIT HOURS.....	27

## Technical Electives

IT	210	Netware Administration*.....	3
IT	227	SQL Server Administration*.....	3
IT	230	Unix Fundamentals*.....	3
IT	246	Introduction to Routers*.....	3
IT	247	Introduction to Wide-area Networks*.....	3
IT	250	Networking Seminar*.....	3
IT	271	Information Technology Internship I*.....	3
IT	272	Information Technology Internship II*.....	3
ELEC	120	Introduction to Electronics.....	3
ELEC	150	Introduction to Telecommunications.....	3

ELEC 250	Microcomputer Maintenance*	3
CS 200	Concepts of Programming Algorithms*	4
CIS 134	Programming Fundamentals	4
CIS 138	Visual Basic for Windows*	4
CIS 162	Database Programming: VBA Access*	4
CIS 204	Unix Operating System and PERL*	3
CIS 238	Visual Basic Intermediate Topics*	4
CPCA	Any CPCA Course* (except CPCA 105 )	

\*Prerequisite/Corequisite required

## Network Connectivity Certificate

The network connectivity vocational certificate is a 15-credit-hour program that students can complete in three semesters. The certificate addresses the crucial area of Internet connection devices and provides necessary skills for students to be successful in the field. This certificate is supported and promoted by Cisco through its Networking Academy initiative. Course work parallels the requirements for Cisco Certified Network Associate (CCNA) certification exam.

## Vocational Certificate

IT 200	Networking Technologies	3
ELEC 124	Microcomputer Hardware	3
ELEC 185	LAN Cabling and Installation	3
IT 246	Introduction to Routers*	3
IT 247	Introduction to Wide-area Networks*	3
	TOTAL CREDIT HOURS	15

\*Prerequisite/Corequisite required

## Nursing - Registered Nurse, A.A.S.

Nursing is a rewarding and challenging career with an optimistic employment future. JCCC's registered nurse program is fully accredited by the National League for Nursing Accrediting Commission and Kansas State Board of Nursing. It is designed with the assistance of a community advisory committee composed of men and women who work in the nursing field and are aware of the requirements for a successful nursing career. Our faculty are well qualified and experienced in the practice and teaching of nursing.

Students receive clinical practice in a variety of settings, including hospitals, schools and clinics. Experiences are offered in maternal child nursing, pediatric nursing, operating room nursing, medical-surgical nursing, mental health nursing and gerontology.

A registered nurse with an associate's degree is a skilled health-care provider who administers nursing care directly to patients and their families in a variety of settings. The job outlook is very positive. Employment of registered nurses is expected to grow faster than the average for all occupations through 2005.

## Associate of Applied Science Degree

CNA certification will be required as a prerequisite in fall 2003.

### Prerequisites: Prior to enrolling in NURS 121

CHEM 122	Principles of Chemistry	5
MATH 116	Intermediate Algebra or Higher*	3
	TOTAL CREDIT HOURS	8

### First Semester

BIOL 144	Human Anatomy and Physiology	5
PSYC 130	Introduction to Psychology	3
NURS 124	Foundations of Nursing*	9
	TOTAL CREDIT HOURS	17

## Second Semester

	Communications Elective.....	3
PSYC 218	Human Development*.....	3
NURS 122	Nursing Across the Life Span - Part I*.....	9
	TOTAL CREDIT HOURS.....	15

## Summer

ENGL 121	Composition I*.....	3
	TOTAL CREDIT HOURS.....	3

## Third Semester

NURS 221	Nursing Across the Life Span - Part II*.....	9
SOC 122	Sociology.....	3
	or	
SOC 125	Social Problems.....	3
BIOL 230	Microbiology*.....	3
	TOTAL CREDIT HOURS.....	15

## Fourth Semester

NURS 222	Managing Client Care*.....	9
	Humanities Elective.....	3
	Health and/or Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	13
	TOTAL PROGRAM CREDIT HOURS.....	71

\*Prerequisite/Corequisite required

# Occupational Therapy Assistant

The occupational therapy assistant works under the supervision of a registered occupational therapist, helping people with emotional and developmental limitations achieve more functional lives. Graduates are eligible to sit for the national certification examination for the occupational therapy assistant administered by the National Board for Certification in Occupational Therapy (NBCOT). After successful completion of the exam, the individual will be a Certified Occupational Therapy Assistant (COTA). Most states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination.

The JCCC occupational therapy assistant program is offered to Johnson County residents in cooperation with Penn Valley Community College. The support courses are held at JCCC. The clinical courses are held at Penn Valley or at affiliated clinical agencies. You must be accepted into the program by both JCCC and Penn Valley. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact Penn Valley Community College at 816-759-4231 for an application packet, which includes deadlines, program prerequisites and admission requirements.

# Associate of Applied Science Degree

Degree granted by Penn Valley Community College

## (General Education Requirements-must be taken at JCCC)

ENGL 121	Composition I*.....	3
SPD 121	Public Speaking.....	3
PSYC 130	Introduction to Psychology.....	3

## American Institutions

HIST 140	U.S. History to 1877.....	3
	or	
HIST 141	U.S. History since 1877.....	3
	or	

POLS 122	Political Science.....	3
	or	
POLS 124	American National Government.....	3
	or	
POLS 126	State and Local Government.....	3
SOSC 153	Readings in Social Science-Missouri Constitutions (must take at MCC).....	1

**(Prerequisite Courses-must be taken at JCCC)**

CHEM 122	Principles of Chemistry.....	5
AAC 130	Medical Terminology.....	3

**(Specific Program Requirements-must be taken at JCCC)**

**Option 1**

BIOL 144	Human Anatomy and Physiology.....	5
	and	
BIOL 145	Human Anatomy/Physiology Dissection*.....	1
	(BIOL 144 must be taken first)	
	or	

**Option 2**

BIOL 140	Human Anatomy.....	4
	and	
BIOL 225	Human Physiology*.....	4
	(BIOL 140 and CHEM 122 must be taken before BIOL 225)	

**(Specific Program Requirements-must be taken at Penn Valley)**

KOT 112	Basic Emergency Patient Care.....	1
KOT 100	Intro to Occupational Therapy.....	2
KOT 102	Documentation Guidelines*.....	2
KOT 103	Clinical Conditions*.....	2
KOT 106	Therapeutic Interventions*.....	4
KOT 116	Level I Fieldwork I*.....	1
KOT 118	Assistive Technology*.....	2
KOT 120	Pediatrics*.....	3
KOT 121	Level Fieldwork II*.....	0
KOT 130	Analysis of Physical Performance*.....	3
KOT 154	Applied Neurology*.....	2
KOT 201	Mental Health*.....	2
KOT 202	Physical Dysfunction*.....	3
KOT 203	Gerontology*.....	3
KOT 208	Splinting*.....	2
KOT 212	Level I Fieldwork III*.....	2
KOT 217	Fieldwork Seminar*.....	3
KOT 222	Level II Fieldwork*.....	12
	TOTAL PROGRAM CREDIT HOURS.....	77

\*Prerequisite/Corequisite required

**Office Careers Certificate**

At the completion of this 15 –credit-hour certificate, students demonstrate proficiency in office skills, including computer and word processing knowledge. This certificate program prepares students to enter an office career in a minimal time period.

**Vocational Certificate**

BOT 103	Business English.....	3
BOT 105	Keyboarding/Formatting I.....	3
BOT 110	Skillbuilding I*.....	1



BOT 125	Document Formatting*	1
BOT 130	Office Systems Concepts	3
BOT 155	Word Processing Applications I*	2
BOT 115	Electronic Calculators	1
BOT 120	Machine Transcription*	1
	TOTAL PROGRAM	
	CREDIT HOURS	15

\*Prerequisite/Corequisites required

## Owning/Managing a Virtual Home Office Certificate

The certificate provides the opportunity for students to add competencies in the area of entrepreneurship, business planning and managing as well as Web page creation and desktop publishing skills.

Prerequisite: Completion of the virtual home office certificate (first and second semester courses) as well as BOT 105.

## Vocational Certificate

### (First and second semester courses)

BUSE 142	FastTrac Business Plan	3
BUSE 180	Opportunity Analysis	2
BUS 230	Marketing	3
BUS 145	Small Business Management	3
CPCA 161	Introduction to Web Pages*	1
BOT 260	Desktop Publishing for the Office*	3
	TOTAL PROGRAM CREDIT HOURS	15

\*Prerequisite/corequisite required

## Paralegal, A.A.

The expanding role of the paralegal in the delivery of legal services has created increased opportunities with private law firms, corporate legal departments, insurance companies, real estate and title firms, banks, and government agencies. If you are interested in entering this career field, you should be aware that although the number of jobs for trained paralegals is rising, competition for these positions is increasing.

The paralegal program at JCCC

- has a challenging curriculum
- requires that you possess excellent communication skills, analytical ability and a high level of motivation
- is approved by the American Bar Association
- is a selective admission program based on various academic and testing criteria

## Associate of Arts Degree

The following courses must be completed with a minimum GPA of 2.0 prior to application for admission to the paralegal program. Upon successful completion of the requirements for the associate of arts degree, you will be eligible to receive an A.A. degree and a paralegal certificate.

ENGL 121	Composition I*	3
LAW 121	Introduction to Law	3
LAW 123	Paralegal Studies	1

### First Semester

		Humanities Elective.....	3
SPD	120	Interpersonal Communications.....	3
		or	
SPD	121	Public Speaking.....	3
		or	
SPD	125	Personal Communications.....	3
		Science and Mathematics Electives.....	3
		TOTAL CREDIT HOURS.....	16

## Second Semester

Following admission to the paralegal program:

ENGL	122	Composition II*.....	3
LAW	131	Legal Research*.....	3
LAW	132	Civil Litigation*.....	3
CPCA	128	Personal Computer Applications.....	3
		or	
CIS	124	Intro to Computing Concepts and Applications.....	3
		or the following three:	
CPCA	108	Word Processing on Microcomputers I*.....	1
		and	
CPCA	110	Spreadsheets on Microcomputers I*.....	1
		and	
CPCA	114	Databases on Microcomputers I*.....	1
		Social Science and/or Economics Electives.....	3
		TOTAL CREDIT HOURS.....	15

## Third Semester

LAW	205	Legal Writing*.....	3
		Paralegal Electives.....	6
		Health and/or Physical Education Elective.....	1
		Humanities Elective.....	3
		Science and Mathematics Elective.....	3
		TOTAL CREDIT HOURS.....	16

## Fourth Semester

LAW	271	Legal Ethics, Interviewing and Investigation*.....	3
		Paralegal Electives.....	8
		Science and Mathematics Electives.....	3
		Social Science and/or Economics Electives.....	3
		TOTAL CREDIT HOURS.....	17
		TOTAL PROGRAM CREDIT HOURS.....	64

## Paralegal Electives

LAW	140	Alternative Dispute Resolution*.....	3
LAW	142	Torts*.....	3
LAW	148	Criminal Litigation*.....	3
LAW	152	Real Estate Law*.....	3
LAW	162	Family Law*.....	3
LAW	171	Law Office Management*.....	3
LAW	173	Judicial Academy*.....	1
LAW	212	Business Organizations*.....	3
LAW	220	Computer-assisted Legal Research*.....	2
LAW	223	Computer Applications in the Law Office*.....	3
LAW	241	Will, Trusts and Probate Administration*.....	3
LAW	245	Elder Law*.....	3
LAW	266	Employment Law*.....	3
LAW	268	Bankruptcy*.....	2
LAW	270	Administrative Law*.....	3
LAW	275	Paralegal Internship I*.....	1
LAW	276	Paralegal Internship II*.....	1

\*Prerequisite/Corequisite required

# Paralegal Certificate

You must have completed a two-year degree or a four-year degree and have satisfied JCCC and American Bar Association general education requirements prior to admission. Students will have fulfilled these general education requirements if they have 18 hours of general education credit, including Composition I and Introduction to Algebra or a higher math course.

The following courses must be completed with a minimum GPA of 2.0 prior to application for admission to the paralegal program.

## Postsecondary Certificate

LAW 121	Introduction to Law.....	3
LAW 123	Paralegal Studies.....	1

### First Semester

CPCA 128	Personal Computer Applications.....	3
	or	
CIS 124	Intro to Computing Concepts and Applications.....	3
	or the following three:	
CPCA 108	Word Processing on Microcomputers I*.....	1
	and	
CPCA 110	Spreadsheets on Microcomputers I*.....	1
	and	
CPCA 114	Databases on Microcomputers I*.....	1
	TOTAL CREDIT HOURS.....	7

### Second Semester

Following admission to the paralegal program

LAW 131	Legal Research*.....	3
LAW 132	Civil Litigation*.....	3
	Paralegal Electives.....	7
	TOTAL CREDIT HOURS.....	13

### Third Semester

LAW 205	Legal Writing*.....	3
LAW 271	Legal Ethics, Interviewing and Investigation*.....	3
	Paralegal Electives.....	7
	TOTAL CREDIT HOURS.....	13
	TOTAL PROGRAM CREDIT HOURS.....	33

### Paralegal Electives

LAW 140	Alternative Dispute Resolution*.....	3
LAW 142	Torts*.....	3
LAW 148	Criminal Litigation*.....	3
LAW 152	Real Estate Law*.....	3
LAW 162	Family Law*.....	3
LAW 171	Law Office Management*.....	3
LAW 173	Judicial Academy*.....	1
LAW 212	Business Organizations*.....	3
LAW 220	Computer-assisted Legal Research*.....	2
LAW 223	Computer Applications in the Law Office*.....	3
LAW 241	Will, Trusts and Probate Administration*.....	3
LAW 245	Elder Law*.....	3
LAW 266	Employment Law*.....	3
LAW 268	Bankruptcy*.....	2
LAW 270	Administrative Law*.....	3
LAW 275	Paralegal Internship I*.....	1
LAW 276	Paralegal Internship II*.....	1
	TOTAL CREDIT HOURS.....	15

\*Prerequisite/Corequisite required

# Personal Computer Applications Certificate

Individuals with or without a college degree whose goal is to acquire or improve their personal computer application skills will accomplish their goals in this program. Emphasis is on acquiring results-oriented career business and industry skills. The program is intended for those seeking entry-level positions as well as those currently employed who desire to enhance their job skills and take MOUS (Microsoft Office User Specialist) certification tests. It provides employers and current prospective employees with tangible evidence of computer competencies.

## Vocational Certificate

### Required Courses

#### First Semester

CPCA 105	Introduction to Personal Computers:Win.....	1
CPCA 108	Word Processing on Microcomputers I*.....	1
CPCA 110	Spreadsheets on Microcomputers I*.....	1
CPCA 114	Databases on Microcomputers I*.....	1
CPCA 138	Windows for Microcomputers*.....	1

#### Second Semester

CPCA 111	Spreadsheets on Microcomputers II*.....	1
CPCA 115	Databases on Microcomputers II*.....	2
CPCA 123	Presentation Graphics*.....	1
CPCA 125	Word Processing on Microcomputers II*.....	1
CPCA 141	Internet I*.....	1
	CPCA Elective.....	1
	TOTAL CREDIT HOURS.....	12

#### CPCA Electives

CPCA 118	Groupware*.....	1
CPCA 121	Introduction to Project Management*.....	1
CPCA 151	Internet II*.....	1
CPCA 161	Introduction to Web Pages*.....	1

A student can elect to take CPCA 128, Personal Computer Applications, in lieu of CPCA 108, CPCA 110 and CPCA 123.

An additional elective can then be substituted for CPCA 105.

\*Prerequisite/Corequisite required

# Physical Therapist Assistant

The physical therapist assistant, under the supervision of a licensed physical therapist, performs direct patient care. The therapist uses physical agents such as heat, light, sound, water, cold, massage, exercise and rehabilitation techniques as prescribed by a physician. The Commission on Accreditation in Physical Therapy Education accredits the program.

The JCCC physical therapist assistant program is offered to Johnson County residents in cooperation with Penn Valley Community College. The support courses are held at JCCC. All the clinical courses are held at Penn Valley and affiliated clinical agencies. You must be accepted into the program by both JCCC and Penn Valley. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact Penn Valley Community College at 816-759-4231 for an application packet, which includes deadlines, program prerequisites and admission requirements.

# Associate of Applied Science Degree

Degree granted by Penn Valley Community College

## **(General Education Requirements-must be taken at JCCC)**

ENGL 121	Composition I*.....	3
SPD 121	Public Speaking.....	3
PSYC 130	Introduction to Psychology.....	3

## **American Institutions**

HIST 140	U.S. History to 1877.....	3
	or	
HIST 141	U.S. History since 1877.....	3
	or	
POLS 122	Political Science.....	3
	or	
POLS 124	American National Government.....	3
	or	
POLS 126	State and Local Government.....	3
SOSC 153	Readings in Social Science-Missouri Constitutions (Must take at MCC).....	1

## **(Prerequisite Courses-must be taken at JCCC)**

CHEM 122	Principles of Chemistry.....	5
AAC 130	Medical Terminology.....	3

## **(Specific Program Requirements-must be taken at JCCC)**

### **Option 1**

BIOL 144	Human Anatomy and Physiology.....	5
	and	
BIOL 145	Human Anatomy/Physiology Dissection*.....	1
	(BIOL 144 must be taken first)	
	or	

### **Option 2**

BIOL 140	Human Anatomy.....	4
	and	
BIOL 225	Human Physiology*.....	4
	(BIOL 140 and CHEM 122 must be taken before BIOL 225)	

## **(Specific Program Requirements-must be taken at Penn Valley)**

KPT 102	Basic Emergency Patient Care.....	1
KPT 151	Intro to Physical Therapy.....	2
KPT 152	Physical Therapy Fundamentals I*.....	4
KPT 153	Kinesiology*.....	4
KPT 154	Applied Neurology*.....	2
KPT 155	Rehabilitation*.....	4
KPT 158	Therapeutic Exercise*.....	4
KPT 159	Orthopedic Pathology*.....	2
KPT 160	Medical Diseases*.....	2
KPT 161	Physical Therapy Fundamentals II*.....	4
KPT 162	Clinical Experience I*.....	2
KPT 164	Pediatrics and Gerontology*.....	2
KPT 170	Clinical Experience II*.....	2
KPT 171	Clinical Seminar*.....	2
KPT 172	Clinical Experience III*.....	12
	TOTAL PROGRAM CREDIT HOURS.....	76

\*Prerequisite/Corequisite required

## **PN to RN Transition, AAS**

The LPN to RN bridge program provides those licensed practical nurses wanting to become

registered nurses the opportunity to do so. Admission to the program is based on academic criteria.

All LPNs making application must have completed required general education courses before being accepted.

Following successful completion of the summer transition courses, students are admitted to the third semester of the program. At least 10 openings are available each year. Successful completion of the third and fourth semesters of the program allows the graduate to apply to take the national licensing examination for RNs. The application deadline is Jan. 15.

## Associate of Applied Science Degree

### (LPN to RN Transition)

Students must successfully complete NURS 123 and NURS 221 before advanced standing credits for NURS 121 and NURS 122 will be granted

#### Prerequisite: Prior to enrolling in NURS 221

BIOL 144	Human Anatomy and Physiology.....	5
CHEM 122	Principles of Chemistry.....	5
ENGL 121	Composition I*.....	3
PSYC 130	Introduction to Psychology.....	3
PSYC 218	Human Development*.....	3
	Communications Elective.....	3
MATH 116	Intermediate Algebra or Higher*.....	3
	TOTAL CREDIT HOURS.....	25

#### Summer

NURS 123	LPN-RN Transition course*.....	6
	TOTAL CREDIT HOURS.....	6

#### Third Semester

BIOL 230	Microbiology*.....	3
NURS 221	Nursing Across the Life Span - Part II*.....	9
SOC 122	Introduction to Sociology.....	3
	or	
SOC 125	Social Problems.....	3
	TOTAL CREDIT HOURS.....	15

#### Fourth Semester

NURS 222	Managing Client Care*.....	9
	Humanities Elective.....	3
	Health and/or Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	13
	TOTAL PROGRAM CREDIT HOURS.....	77

\*Prerequisite/Corequisite required

Total Program Hours include 18 hours APL for NURS 121/122

## Practical Nursing Certificate

The health care industry needs informed, skilled and dependable workers to complete the care team. The licensed practical nurse assists registered nurses and physicians in caring for physically or mentally ill clients. In the long-term care setting and home health, the LPN may supervise other nursing care personnel.

Practical nursing offers employment in many health care settings. Long-term care, physicians' offices, home care, hospitals and clinics provide opportunity for the practical nurse to administer care to a variety of clients. Job outlook for the Kansas City area is good, with an average starting salary of \$20,800-\$31,200.

Upon successful completion of the program, graduates are eligible to take the Practical Nursing Licensing exam. After completing the practical nursing program, you may continue your education

in nursing to become a registered nurse.

The program, which can be completed in 10 months, provides 1,100 hours of instruction. This includes classroom and clinical laboratory experiences in many areas of nursing. The application deadline is April 1 for the following fall semester. Admission to this program requires successful completion of several prerequisites.

## Area Vocational School Certificate

Prerequisites courses:  
CNA certification, BIOL 144,  
PSYC 130, CPCA 105, MATH 111

### Fall

AVPN 115 Nursing I\*

### Spring

AVPN 117 Nursing II\*  
TOTAL PROGRAM CONTACT HOURS.....1100

\*Prerequisite/Corequisite required

## Power Plant Technology, A.A.S.

The power plant program provides students with the practical knowledge and skill competencies needed to obtain an entry-level position in the electric power generation industry. The program provides an overview of the power generation industry with emphasis on coal-fired plants, that use steam turbines. However, graduates could find employment in all varieties of power plants or industry and manufacturing companies, which utilize or process steam. The program offers two options: an associate of applied science degree and a vocational certificate. Graduates will be able to find entry-level career opportunities with either option. The associate's degree requires higher math and language skills than the certificate and offers students the opportunity to pursue additional technical courses.

## Associate of Applied Science Degree

### First Semester

PPT 140	Generating Plant Fundamentals.....	3
ENGL 121	Composition I*.....	3
MATH 171	College Algebra or Higher*.....	3
INDT 125	Industrial Safety.....	3
ELTE 123	Electromechanical Systems.....	4
	TOTAL CREDIT HOURS.....	16

### Second Semester

PPT 130	Basic Hydraulics, Mechanics and Pneumatics.....	3
HVAC 143	Reading Blueprint and Ladder Diagrams.....	2
PHYS 125	Technical Physics I*.....	4
ELEC 131	Introduction to Sensors and Actuators.....	3
CPCA 128	Personal Computer Applications.....	3
INDT 155	Workplace Skills.....	1
	TOTAL CREDIT HOURS.....	16

### Summer Semester

PPT 271	Power Plant Technology Internship*.....	3
	TOTAL CREDIT HOURS.....	3

### Third Semester

ENGL 123	Technical Writing I*.....	3
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PPT	250	Intro to Power Plant Combustion/Exhaust*	3
PPT	251	Intro to Power Plant Steam/Water Cycle*	3
PPT	230	Introduction to Water Chemistry/Treatment	3
		Humanities Elective	3
		TOTAL CREDIT HOURS	15

## Fourth Semester

PPT	280	Power Plant Operations/Process Controls*	3
SPD	120	Interpersonal Communication	3
EMS	121	CPR-Basic Life Support Health Provider	1
		Social Science/Economics Elective	3
		Technical Electives	5
		TOTAL CREDIT HOURS	15
		TOTAL PROGRAM CREDIT HOURS	65

## Technical Electives

ELEC	133	Programmable Controllers	3
CHEM	122	Principles of Chemistry	5
BUS	140	Principles of Supervision	3
BUS	141	Principles of Management	3
ELTE	205	Industrial Electrical Wiring*	4
ENGL	210	Technical Writing II*	3
BIOL	130	Environmental Science	3
BIOL	131	Environmental Science Lab*	1
POLS	126	State and Local Government	3
HVAC	146	Plumbing Systems Applications	3
EMS	128	EMS First Responder	5

\*Prerequisite/Corequisite required

# Power Plant Technology Certificate

The power plant technology vocational certificate provides students with the practical knowledge and skill competencies needed to obtain an entry-level position in the electric power generation industry. The certificate program provides an overview of the power generation industry and the many available types of power generation: wind, solar, hydroelectric, refuse-derived fuel, nuclear, combustion turbines and coal-fired plants. It emphasizes coal-fired plants that use steam turbines. However, graduates could find employment in all varieties of power plants or industry and manufacturing companies that use or process steam. Graduates can work as control room operators, process control personnel or floor operators. Graduates will also be prepared for continued education in industrial maintenance, industrial/electronic controls and power transmission/distribution systems.

## Vocational Certificate

### First Semester

PPT	140	Generating Plant Fundamentals	3
INDT	125	Industrial Safety	3
ELTE	123	Electromechanical Systems	4
HVAC	143	Reading Blueprint and Ladder Diagrams	2
PPT	130	Basic Hydraulics, Mechanics and Pneumatics	3
		TOTAL CREDIT HOURS	15

### Second Semester

PPT	251	Intro to Power Plant Steam/Water Cycle*	3
INDT	155	Workplace Skills	1
PPT	250	Intro to Power Plant Combustion/Exhaust*	3
PPT	280	Power Plant Operations/Process Controls*	3
PPT	230	Intro to Water Chemistry/Treatment	3
		TOTAL CREDIT HOURS	13

### Summer Semester



PPT 271	Power Plant Technology Internship*	3
	TOTAL CREDIT HOURS	3
	TOTAL PROGRAM CREDIT HOURS	31

\*Prerequisite/Corequisite required

## Radiologic Technology

The radiologic technology curriculum (X-ray technology) consists of a continuous 24-month period of study. Areas of study are radiographic exposure, positioning and anatomy, and the use of imaging equipment. The program is fully accredited by the Joint Review Committee on Education in Radiologic Technology.

The JCCC radiologic technology program is offered to Johnson County residents in cooperation with Penn Valley Community College. Related courses are taken at JCCC with lab and clinical courses held at Penn Valley or at a cooperating health facility. You must be accepted into the program by Penn Valley and JCCC. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact Penn Valley Community College at 816-759-4231 for an application packet, which includes deadlines, admission requirements and options for meeting academic criteria.

## Associate of Applied Science Degree

Degree granted by Penn Valley Community College

### (General Education Requirements-must be taken at JCCC)

ENGL 121	Composition I*	3
SPD 121	Public Speaking	3
PSYC 130	Introduction to Psychology	3

### American Institutions

HIST 140	U.S. History to 1877	3
	or	
HIST 141	U.S. History since 1877	3
	or	
POLS 122	Political Science	3
	or	
POLS 124	American National Government	3
	or	
POLS 126	State and Local Government	3
SOSC 153	Readings in Social Science-Missouri Constitutions (must take at MCC)	1

### (Specific Program Requirements-must be taken at JCCC)

BIOL 140	Human Anatomy	4
AAC 130	Medical Terminology	3

### (Specific Program Requirements-must be taken at Penn Valley)

KRAD 150	Introduction to Radiologic Technology	1
KRAD 160	Survey of Radiologic Technology*	6
KRAD 162	Image Processing*	2
KRAD 165	Patient Care*	2
KRAD 170	Radiologic Biology and Protection*	3
KRAD 171	Radiographic Exposures I*	3
KRAD 172	Radiographic Positioning I*	3
KRAD 173	Clinical Training I*	3
KRAD 174	Radiographic Exposures II*	3
KRAD 175	Clinical Training II*	4
KRAD 176	Radiographic Positioning II*	3
KRAD 178	Clinical Training III*	4
KRAD 278	Imaging Modalities and Pathology*	3
KRAD 279	Radiographic Positioning III*	2

KRAD 280	Clinical Training IV*	4
KRAD 281	Radiation Physics*	3
KRAD 282	Clinical Training V*	4
KRAD 283	Final Seminar*	2
KRAD 285	Special Procedures*	2
	TOTAL PROGRAM CREDIT HOURS	76

\*Prerequisite/Corequisite required

## Railroad Carman Welding Certificate

JCCC's railroad industrial technology certificate program is open only to Burlington Northern Santa Fe employees.

Enrollment is subject to the approval of the Burlington Northern Santa Fe training director and JCCC division administrator.

The railroad carman welding vocational certificate is designed to provide students with training in welding and cutting operations used by carmen employed in the railroad industry. Students completing the program should be able to demonstrate safe operating procedures for welding and cutting applications and perform skill competencies involving oxyacetylene cutting, shielded metal arc welding, gas metal arc welding and flux corded arc welding. Students should also be able to complete qualification tests according to industry standards.

## Vocational Certificate

RRIT 127	Welding Processes*	2
RRIT 140	Structural Quality SMAW*	3
RRIT 141	Structural Quality GMAW*	3
	TOTAL PROGRAM CREDIT HOURS	8

\*Prerequisite/Corequisite required

## Railroad Electronics, A.A.S.

The associate of applied science in railroad electronics degree program is a restricted access program for those students enrolled in the railroad electronics certificate program who wish to progress to a degree. The certificate program has been an active program on the JCCC campus since 1993, with a total enrollment to date of approximately 325 students.

The certificate program consists of 33 credit hours of electronics courses, previously designated as ELEC courses, currently designated as RREL courses. The total program content is equivalent to the electronics degree program, but the delivery differs. Content is divided into courses differently. Examples tend to be railroad-related where possible, and courses are delivered in alternative format, combining distance learning (using a remote access server) and classroom presentations.

Electronics technology influences almost every aspect of modern life. Skilled electronics technicians are needed to support growth in the railroad industry. These technicians must be able to fabricate, test, install, operate and maintain highly technical systems, such as communications systems networks, medical delivery systems, computers and computer networks, and industrial process control systems. The program focuses on the underlying principles of electronic devices used extensively in railroad signaling, circuit analysis and digital electronics and will provide a broad systems view of electronics.

Students in the railroad electronics technology program will work with outstanding facilities and the latest laboratory equipment. Graduates of the program will have the opportunity for employment in today's most challenging and exciting railroad signal career field.

No new courses are required for this program. All RREL courses are offered as closed courses for Burlington Northern Santa Fe, with the railroad furnishing all equipment, trainers, computers and software.

## Associate of Applied Science Degree

### First Semester

RREL 180	Introduction to Railroad Electronics*	1
RREL 181	Circuit Analysis DC/AC*	6
ENGL 121	Composition I*	3

Science and/or Mathematics Elective.....	3
Elective.....	3
TOTAL CREDIT HOURS.....	16

## Second Semester

RREL 182 Semiconductor Devices and Circuits*.....	6
RREL 183 Digital Techniques*.....	6
Humanities Elective.....	3
TOTAL CREDIT HOURS.....	15

## Third Semester

RREL 284 Electronic Communications*.....	6
Social Science/Economics Elective.....	3
Technical Electives.....	6
TOTAL CREDIT HOURS.....	15

## Fourth Semester

RREL 285 Microprocessor Techniques*.....	6
RREL 286 Applied Microprocessors*.....	2
Health and/or Physical Education Elective.....	1
Communications Elective.....	3
Technical Electives.....	6
TOTAL CREDIT HOURS.....	18
TOTAL PROGRAM CREDIT HOURS.....	64

Note: MATH 111 and MATH 115 will not meet math requirements.

## (Technical Electives)

ASTR 120 Fundamentals of Astronomy.....	3
AUTO 121 Small Engine Service.....	3
AUTO 122 Introduction to Auto Glass.....	3
AUTO 125 Introduction to Automotive Shop Practices.....	3
BOT 101 Computerized Keyboarding.....	1
BOT 103 Business English.....	3
BOT 105 Keyboarding/Formatting I.....	3
BOT 115 Electronic Calculators.....	1
BOT 150 Records Management.....	3
BOT 175 Conflict in the Workplace.....	1
CET 105 Construction Methods.....	3
CET 120 Engineered Plumbing Systems I.....	3
CET 122 Engineered Plumbing Systems II.....	3
CET 129 Construction Management.....	3
CPCA 105 Introduction to Personal Computers: Win.....	1
CPCA 106 Introduction to Personal Computers: Mac.....	1
CPCA 128 Personal Computer Applications.....	3
CIS 110 Introduction to Computers.....	2
CIS 124 Intro to Computing Concepts and Applications.....	3
CIS 134 Programming Fundamentals.....	4
DRAF 120 Introduction to Drafting.....	2
DRAF 123 Interpreting Machine Drawings*.....	2
DRAF 129 Interpreting Architectural Drawings.....	2
DRAF 132 Introduction to AutoCAD LT.....	3
DRAF 140 Topics in CAD I.....	2
DRAF 238 Architectural Drafting*.....	3
ELEC 120 Introduction to Electronics.....	3
ELEC 124 Microcomputer Hardware.....	3
ELEC 125 Digital Electronics I.....	4
ELEC 131 Introduction to Sensors and Actuators.....	3
ELEC 133 Programmable Controllers.....	3
ELEC 150 Introduction to Telecommunications.....	3
ELEC 185 LAN Cabling and Installation.....	3
ENGR 121 Engineering Orientation.....	2
GEOS 130 General Geology.....	5
GEOS 140 Physical Geography.....	3

GEOS 145	World Regional Geography.....	3
HVAC 125	Energy Alternatives.....	2
HVAC 143	Reading Blueprints and Ladder Diagrams.....	2
HVAC 146	Plumbing Systems Applications.....	3
HVAC 150	Refrigerant Management and Certification.....	1
HVAC 155	Workplace Skills.....	1
HVAC 167	Sheet Metal Layout and Fabrication.....	3
INDT 125	Industrial Safety.....	3
INDT 140	Quality Improvement Using SPC.....	2
INDT 155	Workplace Skills.....	1
IT 200	Networking Technologies.....	3
IT 205	Implementing Windows Client.....	3
MFAB 121	Introduction to Welding.....	4
MFAB 152	Manufacturing Materials and Processes.....	3
MFAB 170	Basic Machine Tool Processes.....	4
MFAB 180	Blueprint and Symbols Reading for Welders.....	2
MFAB 240	Metallurgy.....	2
RRT 120	History of Railroading.....	3
RRT 121	Railroad Technical Careers.....	3
RRT 150	Railroad Operations.....	3
RRT 165	Railroad Safety, Quality and Environment.....	3

\*Prerequisite/Corequisite required

## Railroad Electronics Certificate

This certificate is a comprehensive program of study that covers the fundamental electronic principles used by railroad signal control systems technicians. Upon successful completion of this program, the student should be able to apply basic digital and analog theory required in the maintenance of right-of-way crossing and train control systems.

Enrollment in the program is subject to the approval of the Burlington Northern training director and JCCC division administrator.

## Vocational Certificate

RREL 180	Introduction to Railroad Electronics*.....	1
RREL 181	Circuit Analysis DC/AC*.....	6
RREL 182	Semiconductor Devices and Circuits*.....	6
RREL 183	Digital Techniques*.....	6
RREL 284	Electronic Communications*.....	6
RREL 285	Microprocessor Techniques*.....	6
RREL 286	Applied Microprocessors*.....	2
	TOTAL PROGRAM CREDIT HOURS.....	33

\*Prerequisite/Corequisite required

## Railroad Machinist Welding Certificate

JCCC's railroad industrial technology certificate program is open only to Burlington Northern Santa Fe employees.

Enrollment is subject to the approval of the Burlington Northern Santa Fe training director and JCCC division administrator.

The railroad machinist welding vocational certificate is designed to provide students with training in welding and cutting operations used by machinists employed in the railroad industry. Students completing the program should be able to demonstrate safe operating procedures for welding and cutting applications and perform skill competencies involving complete qualification tests according to industry standards.

## Vocational Certificate

RRIT 127	Welding Processes*.....	2
RRIT 140	Structural Quality SMAW*.....	3
	TOTAL PROGRAM CREDIT HOURS.....	5

\*Prerequisite/Corequisite required

# Railroad Maintenance of Way Welding Certificate

JCCC's railroad industrial technology certificate program is open only to Burlington Northern Santa Fe employees.

Enrollment is subject to the approval of the Burlington Northern Santa Fe training director and JCCC division administrator.

This certificate is a comprehensive course of study addressing those skills associated with maintenance and repair of railway fixed facilities. Upon successful completion of this program, the student should be able to perform basic and advanced welding operations, complete specialized welding procedures involving maintenance and repair of railway track, perform structural welding applications involving code-quality work according to AWS D1.5 and perform tasks associated with most aspects of welding in maintenance-of-way applications.

## Postsecondary Certificate

RRIT 122	Elements of Welding*	3
RRIT 123	Basic Welding*	3
RRIT 132	Thermitte Welding*	3
RRIT 136	Rail and Switch Point Repair*	3
RRIT 137	Structural Welding*	3
RRIT 138	Structural Welding FCAW*	3
RRIT 139	Structural Welding Pipe*	3
RRIT 145	Frog Welding*	3
ENGL 121	Composition I*	3
MATH 115	Introduction to Algebra*	3
	Technical Electives	2
	TOTAL CREDIT HOURS	32

## Technical Electives

MFAB 130	Gas Metal Arc Welding I	4
RRIT 155	Railroad Welding Review*	2
RRT 120	History of Railroading	3
RRT 121	Railroad Technical Careers	3
RRT 150	Railroad Operations	3
RRT 165	Railroad Safety, Quality and Environment	3
MFAB 160	Gas Tungsten Arc Welding*	4
MFAB 240	Metallurgy	2
DRAF 120	Introduction to Drafting	2

\*Prerequisite/Corequisite required

## Railroad Operations - Conductor Option, A.A.S.

Conductors are responsible for supervising over-the-road operation of freight trains and are in demand throughout the railroad industry. They may choose career paths leading to locomotive engineer service or railroad management. The final phase of this program consists of six weeks of full-time training provided in cooperation with the National Academy of Railroad Sciences on the campus of JCCC, plus 18 weeks of on-the-job training after securing employment with a railroad. Selective admission to the program is based on various criteria. Interested students should meet with a JCCC counselor as early as possible.

## Associate of Applied Science Degree

### First Semester

CPCA 105	Introduction to Personal Computers: Win	1
CPCA 108	Word Processing on Microcomputers I*	1
CPCA 110	Spreadsheets on Microcomputers I*	1
ENGL 121	Composition I*	3
MATH 133	Technical Mathematics I*	4
PHIL 124	Logic and Critical Thinking	3
RRT 120	History of Railroading	3
	TOTAL CREDIT HOURS	16

## Second Semester

ENGL 123	Technical Writing I*	3
MATH 134	Technical Mathematics II*	5
PHYS 125	Technical Physics I*	4
RRT 121	Railroad Technical Careers	3
	Health and/or Physical Education Elective	1
	TOTAL CREDIT HOURS	16

## Third Semester

BUS 121	Introduction to Business	3
ECON 130	Basic Economic Issues	3
PHIL 138	Business Ethics	1
RRT 150	Railroad Operations	3
RRT 165	Railroad Safety, Quality and Environment	3
SPD 125	Personal Communication	3
	TOTAL CREDIT HOURS	16

## Fourth Semester

RRTC 123	Introduction to Conductor Service*	4
RRTC 175	Conductor Mechanical Operations*	2
RRTC 261	Conductor Service*	2
RRTC 263	General Code of Operating Rules*	4
RRTC 265	Conductor Field Application*	9
	TOTAL CREDIT HOURS	21
	TOTAL PROGRAM CREDIT HOURS	69

\*Prerequisite/Corequisite required

# Railroad Operations - General Option, A.A.S.

JCCC's associate's degree program in railroad operations can prepare you for an exciting and well-paying career. The more than 500 companies that make up the U.S. railroad industry provide the country's freight and passenger transportation service on a network of some 300,000 route-miles of track. Railroads employ a substantial workforce to service, maintain and manage this extensive transportation network. JCCC's program offers five options. The general option requires 65 credit hours, the conductor option 69 credit hours, the dispatcher option 70 credit hours, the mechanical option 64 credit hours and the maintenance of way welding option 64 credit hours.

In general this option is designed to provide the student with general knowledge and skills for entry-level employment in the railroad industry. The student is introduced to the history of railroading and the various railroad crafts. Railroad operations, safety, environment and quality also are covered. The student will choose from a list of business and technical electives in order to provide a basis for possible employment and further post-employment training.

## Associate of Applied Science Degree

### First Semester

CPCA 105	Introduction to Personal Computers: Win	1
CPCA 108	Word Processing on Microcomputers I*	1
CPCA 110	Spreadsheets on Microcomputers I*	1
ENGL 121	Composition I*	3
MATH 133	Technical Mathematics I*	4
PHIL 124	Logic and Critical Thinking	3
RRT 120	History of Railroading	3
	TOTAL CREDIT HOURS	16

### Second Semester

ENGL 123	Technical Writing I*	3
MATH 134	Technical Mathematics II*	5
PHYS 125	Technical Physics I	4
RRT 121	Railroad Technical Careers	3

Health and/or Physical Education Elective.....	1
TOTAL CREDIT HOURS.....	16

### Third Semester

BUS 121	Introduction to Business.....	3
ECON 130	Basic Economic Issues.....	3
PHIL 138	Business Ethics.....	1
RRT 150	Railroad Operations.....	3
RRT 165	Railroad Safety, Quality and Environment.....	3
SPD 125	Personal Communication.....	3
	TOTAL CREDIT HOURS.....	16

### Fourth Semester

INDT 140	Quality Improvement Using SPC.....	2
	Business/Related Electives.....	6
	Technical/Related Electives.....	9
	TOTAL CREDIT HOURS.....	17
	TOTAL PROGRAM CREDIT HOURS.....	65

### Business/Related Electives

ACCT 121	Accounting I.....	3
BUS 123	Personal Finance.....	3
BUS 140	Principles of Supervision.....	3
BUS 141	Principles of Management.....	3
BUS 225	Human Relations.....	3
BUS 230	Marketing.....	3
BUS 243	Human Resource Management.....	3
BUS 261	Business Law I.....	3
ENGL 210	Technical Writing II*.....	3
BOT 101	Computerized Keyboarding.....	1

### Technical/Related Electives

AUTO 125	Introduction to Automotive Shop Practices.....	3
AUTO 165	Automotive Engine Repair*.....	4
CET 105	Construction Methods.....	3
CET 127	Construction Estimating*.....	3
CET 129	Construction Management.....	3
CPCA 138	Windows for Microcomputers*.....	1
DRAF 115	Introduction to Computer Graphics Systems*.....	3
DRAF 123	Interpreting Machine Drawings*.....	2
DRAF 129	Interpreting Architectural Drawings.....	2
ELEC 120	Introduction to Electronics.....	3
ELEC 124	Microprocessor Hardware.....	3
ELEC 133	Programmable Controllers.....	3
ELEC 150	Introduction to Telecommunications.....	4
ENGR 180	Engineering Land Surveying I*.....	3
GEOS 140	Physical Geography.....	3
GEOS 141	Physical Geography Lab*.....	2
HVAC 123	Electromechanical Systems.....	4
INDT 125	Industrial Safety.....	3
MFAB 121	Introduction to Welding.....	4
MFAB 130	Gas Metal Arc Welding I.....	4
MFAB 152	Manufacturing Materials and Processes.....	3
MFAB 240	Metallurgy.....	2

\*Prerequisite/Corequisite required

## Railroad Operations - Welding Option, A.A.S.

Maintenance of way welding involves maintenance and repair of rail and track components. The final phase of this program consists of course work provided in cooperation with the National Academy of Railroad Sciences. Selective admission to the program is based on various criteria. Interested students should meet with a JCCC counselor as early as possible.

# Associate of Applied Science Degree

## First Semester

CPCA 105	Introduction to Personal Computing: Windows.....	1
CPCA 108	Word Processing on Microcomputers I*.....	1
CPCA 110	Spreadsheets on Microcomputers I*.....	1
ENGL 121	Composition I*.....	3
MATH 133	Technical Mathematics I*.....	4
PHIL 124	Logic and Critical Thinking.....	3
RRT 120	History of Railroading.....	3
	TOTAL CREDIT HOURS.....	16

## Second Semester

ENGL 123	Technical Writing I*.....	3
MATH 134	Technical Math II*.....	5
PHYS 125	Technical Physics I*.....	4
RRT 121	Railroad Technical Careers.....	3
	Health and/or Physical Education Elective.....	1
	TOTAL CREDIT HOURS.....	16

## Third Semester

BUS 121	Introduction to Business.....	3
ECON 130	Basic Economic Issues.....	3
PHIL 138	Business Ethics.....	1
RRT 150	Railroad Operations.....	3
RRT 165	Railroad Safety, Quality and Environment.....	3
SPD 125	Personal Communication.....	3
	TOTAL CREDIT HOURS.....	16

## Fourth Semester

INDT 125	Industrial Safety.....	3
RRIT 122	Elements of Welding*.....	3
	or	
MFAB 121	Introduction to Welding.....	4
RRIT 123	Basic Welding*.....	3
RRIT 132	Thermite Welding*.....	3
RRIT 136	Rail and Switch Point Repair*.....	3
RRIT 145	Frog Welding*.....	3
	TOTAL CREDIT HOURS.....	18
	TOTAL PROGRAM CREDIT HOURS.....	66

\*Prerequisite/Corequisite required

## Railroad Operations - Mechanical Option, A.A.S.

Mechanical services include a variety of responsibilities for the maintenance, service and repair of locomotives, freight cars and other rolling stock. Skills include diesel engine repair, electrical and electronic system repair, freight car repair and inspection, and welding processes. The final phase of the program consists of training provided in cooperation with the National Academy of Railroad Sciences. Selective admission to the program is based upon various criteria. Interested students should meet with a JCCC counselor as early as possible.

# Associate of Applied Science Degree

## First Semester

CPCA 105	Introduction to Personal Computers: Win.....	1
CPCA 108	Word Processing on Microcomputers I*.....	1
CPCA 110	Spreadsheets on Microcomputers I*.....	1
ENGL 121	Composition I*.....	3
MATH 133	Technical Mathematics I*.....	4
PHIL 124	Logic and Critical Thinking.....	3
RRT 120	History of Railroading.....	3



TOTAL CREDIT HOURS.....16

**Second Semester**

ENGL 123 Technical Writing I\*.....3  
MATH 134 Technical Mathematics II\*.....5  
PHYS 125 Technical Physics I\*.....4  
RRT 121 Railroad Technical Careers.....3  
Health and/or Physical Education Elective.....1  
TOTAL CREDIT HOURS.....16

**Third Semester**

BUS 121 Introduction to Business.....3  
ECON 130 Basic Economic Issues.....3  
PHIL 138 Business Ethics.....1  
RRT 150 Railroad Operations.....3  
RRT 165 Railroad Safety, Quality and Environment.....3  
SPD 125 Personal Communication.....3  
TOTAL CREDIT HOURS.....16

**Fourth Semester**

RRIT 122 Elements of Welding\*.....3  
or  
MFAB 121 Introduction to Welding.....4  
RRIT 123 Basic Welding\*.....3  
RRTM 124 Orientation to the Railroad Mechanical Craft\*.....2  
RRTM 170 Railroad Mechanical Safety and Health\*.....2  
RRTM 251 Locomotive Diesel Engine Fundamentals\*.....2  
RRTM 253 Freight Car Fundamentals\*.....2  
RRTM 254 Basic Locomotive Electricity and Electronics\*.....2  
TOTAL CREDIT HOURS.....16  
TOTAL PROGRAM CREDIT HOURS.....64

\*Prerequisite/Corequisite required

**Railroad Structural Welding Certificate**

JCCC's railroad industrial technology certificate program is open only to Burlington Northern Santa Fe employees.

Enrollment is subject to the approval of the Burlington Northern Santa Fe training director and JCCC division administrator.

This certificate is designed to address the training needs for railway structural welders. Upon successful completion of this program, you should be able to demonstrate safe operating procedures for welding applications, perform skill competencies involving a variety of processes and positions, pass code welding requirements according to AWS D1.5, and perform welding operations as needed.

**Vocational Certificate**

RRIT 122 Elements of Welding\*.....3  
RRIT 123 Basic Welding\*.....3  
RRIT 137 Structural Welding SMAW\*.....3  
RRIT 138 Structural Welding FCAW\*.....3  
RRIT 139 Structural Welding Pipe\*.....3  
TOTAL CREDIT HOURS.....15

\*Prerequisite/Corequisite required

**Railroad Supervisors Welding Certificate**

JCCC's railroad industrial technology certificate program is open only to Burlington Northern Santa Fe employees.

Enrollment is subject to the approval of the Burlington Northern Santa Fe training director and

JCCC division administrator.

This certificate is a program of study for supervisors of maintenance-of-way personnel. After successful completion of this program, you should be able to demonstrate safe welding procedures and identify basic aspects associated with track welding.

## Vocational Certificate

RRIT 127	Welding Processes*	2
RRIT 143	Thermitte Welding for Supervisors*	2
RRIT 147	Component Welding for Supervisors*	2
	TOTAL CREDIT HOURS	6

\*Prerequisite/Corequisite required

## Railroad Track Welding Certificate

Enrollment is subject to the approval of the Burlington Northern Santa Fe training director and JCCC division administrator.

This certificate is designed to provide a concentrated program for industry-specific training in track maintenance and repairs. Upon successful completion of this program, you should have the ability to safely operate track welding equipment, perform basic and advanced welding operations, and complete specialized procedures as needed to perform the job of railway track welder.

## Vocational Certificate

RRIT 122	Elements of Welding*	3
RRIT 123	Basic Welding*	3
RRIT 132	Thermitte Welding*	3
RRIT 136	Rail and Switch Point Repair Welding*	3
RRIT 145	Frog Welding*	3
	TOTAL CREDIT HOURS	15

\*Prerequisite/Corequisite required

## Rehabilitative Aide Certificat

The 32-hour rehabilitative aide course includes both classroom and laboratory instruction. The role of the rehabilitative aide as a member of the health care team and in the aging process are emphasized. Students learn skills required to enhance the ability of elderly residents in long-term care. Skills required for residents with special needs are also learned.

## Area Vocational School Certificate

32 contact hours

AVHO 112 Rehabilitative Aide\*

\*Prerequisite/Corequisite required

## Respiratory Care, A.A.S.

The respiratory therapist is involved in a variety of lifesaving and life-supporting situations. Respiratory therapists treat patients ranging in age from newborns to senior citizens in the prevention, treatment, management and rehabilitation of lung problems. Employment is typically in hospitals but is available in several other health delivery venues. The health care needs of an aging population will play a role in the future of respiratory care.

JCCC's associate of applied science program is accredited by the Committee on Accreditation for Respiratory Care. Graduates are eligible to take the National Board for Respiratory Care examinations for both the certified (CRT) and registered (RRT) respiratory therapist.

This is a selective admission program with limited enrollment. Prospective students are encouraged to visit the program Web site at <http://www.jccc.net/home/depts.php/001256> or to contact JCCC program personnel for additional information and application materials at 913-469-2583.

Note: Metropolitan Community College students should seek specific counsel from the JCCC

program personnel for the appropriate course plan and numbers.

# Associate of Applied Science Degree

## Summer

	Social Science/Economics Elective.....	3
ENGL 121	Composition I*^.....	3
	TOTAL CREDIT HOURS.....	6

## First Semester

BIOL 140	Human Anatomy^.....	4
MATH 116	Intermediate Algebra or Higher*.....	3
CHEM 122	Principles of Chemistry^.....	5
	Humanities/Art Elective.....	3
	TOTAL CREDIT HOURS.....	15

## Second Semester

BIOL 225	Human Physiology*^.....	4
BIOL 230	Microbiology*^.....	3
	(BIOL 231 Micro Lab is also strongly suggested)	
EMS 121	CPR I Basic Life Support Health Care Provider.....	1
HC 101	Introduction to Health Care Delivery**.....	3
	Communications Elective.....	3
	TOTAL CREDIT HOURS.....	11
	^Indicates prerequisite courses that must be completed before the clinic-year. Electives not completed by the clinic-year will delay credentialing eligibility.	
**HC 101	is not a required course for the degree but is strongly encouraged. See the program application packet for details on how this course may be used to meet clinic-year eligibility requirements.	

## Summer (clinic-year)

RC 125	Beginning Principles of Respiratory Care*.....	4
RC 130	Respiratory Care Equipment*.....	4
RC 135	Cardiopulmonary Medicine I*.....	1
	(Current BCLS for Health Care Provider required)	
	TOTAL CREDIT HOURS.....	9

## Third Semester

RC 220	Cardiopulmonary Physiology*.....	2
RC 230	Clinical Topics and Procedures I*.....	4
RC 235	Cardiopulmonary Medicine II*.....	2
RC 240	Cardiopulmonary Pharmacology*.....	2
RC 271	Clinical Practice I*.....	6
	TOTAL CREDIT HOURS.....	16

## Fourth Semester

RC 231	Clinical Topics and Procedures II*.....	4
RC 233	Respiratory Care of Children*.....	2
RC 236	Cardiopulmonary Medicine III*.....	2
RC 272	Clinical Practice II*.....	6
	TOTAL CREDIT HOURS.....	14
	TOTAL PROGRAM CREDIT HOURS.....	71
	WITH HC ELECTIVE COURSE.....	74
	*Prerequisite/Corequisite required	

# Retail Sales Representative Certificate

This retail sales representative certificate is designed for students seeking positions in the growing retail industry in Johnson County.

## Vocational Certificate

BUS	230	Marketing.....	3
FASH	135	Image Management.....	1
MKT	121	Retail Management.....	3
MKT	134	Creative Retail Selling.....	3
MKT	202	Consumer Behavior*.....	3
MKT	234	Services Marketing*.....	3
MKT	284	Marketing and Management Internship I.....	1
TOTAL PROGRAM CREDIT HOURS.....			17

\*Prerequisite/Corequisite required

All 17 credit hours in the retail sales representative certificate program apply to the 35-credit-hour sales and customer service certificate.

## Sales and Customer Service Certificate

JCCC's sales and customer service program is designed for people employed in sales who wish to refine their skills or those who are contemplating a career in sales. The program focuses on the steps involved in the selling process and the delivery of effective customer service. Students who complete the program may find careers in sales (retail, wholesale or manufacturing) or in the customer service departments of stores, businesses and manufacturers.

Thirty-three of the 35 credit hours required for the sales and customer relations certificate apply toward JCCC's 65-credit-hour marketing and management associate of applied science degree.

Overall, employment in the selling field is expected to increase significantly through the year 2005.

## Vocational Certificate

### First Semester

MKT	134	Creative Retail Selling.....	3
or			
MKT	133	Salesmanship.....	3
BUS	230	Marketing.....	3
MATH	120	Business Math or higher*.....	3
BUS	150	Business Communications*.....	3
MKT	121	Retail Management.....	3
MKT	284	Marketing and Management Internship I.....	1
TOTAL CREDIT HOURS.....			16

### Second Semester

BUS	225	Human Relations.....	3
MKT	202	Consumer Behavior*.....	3
MKT	221	Sales Management*.....	3
CIS	124	Intro to Computing Concepts and Applications.....	3
AND			
choose 1 credit hour from CPCA			
or CDTP course selections higher than			
CPCA 105 and CPCA 106			
OR			
any four 1-credit hour courses from			
the CPCA or CDTP course selections			
higher than CPCA 105 and CPCA 106			
MKT	234	Services Marketing*.....	3
AAC	150	Job Search Skills.....	1
FASH	135	Image Management.....	1
MKT	286	Marketing and Management Internship II.....	1
TOTAL CREDIT HOURS.....			19

TOTAL PROGRAM CREDIT HOURS.....	35
*Prerequisite/Corequisite required	

**(Other Recommended Courses)**

BUS 120	Management Attitudes and Motivation.....	3
BUS 121	Introduction to Business.....	3
BUS 235	Introduction to International Business.....	3
FASH 121	Fashion Fundamentals.....	3
FASH 125	Visual Merchandising.....	3
FASH 150	Textiles.....	3
FASH 242	Consumer Product Evaluation.....	3
ITMD 121	Interior Design I.....	3
ITMD 125	Interior Textiles.....	3
ITMD 132	Interior Products.....	3

## Sign Language Communication Certificate

The sign language communication postsecondary certificate has been developed based on the need for professional people in the community to be skilled in sign language. The certification program is not available to students who have been admitted to the interpreter training program. MATH 115 or higher is required for the certificate program; students planning to apply for admission to the interpreter training program after receiving their certificates are advised that MATH 116 or higher and/or a science elective are required for the A.A.S. degree. Students should contact a counselor or the career program facilitator for advice concerning graduation requirements.

## Postsecondary Certificate

### First Semester

INTR 120	Elementary American Sign Language I.....	3
INTR 145	Deaf Culture*.....	3
	Health/Physical Education Elective.....	1
ENGL 121	Composition I*.....	3
	TOTAL CREDIT HOURS.....	10

### Second Semester

INTR 121	Elementary American Sign Language II*.....	3
INTR 130	Survey of the Interpreting Profession*.....	3
ENGL 122	Composition II*.....	3
	TOTAL CREDIT HOURS.....	9

### Third Semester

INTR 122	Intermediate American Sign Language I*.....	3
INTR 142	Fingerspelling I*.....	3
	Math Elective.....	3
	TOTAL CREDIT HOURS.....	9

### Fourth Semester

INTR 123	Intermediate American Sign Language II*.....	3
INTR 135	Theory of American Sign Language*.....	3
	Social Science or Economics Elective.....	3
	TOTAL CREDIT HOURS.....	9
	TOTAL PROGRAM CREDIT HOURS.....	37

### Math Elective

MATH 115	Introduction to Algebra*.....	3
MATH 116	Intermediate Algebra*.....	3
MATH 118	Geometry*.....	3
MATH 120	Business Math*.....	3

MATH 122	Mathematics in our Culture*	3
MATH 133	Technical Mathematics I*	4
MATH 134	Technical Mathematics II*	5
MATH 165	Finite Math*	3
MATH 171	College Algebra*	3
MATH 172	Trigonometry*	3
MATH 173	Precalculus*	3
MATH 175	Discrete Math*	3
MATH 181	Statistics*	3
MATH 225	Math as a Decision Making Tool*	3
MATH 231	Business & Applied Calculus I*	3
MATH 232	Business & Applied Calculus II*	3
MATH 241	Calculus I*	5
MATH 242	Calculus II*	5
MATH 243	Calculus III*	5
MATH 244	Differential Equations*	3

\*Prerequisite/Corequisite required

## Supervision Management Certificate

The supervision management certificate is a 25-credit-hour program designed for students who desire to be or have been designated as managers. The certificate meets the basic core competencies of being a manager or a supervisor.

### Vocational Certificate

BUS 121	Introduction to Business	3
BUS 140	Principles of Supervision	3
BUS 141	Principles of Management	3
BUS 150	Business Communication*	3
BUS 230	Marketing	3
MKT 202	Consumer Behavior*	3
BUS 120	Management Attitudes and Motivation	3
	or	
BUS 225	Human Relations	3
MKT 234	Services Marketing*	3
MKT 284	Marketing and Management Internship I	1
	TOTAL PROGRAM CREDIT HOURS	25

\*Prerequisite/Corequisite required

## Supply Chain Logistics

This program focuses not only on those who currently work in a logistics career but also those who wish to test their interest and want more knowledge about that field. The program stretches all employees, including management personnel professionally. Students receive information and training that can lead them to one of hundreds of careers tied to logistics. In addition to classroom knowledge, students receive current insights from professionals in the field.

The JCCC supply chain program is offered to Johnson County residents in cooperation with Metropolitan Community Colleges of Kansas City. Related courses are taken at JCCC. You must be accepted in to the program by both MCC and JCCC. Students must be residents of Johnson County in order to receive in-state tuition rates. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact Blue River at 816 220-6532 or visit: [www.kcmetro.edu/degree.asp](http://www.kcmetro.edu/degree.asp)

### Vocational Certificate

**(Certificate granted by Blue River Community College)**

Specific Program Requirements

Must be taken at Blue River

KSCL 210	Logistics Management	3
KSCL 211	Operations Management	3

KSCL 212	Transportation Operations & Management.....	3
KSCL 213	Warehousing & Distribution Centers.....	3
Specific Courses at JCCC		
JCCC students can fulfill the elective requirement by completing one of the following classes. All of these classes are part of the curriculum for the associate of applied science degree in business administration.		
ACCT 121	Accounting I^.....	3
BUS 120	Management Attitudes and Motivation.....	3
BUS 121	Introduction to Business^.....	3
BUS 123	Personal Finance^.....	3
BUS 140	Principles of Supervision^.....	3
BUS 141	Principles of Management^.....	3
BUS 145	Small Business Management^.....	3
BUS 230	Marketing^.....	3
BUS 235	Introduction to International Business^.....	3
BUS 243	Human Resource Management.....	3
BUS 261	Business Law I^.....	3
CIS 124	Intro to Computing Concepts and Applications^.....	3
ECON 230	Economics I^.....	3
TOTAL PROGRAM		
CREDIT HOURS.....		15
^Available on-line or as a television course.		

## Surgical Technology

The surgical technology vocational certificate program leads to a certificate of proficiency and prepares students for entry-level jobs as operating room technicians.

JCCC offers the cooperative surgical vocational certificate program for Johnson County residents with Penn Valley Community College. You must be accepted into the program at both Penn Valley Community College and JCCC. Consult with a JCCC counselor for more information. Students must be a resident of Johnson County in order to receive in-state tuition rates.

Program courses and credit hours are subject to change at the certificate-granting institution. Contact Penn Valley Community College at 816-759-4231 for an application packet, which includes deadlines, program prerequisites, and admission requirements.

## Vocational Certificate

Certificate granted by Penn Valley Community College

The following courses should be taken first at JCCC

BIOL 144	Human Anatomy and Physiology.....	5
BIOL 145	Human Anatomy/Physiology Dissection*.....	1

Specific Program Requirements

Must be taken at Penn Valley

KST 100	Introduction to Surgical Technology.....	2
KST 102	Fundamentals of Operating Techniques.....	11
KST 105	Pharmacology for the Surgical Technologist.....	2
KST 106	Aseptic Technique for Surgical Technologist.....	2
KST 109	Principles of Surgical Procedures I.....	8
KST 110	Principles of Surgical Procedures II.....	7
KST 114	Principles of Surgical Procedures III.....	7
KST 116	Career Development for the Surgical Tech.....	2
TOTAL PROGRAM		
CREDIT HOURS.....		47

\*Prerequisite/Corequisite required

## Teleservice Representative Certificate

The teleservice representative certificate program at JCCC was developed in conjunction with the Kansas City Area Call Center Managers Users Group with the objective of providing students with business and practical skills that will help make them successful in the teleservice industry.

Twenty-four of the 33 credit hours required for the teleservice representative certificate apply

toward JCCC's 65-credit-hour marketing and management associate of applied science degree.

## Vocational Certificate

### First Semester

BUS	121	Introduction to Business.....	3
BUS	150	Business Communications*.....	3
BUS	230	Marketing.....	3
MKT	140	Teleservice Communication Skills.....	3
MATH	120	Business Math*.....	3
MKT	284	Marketing and Management Internship I.....	1
		TOTAL CREDIT HOURS.....	16

### Second Semester

BUS	123	Personal Finance.....	3
MKT	202	Consumer Behavior*.....	3
MKT	234	Services Marketing*.....	3
BOT	130	Office Systems Concepts.....	3
CIS	124	Intro to Computing Concepts and Applications^.....	3
		AND	
		Choose one 1-credit-hour course from	
		CPCA or CDTP selections higher than	
		CPCA 105 or CPCA 106	
		OR	
		Choose four 1-credit-hour courses	
		from CPCA or CDTP selections higher	
		than CPCA 105 or CPCA 106	
MKT	286	Marketing and Management Internship II.....	1
		TOTAL CREDIT HOURS.....	17
		TOTAL PROGRAM CREDIT HOURS.....	33

\*Prerequisite/Corequisite required

^Recommended for students who intend to transfer to a baccalaureate degree program

## Teletrac Certificate

This certificate program meets the core competencies outlined by the Call Center User's Group, a group of area business leaders in the teleservice industry. This program includes one internship during which students will learn through hands-on industry experience. All 14 credit hours in this certificate can be applied toward the 33-credit-hour teleservice representative certificate program.

## Vocational Certificate

BUS	121	Introduction to Business.....	3
MKT	140	Teleservice Communication Skills.....	3
MKT	202	Consumer Behavior*.....	3
MATH	120	Business Math*.....	3
BOT	101	Computerized Keyboarding**.....	1
MKT	284	Marketing and Management Internship I.....	1
		TOTAL PROGRAM CREDIT HOURS.....	14

\*Prerequisite/Corequisite required

\*\*Assessment test may be used to satisfy course requirement

## Veterinary Technology

A background in veterinary technology provides opportunities for employment with veterinarians, assisting them in providing professional services and performing veterinary-related tasks. Opportunities also exist with pharmaceutical companies in technical services or laboratory animal care.

The program features supervised intensive clinical study under the direction of a licensed



veterinarian and is fully accredited by the American Veterinary Medical Association. Students study sanitation, animal care, preparation of animals for surgery and anesthetic management as well as laboratory techniques and radiology.

JCCC's veterinary technology program is offered to Johnson County residents in cooperation with Maple Woods Community College. Both JCCC and Maple Woods Community College must accept the students into the program. Consult with a JCCC counselor for more information.

Program courses and credit hours are subject to change because of requirement changes at the degree-granting institution. Contact Maple Woods Community College at 816-437-3235 or [www.kcmetro.edu/maplewoods/vetech](http://www.kcmetro.edu/maplewoods/vetech) for an application packet, which includes deadlines, program prerequisites and admission requirements.

## Associate of Applied Science Degree

Degree granted by Maple Woods Community College

### (General Education Requirements-must be taken at JCCC)

ENGL 121	Composition I*	3
SPD 121	Public Speaking	3

### American Institutions

HIST 140	U.S. History to 1877	3
	or	
HIST 141	U.S. History since 1877	3
	or	
POLS 122	Political Science	3
	or	
POLS 124	American National Government	3
	or	
POLS 126	State and Local Government	3
SOSC 153	Rdgs in Social Science-Missouri Constitution (taken at MCC)	1

### (Specific Program Requirements-must be taken at JCCC)

BIOL 127	General Zoology	5
BIOL 230	Microbiology Lecture*	3
BIOL 231	Microbiology Lab*	2
CHEM 122	Principles of Chemistry	5
CPCA 128	Personal Computer Applications	3

### (Specific Program Requirements-must be taken at Maple Woods)

KSAH 108	Clinical Mathematics	1
KSAH 100	Introduction to Veterinary Technology	2
KSAH 101	Principles of Animal Science I	3
KSAH 110	Principles of Animal Science II*	3
KSAH 111	Sanitation and Animal Care	2
KSAH 200	Veterinary Hospital Technology I*	3
KSAH 201	Clinical Pathology Techniques I*	4
KSAH 202	Veterinary Anatomy*	5
KSAH 203	Laboratory Animal Technology*	2
KSAH 209	Equine Medicine and Management	3
KSAH 210	Animal Hospital Technology II*	3
KSAH 211	Clinical Pathology Techniques II*	5
KSAH 212	Large Animal Technology*	4
KSAH 213	Radiology and Electronic Procedures	2
KSAH 214	Veterinary Technician Internship*	6
	TOTAL PROGRAM CREDIT HOURS	76

\*Prerequisite/Corequisite required

## Virtual Home Office Certificate

The certificate is designed for students conducting all or part of their job duties in a remote location or home office as well as students seeking career opportunities where they can work from a home office.

## Vocational Certificate

### First Semester

CPCA 105	Introduction to Personal Computers: Win.....	1
BOT 130	Office Systems Concepts.....	3
BOT 103	Business English.....	3
BOT 155	Word Processing Applications I*.....	2
CPCA 141	Internet I*.....	1
ACCT 111	Small Business Accounting.....	3
CPCA 110	Spreadsheets on Microcomputers I*.....	1

### Second Semester

CPCA 151	Internet II*.....	1
BOT 275	Office Internship I*.....	1
BOT 255	Word Processing Applications II*.....	2
CPCA 114	Databases on Microcomputers I: Access*.....	1
TOTAL PROGRAM CREDIT HOURS.....		19

\*Prerequisite/Corequisite required

## Virtual Medical Office Certificate

The certificate is designed for students working or planning to work in the medical business office from a remote location or their home.

## Vocational Certificate

BOT 165	Medical Transcription*.....	3
AAC 130	Medical Terminology.....	3
BOT 170	Medical Coding and Billing*.....	3
BIOL 140	Human Anatomy.....	4
BOT 270	Advanced Medical Transcription*.....	3
TOTAL PROGRAM CREDIT HOURS.....		16

### (Business Office Technology Electives)

BOT 103	Business English.....	3
BOT 118	Skillbuilding II*.....	1
BOT 175	Conflict in the Workplace.....	1
BOT 180	Business Spreadsheet Applications*.....	1
BOT 185	Business Database Applications*.....	1
BOT 205	Professional Image Development.....	1
BOT 210	Working in Teams.....	1
BOT 280	Office Internship II*.....	1

\*Prerequisite/Corequisite required

## Visual Merchandising Certificate

The visual merchandising certificate provides students with the opportunity to prepare for positions in the retail and wholesale market as display designers or visual merchandise managers.

## Vocational Certificate

FASH 121	Fashion Fundamentals.....	3
FASH 125	Visual Merchandising.....	3
	Fashion Elective.....	3
MKT 121	Retail Management.....	3

ITMD 127	Elements of Floral Design.....	1
ITMD 147	Lighting Design and Planning*.....	1
FASH 283	Fashion Internship I.....	1
FASH 225	Store Planning*.....	3
	TOTAL PROGRAM CREDIT HOURS.....	18

\*Prerequisite/Corequisite required

**(Recommended Fashion Electives for Certificate)**

FASH 130	Fashion Illustration I.....	3
FASH 132	Marketing Communications.....	3
FASH 150	Textiles.....	3
FASH 242	Consumer Product Evaluation.....	3

## Web Application Certificate

This certificate is designed for those seeking entry-level positions and those who are currently employed and want to improve their job skills and career opportunities relating to Web-oriented applications. This certificate gives an employer tangible evidence of Web-based software skills and competencies.

## Vocational Certificate

Prerequisite:

PCPA 105	Introduction to Personal Computer: Win.....	1
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**First Semester**

CWEB 101	Intro to the Web Using Internet Explorer*.....	1
CWEB 111	Int Web Cncpt & Tech Using Internet Explorer*.....	1
PCPA 114	Databases on Microcomputers I:Access*.....	1
CWEB 106	Introduction to Microsoft FrontPage*.....	1
CWEB 105	Introduction to Web Pages:Dreamweaver*.....	1
	and either	
CWEB 116	Intermediate Microsoft FrontPage*.....	1
	or	
CWEB 115	Intermediate Web Pages:Dreamweaver*.....	1
CWEB 230	Introductory E-commerce Applications*.....	1
	TOTAL CREDIT HOURS.....	7

**Second Semester**

CWEB 135	Web-enabled Databases I - Using Access*.....	1
CWEB 145	Web-enabled Databases II - Using Access*.....	1
CWEB 240	Intermediate E-commerce Applications*.....	1

**(Select two of the following three courses listed:)**

CDTP 135	Desktop Photo Manipulation I:Photoshop*.....	1
CDTP 145	Desktop Illustration I:Illustrator*.....	1
CWEB 130	Introduction to Flash*.....	1

**(Select two of the following three courses listed:)**

PCPA 161	Introduction to Web Pages:HTML*.....	1
CWEB 160	Introduction to Javascript*.....	1
CWEB 107	Web Tools:Microsoft Office*.....	1
	TOTAL CREDIT HOURS.....	7
	TOTAL PROGRAM CREDIT HOURS.....	14

\*Prerequisite/Corequisite required

## Web Design Certificate

The Web design certificate provides instruction in the design and development process needed to deliver information and media primarily via the World Wide Web. This instruction includes acquiring and managing assets (text, graphics, sound and video), the history and theory of communication forms, screen design, multimedia authoring, interface design and project management.

Students who complete the Web design certificate should be prepared for employment in a variety of positions within the interactive media field. Potential positions in Web design include writer/editor/researcher, graphics professional, photography/imaging/video professional, music/audio professional, animator, programmer, information designer, interface designer and/or project manager.

## Vocational Certificate

CIM	130	Interactive Media Concepts.....	2
CIM	140	Interactive Media Assets*.....	4
CIM	133	Screen Design*.....	4
CIM	156	Interactive Authoring I: Web*.....	4
CIM	200	Interactive Communication Forms*.....	3
CIM	230	Interactive Media Development*.....	4
CIM	250	Interface Design*.....	4
CIM	270	Interactive Media Project*.....	4
		TOTAL PROGRAM CREDIT HOURS.....	29

\*Prerequisite/Corequisite required

## Web Developer Advanced Certificate

The Web developer advanced certificate is for the computer professional who wants to acquire the necessary skills to enable clients to interface with databases on the World Wide Web.

## Vocational Certificate

Prior to admission, students must have completed the following courses:

CIS	134	Programming Fundamentals.....	4
CPCA	161	Introduction to Web Pages*.....	1
CDTP	131	Desktop Publishing I: QuarkXpress*.....	1
		or	
CDTP	140	Desktop Publishing I: InDesign*.....	1
		or	
CDTP	135	Desktop Photo Manipulation I: Photoshop*.....	1
CIS	162	Database Programming*.....	4
CS	200	Cncpts of Programming Algorithms Using C++*.....	4
		or	
CS	205	Cncpt of Programming Algorithms Using Java*.....	4
CIS	235	Object-oriented Programming Using C++*.....	4
		or	
CS	255	Basic Data Structures Using Java*.....	4

### First Semester

CIM	133	Screen Design*.....	4
CIS	204	Unix Operating System*.....	3
CIS	240	Advanced Topics in Java I*.....	4
CIS	260	Database Management*.....	4
		TOTAL CREDIT HOURS.....	15

### Second Semester

CIM	130	Interactive Media Concepts*.....	2
CIS	254	Unix System Administration*.....	4
CIS	275	Web-enabled Database Programming*.....	4
		or	
CIS	277	Active Server Pages.Net*.....	4
CIS	280	Advanced Topics in Java II*.....	4

TOTAL CREDIT HOURS.....	14
TOTAL PROGRAM CREDIT HOURS.....	29

\*Prerequisite/Corequisite required

## **Continuing Education Certificate Programs**

Continuing education class schedules are available from the continuing education class search open and closed class list.

Associate in Claims

Associate in Commercial Underwriting

Associate in Reinsurance

Associate in Risk Management

Complementary and Alternative Medicine, Certificate  
in

Gerontology, Certificate in

Intensive English Program

Job Skills Series

Macromedia Web Design, Certificate in

Master Team Leader Certificate

Medical Coding Certification

Office Skills, Certificate in

Property Casualty Underwriter

Spirituality, Health, Healing

Therapeutic Massage Certificate

Visual Basic and i-Net+ Series

# Visual Basic Programming

## Associate in Claims

Claims professionals handle a wide variety of claims including property, auto workers compensation, and bodily injury claims. Earning the AIC designation can improve your technical claim-handling abilities as well as your communication and negotiation skills. You can take the standard multiline emphasis or choose among four alternative paths to suit your career needs. You must take all four exams in order to receive the designation.

### Required Courses:

XNI 1100 The Claims Environment  
XNI 1115 AIC 34 Workers Compensation and Managing  
Bodily Injury Claims  
XNI 1120 AIC 35 Property Loss Adjusting  
XNI 1125 AIC 36 Liability Claim Practices

## Associate in Commercial Underwriting

The AU designation program will complement the underwriting skills you have learned on the job. You will also learn processes to guide you in writing accounts and considering coverage questions. You must take all three exams to earn the designation.

### Required Courses:

XNI 1330 Commercial Underwriting:Principles/Property  
XNI 1335 Commercial Underwriting: Liability and  
Advanced Techniques  
XNI 1050 Commercial Insurance

## Associate in Reinsurance

The ARe designation will enhance your understanding of reinsurance terms and pricing, reinsurance treaties, and facultative certificates. You will also develop the necessary skills to design a reinsurance program. You must take the following four tests to earn an ARe designation.

### Required Courses:

XNI 1145 Principles of Reinsurance  
XNI 1150 Reinsurance Practices  
XNI 6027 Insurance Operations and Regulations  
XNI 2080 Business and Financial Analysis for Risk  
Management and Insurance Professionals

## Associate in Risk Management

By earning the ARM designation, you will greatly enhance your understanding of the risk management process, from analysis to implementation and monitoring. The information you learn is practical, and you will be able to apply it immediately to your daily risk management responsibilities. To earn your designation there are three national tests. For more information on the program and testing, please visit the Insurance Institute of America Web site at [www.aicpcu.org](http://www.aicpcu.org).

### Required Courses:

XNI 1300 ARM 54 Essentials of Risk Management  
XNI 1305 ARM 55 Essentials of Risk Control  
XNI 1320 ARM 56 Risk Financing

# Complementary and Alternative Medicine, Certificate in

The certificate in complementary and alternative medicine is designed to provide a multidisciplinary educational experience. Those wishing to become knowledgeable, skilled and committed health care professionals in the field of complementary and alternative medicine should achieve certification.

- The program requires 27 contact hours.
- Students must register with JCCC and then complete the online orientation at [www.ed2go.com/jccc](http://www.ed2go.com/jccc).
- ALLEGRA Learning Solutions, LLC, is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation.
- The program meets the qualifications for the stated hours of continuing education credit for MFTs and/or LCSWs as required by the California Board of Behavioral Sciences.
- The program is provider approved by the California Board of Registered Nursing, Provider #CEP12385, for the stated number of contact hours.
- **The certificate program must be completed within six weeks of the start date.**

This certificate consists of the following eight courses.

## Required Courses:

XNH 1685	Intro to Complementary & Alternative Medicine
XNH 1655	Introduction to Spirituality, Health and Healing
XNH 1635	Cultural Competence in Health Care
XNH 1665	Healing Environments
XNH 1690	Bodywork Healing Therapies
XNH 1695	Chinese Medicine
XNH 1675	Healing Therapeutic Interventions
XNH 1700	Ayurvedic Medicine

## Gerontology, Certificate in

Offered completely online, the certificate in gerontology represents a specialization in the field of gerontology. Divided into individual courses, the program provides 26 hours of instruction designed to enhance the knowledge and skills of individuals who work with adults by providing an educational experience that is multidisciplinary in nature.

- Students must register with JCCC and then complete the online orientation at [www.ed2go.com/jccc](http://www.ed2go.com/jccc).
- The program is accredited through ALLEGRA Learning Solutions, LLC, an accredited provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation.
- This program also meets the qualifications for the stated hours of continuing education credit for MFTs and/or LCSWs as required by the California Board of Behavioral Sciences.
- The program is provider approved by the California Board of Registered Nursing, Provider #CEP 12385, for the stated number of contact hours.
- **The certificate program must be completed within six weeks of the start date.**

### The four core courses:

Introduction to Gerontology  
Physiology of Aging  
Mental Health and Aging  
Healthy Aging

### Elective Courses (complete any four):

Spirituality and Aging  
Pain Assessment and Management in the Older Adult  
Death and Dying

Sleep and Aging  
The Older Woman  
Elder Abuse

## Required Courses:

XNH 1705 Introduction to Gerontology  
XNH 1595 Physiology of Aging  
XNH 1585 Mental Health and Aging  
XNH 1590 Healthy Aging  
XNH 1605 Spirituality and Aging  
XNH 1625 Pain Assessment  
XNH 1610 Death and Dying  
XNH 1600 Sleep and Aging  
XNH 1620 Older Woman  
XNH 1615 Elder Abuse

## Intensive English Program

The intensive English program offers preacademic English language study for non-native English language students who wish to improve and strengthen their academic English proficiency in order to obtain a degree at a U.S. college or university. While students who have personal or career enhancement language needs may benefit from the classes, the classes are not designed to help students who need English for personal or career enhancement reasons.

Curriculum and activities include:

- Introductory, beginning, intermediate and advanced-level listening, speaking, conversation, pronunciation, reading, writing, grammar and vocabulary skills courses.
- A minimum of 20 hours of instruction a week for full-time students during the fall and spring.

## Required Courses:

XGI 1400 Introductory Reading  
XGI 1410 Beginning Reading  
XGI 1420 Low Intermediate Reading  
XGI 1630 High Intermediate Reading and Writing  
XGI 1640 Advanced Reading, Writing and Research  
XGI 1700 Introductory Writing and Grammar  
XGI 1710 Beginning Writing and Grammar  
XGI 1720 Low Intermediate Writing and Grammar  
XGI 1200 Introductory Grammar  
XGI 1210 Beginning Grammar  
XGI 1220 Low Intermediate Grammar  
XGI 1230 High Intermediate Grammar  
XGI 1245 Advanced Grammar Workshop  
XGI 1100 Introductory Listening and Speaking  
XGI 1110 Beginning Listening and Speaking  
XGI 1120 Low Intermediate Listening and Speaking  
XGI 1130 High Intermediate Listening and Speaking  
XGI 1035 Advanced Learning Strategies

### (Electives:)

XGI 1020 American Idioms and Slang  
XGI 1030 Learning and Test-Taking Strategies  
XGI 1040 Beginning and Intermediate Pronunciation  
XGI 1041 High Intermediate and Advanced Pronunciation  
XGI 1060 Online Business/Technical Writing for ESL Learning  
XGI 1065 Medical English for Nurses  
XGI 1080 American Culture  
XGI 1090 Computer Training



XGI 1092 Web Development  
XGI 1093 Mixed Media Research  
XGI 1094 Keyboarding, Email and Internet  
XGI 1095 Conversation and Current Events  
XGI 1150 Presentation and Notetaking Skills  
XGI 1670 Writing Support Course for Intro to Writing  
XGI 1680 Reading Support Course for Rdg Strategies

## Job Skills Series

Enhance your skills with the job skills series.

- Improve your computer abilities and let potential employers know you have the skills they need with classes in Windows XP, Word Fundamentals, Excel Fundamentals, Outlook and PowerPoint Fundamentals.
- Learn how to present your best possible image with instruction in Building Your Resume, Searching and Applying for that Perfect Job and Interviewing - Helping You Succeed in Job Seeking.

## Required Courses:

XCM 1601 Job Skills  
XCM 1450 Windows Introduction  
XCM 3405 Excel Fundamentals  
XCM 2305 Word Fundamentals  
XCM 9400 Outlook  
XCM 5505 PowerPoint Fundamentals  
XBD 0161 Building Your Resume  
XBD 0162 Searching and Applying for that Perfect Job  
XBD 0163 Interviewing-Helping you Success in Job Seeking

## Macromedia Web Design, Certificate in

The macromedia Web development and design series

- covers the Macromedia suite of applications including Dreamweaver Fundamentals and Advanced, Fireworks Fundamentals and Advanced, and Flash Fundamentals and Intermediate.
- includes instruction in HTML and Web page design.
- prerequisites include experience with Windows, keyboard, mouse, Internet terms and navigation.
- consists of 91 classroom hours.

## Required Courses:

XCM 1605 Macromedia Web Development and Design  
XCM 9540 HTML and Web Page Design  
XCM 9465 Dreamweaver Fundamentals  
XCM 9466 Dreamweaver Advanced  
XCM 4150 Fireworks Fundamentals  
XCM 4151 Fireworks Advanced  
XCM 9470 Flash Fundamentals  
XCM 9471 Flash Intermediate  
XCM 9469 Dreamweaver Databases

## Master Team Leader Certificate

The master team leader certificate program

- is designed to develop team facilitators who will train other facilitators, team leaders and teams within their organization.
- consists of the completion of the following four core courses and the "Introductory Certificate Program."
- is offered September-December and May-August.

The advanced certificate must be completed in two years. Both certificate programs must be completed within a four-year period. For maximum effectiveness, we recommend taking the courses in sequence.

**Core Courses:**

Team Communication and Feedback  
Maximizing Team Diversity  
Managing Team Conflict  
Facilitating Change in Teams

## Required Courses:

XDM 0543 Team Communication and Feedback  
XDM 0550 Maximizing Team Diversity  
XDM 0542 Managing Team Conflict  
XDM 0541 Facilitating Change in Teams  
XDM 0524 Survival Skills for Successful Team Structure  
XDM 0525 Team Facilitation  
XDM 0530 Team Leadership Development  
XDM 0528 Increasing Team Performance

## Medical Coding Certification

Medical coding certification is

- designed for medical office professionals.
- a 16-week program offered each fall and spring.

Individuals who complete the course may choose to apply to sit for the national certification examination offered by the American Academy of Professional Coders. The exam application is made individually. Course completion does not guarantee you will pass the examination.

This comprehensive course is based on the Professional Medical Coding Student Workbook with information on medical terminology, anatomy and coding issues related to CPT and ICD-9-CM coding. Copies of the current CPT, ICD-9-CM and HCPCS are the required textbooks.

## Required Courses:

Prerequisite Courses (must take one or have equivalent):

XNH 1550 Medical Terminology  
XNC 2413 Demystifying Medical Terminology

Additional Required Course:

XNC 2430 Medical Coding Certification

## Office Skills, Certificate in

The office skills-office solutions series.

- is designed to improve your office skills in MS Office applications Word, Excel, Outlook, PowerPoint and FrontPage.
- improves keyboarding and typing skills.
- is an eight-week program.
- includes an introduction to personal computers and Windows operating systems.
- consists of 105 classroom hours.

## Required Courses:

XCM 1600	Office Skills-Office Solutions
XCM 1200	Introduction to the Personal Computer
XCM 1700	Keyboarding Fundamentals
XCM 1450	Windows Introduction
XCM 1455	Windows Advanced
XCM 8101	Introduction to the Internet
XCM 3405	Excel Fundamentals
XCM 2305	Word Fundamentals
XCM 3406	Excel Intermediate
XCM 2306	Word Intermediate
XCM 9450	FrontPage Fundamentals
XCM 9400	Outlook
XCM 5505	PowerPoint Fundamentals

## Property Casualty Underwriter

The chartered property casualty underwriter curriculum meets the needs of today's risk management and insurance professionals while maintaining the integrity of the industry's most respected professional designation. You will gain a broad understanding of property-casualty insurance, including in-depth coverage of personal financial planning and financial services.

- Courses can be taken in any sequence, but starting with CPCU 510 or CPCU 520 is recommended.
- The CPCU designation is earned after passing the eight national exams.

XNI 2010	CPCU 510 Foundations of Risk Management, Insurance and Professionalism
XNI 2080	CPCU 540 Accounting and Finance
XNI 6028	CPCU 530 The Legal Environment
XNI 6027	CPCU 520 Insurance Operations and Regulation
XNI 6029	CPCU 551 Commercial Property Risk Management and Insurance
XNI 6030	CPCU 552 Commercial Liability Risk Management, Insurance and Financial Planning
XNI 6031	CPCU 553 Survey of Personal Risk Management, Insurance and Financial Planning
XNI 6032	CPCU 555 Personal Risk Management and Property-Liability Insurance
XNI 6033	CPCU 556 Personal Financial Planning
XNI 6034	CPCU 557 Survey of Commercial Risk Management and Insurance

## Spirituality, Health, Healing

The certificate in spirituality, health and healing presents a broad understanding of spirituality, health and healing. Health care professionals will stay current with emerging trends.

- The program requires 21 contact hours.
- Students must register with JCCC and then complete the online orientation at [www.ed2go.com/jccc](http://www.ed2go.com/jccc).
- ALLEGRA Learning Solutions, LLC, is accredited as a provider of continuing education in nursing by the American Nurses Credentialing Center's Commission on Accreditation.
- This course meets the qualifications for the stated hours of continuing education credit for MFTs and/or LCSWs as required by the California Board of Behavioral Sciences.
- The program is provider approved by the California Board of Registered Nursing, Provider #CEP 12385, for the stated number of contact hours.
- **The certificate program must be completed within six weeks of the start date.**

This certificate program consists of the following seven courses.

## Required Courses:

XNH 1655 Introduction to Spirituality, Health and Healing  
 XNH 1640 Spirituality, Religion, Culture and Health  
 XNH 1660 Spiritual Care  
 XNH 1665 Healing Environments  
 XNH 1670 Spirituality, the Dying Experience and Grief  
 XNH 1675 Healing Therapeutic Interventions  
 XNH 1605 Spirituality and Aging

## Therapeutic Massage Certificate

This program meets the 500-hour massage therapist II licensure requirement set by the city of Overland Park, Kan. ordinances.

- 365 hours of hands-on bodywork consisting of basic and advanced techniques, body mechanics, sports and chair massage, craniosacral balancing, reflexology, and aromatherapy.
- 52 hours of business practice, professional ethics, hygiene and massage law.
- Prerequisite, Human Anatomy and Physiology, totals 100 hours (as a five-college-credits course).

## Required Courses:

Prerequisite Course:

BIOL 144 Anatomy and Physiology

Courses:

XNM 5000 Introduction to Bodywork (Module I)  
 XNM 5010 Kinesiology  
 XNM 5050 Pathology  
 XNM 5021 First Aid/CPR  
 XNM 5075 Professional Business Practices I  
 XNM 5030 Communicable Diseases  
 XNM 5040 Clinical Bodywork (Module II)  
 XNM 5060 Hydrotherapy  
 XNM 5091 Bodywork Clinics I  
 XNM 5070 Clinical Bodywork (Module II)  
 XNM 5080 Professional Business Practices II  
 XNM 5092 Bodywork Clinics II

## Visual Basic and i-Net+ Series

The Visual Basic and i-Net+ Series program

- offers a solid foundation in the Visual Basic programming language.
- prepares you for the i-Net+ Certification exam.
- includes instruction in Microsoft Access Fundamentals, Visual Basic Advanced with Database Programming, and i-Net+ Certification Studies.
- consists of 154 classroom hours.

## Required Courses:

XCM 4220 Access Fundamentals  
 XCM 4225 Access Intermediate  
 XCM 6000 Programming Logic & Design Intro  
 XCM 6150 Visual Basic Fundamentals  
 XCM 6151 Visual Basic Intermediate  
 XCM 6165 Visual Basic Advanced with Database Programming  
 XCM 1620 i-Net+: Certification Studies  
 XCM 1610 Visual Basic and i-Net+

## Visual Basic Programming

The Visual Basic programming series

- offers a solid foundation in the Visual Basic programming language.
- includes instruction in Microsoft Access Fundamentals and Intermediate, Programming Logic and Design, Visual Basic Fundamentals and Intermediate, and Visual Basic Advanced with Database Programming.
- consists of 119 classroom hours.
- prerequisites include a thorough understanding of the Windows operating system and the ability to use the keyboard and mouse.

## Required Courses:

XCM 4220 Access Fundamentals  
 XCM 4225 Access Intermediate  
 XCM 6000 Programming Logic and Design Intro  
 XCM 6150 Visual Basic Fundamentals  
 XCM 6151 Visual Basic Intermediate  
 XCM 6165 Visual Basic Advanced with Database Programming  
 XCM 1611 Visual Basic Programming

## Academic Offerings

The following course offerings at JCCC are listed alphabetically by subject area. Clicking on the subject in which you are interested will give you a list of all courses that fall under that subject and a course description (including credit hour value) for each of those courses. If you then click on a particular course (ANTH 125, for example), you will be directed to a copy of the course outline, which includes the objectives and competencies covered in the course.

- A -

**Academic Achievement Center (AAC)**

**Accounting (ACCT)**

**Administration of Justice (ADMJ)**

**Anthropology (ANTH)**

**Architecture (ARCH)**

**Art (ART)**

**Astronomy (ASTR)**  
**Automotive Technology (AUTO)**

**- B -**

**Biology (BIOL)**  
**Business (BUS)**  
**Business Entrepreneurship (BUSE)**  
**Business Office Technology (BOT)**

**- C -**

**Chemistry (CHEM)**  
**Civil Engineering Technology (CET)**  
**Communication Design (CD)**  
**Computer Desktop Publishing (CDTP)**  
**Computer Forensics (CFOR)**  
**Computer Information Systems (CIS)**  
**Computer Personal Computer App (CPCA)**  
**Computer Science (CS)**  
**Computer Web (CWEB)**  
**Cosmetology (AVCO)**

**- D -**

**Dental Assisting (KDA)**  
**Dental Hygiene (DHYG)**  
**Drafting/CAD/AutoCAD (DRAF)**

**- E -**

**Economics (ECON)**  
**Education and Early Childhood (EDUC)**  
**Electrical Technology (ELTE)**  
**Electronics (ELEC)**  
**Emergency Medical Science/MICT (EMS)**  
**Engineering (ENGR)**  
**English (ENGL)**

**- F -**

**Fashion Merchandising/Design (FASH)**  
**Fire Services Administration (FIRE)**  
**Foreign Language (FL)**

**- G -**

**Geoscience (GEOS)**  
**Grounds and Turf Management (KAGB)**

**- H -**

**Health Care (HC)**

**Health Information Technology (KMRT)**  
**Health Occupations (AVHO)**  
**Heating, Vent., Air Conditioning (HVAC)**  
**History (HIST)**  
**Home Economics (HMEC)**  
**Honors Program (HON)**  
**Horticulture (HORT)**  
**Hospitality Management (HMGT)**  
**Humanities (HUM)**

- I -

**Industrial Technology (INDT)**  
**Information Technology (IT)**  
**Interactive Media (CIM)**  
**Interior Design (ITMD)**  
**Interpreter Training (INTR)**

- J -

**Journalism/Media Communication (JOUR)**

- L -

**Leadership (LEAD)**  
**Learning Strategies (LS)**  
**Legal Studies (LAW)**  
**Library (LIBR)**

- M -

**Marketing Management (MKT)**  
**Mathematics (MATH)**  
**Metal Fabrication and Welding (MFAB)**  
**Music (MUS)**

- N -

**Nursing (NURS)**

- O -

**Occupational Therapy Assistant (KOT)**

- P -

**Philosophy (PHIL)**  
**Photography (PHOT)**  
**Physical Ed, Health & Rec (HPER)**  
**Physical Science (PSCI)**  
**Physical Therapist Assistant (KPT)**  
**Physics (PHYS)**  
**Political Science (POLS)**

**Power Plant Technology (PPT)**  
**Practical Nursing (AVPN)**  
**Psychology (PSYC)**

- R -

**Radiologic Technology (KRAD)**  
**Railroad Conductor (RRTC)**  
**Railroad Dispatcher (RRTD)**  
**Railroad Electronics (RREL)**  
**Railroad Industrial Technology (RRIT)**  
**Railroad Maintenance of Way (RRMW)**  
**Railroad Operations (RRT)**  
**Railroad Operations-Mechanical (RRTM)**  
**Railroad Work Equipment (RRWE)**  
**Reading (RDG)**  
**Religion (REL)**  
**Respiratory Care (RC)**

- S -

**Sociology (SOC)**  
**Speech/Debate (SPD)**  
**Supply Chain Logistics (KSCL)**  
**Surgical Technology (KST)**

- T -

**Theater (THEA)**

- V -

**Veterinary Technology (KSAH)**

## **Academic Achievement Center (AAC)**

### **AAC 100** **STUDY SKILLS (1 CR)**

This course is designed to improve students' ability to study efficiently. Based on the results of a study skills survey administered during the student's initial visit to the center, an individualized program is established. Using instructional material provided by the AAC, students will master a variety of concepts, including time management, goal setting, textbook reading, note taking from textbook and from lecture, stress management, test taking, and using college resources. An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals and to provide individualized instruction as it is needed to complete the student's program. This course does not fulfill degree requirements.

### **AAC 101** **STUDY SKILLS MINI-COURSE (1 CR)**

This class is designed to improve students' ability to study efficiently. The focus is an array of skills the college student needs, i.e., test-taking skills and note-taking skills, using a textbook, critical reading and memory recall, and effective listening and classroom strategies. Also covered



are services the college offers to facilitate the learning experience for the college student, i.e., the Writing Center, the Math Resource Center, the Academic Achievement Center, the Student Success Center and the Billington Library. The format includes reading, discussion and practice exercises. This course does not fulfill degree requirements.

### **AAC 102** **BASIC SPELLING (3 CR)**

This course is for students who wish to improve their spelling ability but who have not been successful in the traditional spelling program. This course provides a highly structured approach to spelling improvement through mastery of morphographs (units of meaning) and guidelines for combining morphographs. A limited number of spelling rules are taught in the course. This course is ideal for students for whom English is a second language. This course does not fulfill degree requirements.

### **AAC 103** **ADVANCED SPELLING (1 CR)**

This course is for the student who needs to learn or review the basic spelling concepts and to improve his or her level of spelling mastery. Based on the results of a pretest administered during the student's initial visit, an individualized program is established. Using instructional material provided by the AAC, students will master a variety of concepts, including the final e-rule, the doubling rule, the y-to-i rule, forming the plurals and using possessives. In addition, the student will monitor misspellings that occur in his or her own writing and will master the correct spelling of those words. A post-test will be administered at the end of the program to measure progress. An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals, provide individualized instruction and administer tests as needed to complete the student's program. This course does not fulfill degree requirements.

### **AAC 104** **READING COMPREHENSION (1 CR)**

This course is designed for students who wish to improve their understanding of written language. Students learn techniques for increasing reading comprehension, which include previewing, questioning, careful reading with note taking, reciting, and reviewing. An individualized program of study which includes both instructional and practice material is developed for each student. Textbooks, computer software and handouts are some of the materials used in this course. This course does not fulfill degree requirements.

### **AAC 105** **READING RATE (1 CR)**

This course is designed for students who wish to improve the rate at which they process written language. Students learn techniques for increasing reading rate and for improving skimming and scanning levels. A pretest is administered to determine a baseline reading efficiency rate. An individualized program of study which includes both instructional material and practice material is developed for each student. Textbooks, computer software and handouts are some of the materials used in this course. This course does not fulfill degree requirements.

### **AAC 106** **VOCABULARY DEVELOPMENT (1 CR)**

This course is designed for college students who wish to expand both their receptive and expressive vocabulary levels. College students are expected to be able to recognize and use vocabularies specific to specialized and changing contents, i.e., data processing, sociology and business. A vocabulary placement test will be administered to determine a starting level. Included in the content are Latin and Greek derivatives, specialized vocabulary, stated and implied meanings as well as the process of acquisition (context clues, etymology and derivatives). An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals and provide individualized instruction as needed to complete the student's

program. This course does not fulfill degree requirements

**AAC 112**  
**BASIC MATH REVIEW (1 CR)**

This course is designed for the student who needs to learn or review the basic mathematical concepts. Based on the results of a pretest administered during the student's initial visit to the center, an individualized program is established. While one student may begin the program with multiplication facts, another may begin with solving proportions or equations. An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals and to provide individualized instruction as needed to complete the student's program. This course does not fulfill degree requirements.

**AAC 113**  
**ALGEBRA PREPARATION (1 CR)**

This course is designed for the student who needs to learn or review basic concepts in algebra. Based on the results of a pretest administered during the student's initial visit to the center, an individualized program is established. Using instructional material provided by the AAC, students will master a variety of concepts, including the terminology of mathematics and algebra, simplifying open expressions, solving algebraic equations and other concepts. An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals and provide individualized instruction as needed to complete the student's program. This course does not fulfill degree requirements.

**AAC 114**  
**CHEMISTRY PREPARATION (1 CR)**

This course is designed for the student who needs to learn or review the basic chemistry concepts. Based on the results of a pretest administered during the student's initial visit to the center, an individualized program is established. Using instructional material provided by the AAC, students will master a variety of concepts, including chemical symbols and formulas, valences, chemical equations, the metric system, units and dimensions, temperature, numbers in exponent form, significant figures, electrical charges, acids, bases, salts and solubility. An Academic Achievement Center instructor is available to work with the student to establish specific instructional goals and provide individualized instruction as needed to complete the student's program. This course does not fulfill degree requirements.

**AAC 115**  
**COLLEGE SKILLS DEVELOPMENT (1 CR)**

This course is designed to improve student self-awareness and institutional awareness. Focus is on strengthening the student's ability to use campus resources and services, as well as improving self-awareness in terms of communication skills, aptitudes, interests, values pertaining to career/life decisions, and self-advocacy. This course does not fulfill degree requirements.

**AAC 120**  
**INDIVIDUALIZED STUDY (1 CR)**

Individualized Study is a course designed for the students who have taken other AAC courses and what to continue to improve in any of the following areas: study skills, reading comprehension, reading rate, vocabulary improvement, spelling improvement, basic math, algebra preparation or chemistry preparation. Once the area of study has been determined, a pretest will be administered by the instructor and a program of study will be developed. This course does not fulfill degree requirements.

**AAC 121**  
**INDIVIDUALIZED STUDY (2 CR)**

Individualized Study is a course designed for students who want to improve in one or two of the following areas: study skills, reading comprehension, reading rate, vocabulary improvement, spelling improvement, basic math, algebra preparation or chemistry preparation. Once the areas of study have been determined, a pretest will be administered by the instructor in each of these areas and a program of study will be developed. This course does not fulfill degree requirements.

**AAC 122**  
**INDIVIDUALIZED STUDY (3 CR)**

Individualized Study is a course designed for students who want to improve in two or three of following areas: study skills, reading comprehension, reading rate, vocabulary improvement, spelling improvement, basic math, algebra preparation or chemistry preparation. Once the areas of study have been determined, a pretest will be administered by the instructor in each of these areas, and a program of study will be developed. This course does not fulfill degree requirements.

**AAC 130**  
**MEDICAL TERMINOLOGY (3 CR)**

This course is designed for the student who wants to learn a systematic format for acquiring a medical vocabulary. The course begins with a study of suffixes and prefixes common to most of the body systems and guidelines for combining word parts and forming plurals. This is followed by a study of each body system and oncological terminology. Any student who is planning a career in any facet of the health care industry will find this course beneficial. This course does not fulfill degree requirements.

**AAC 135**  
**CAREER/LIFE PLANNING (3 CR)**

This course helps students make decisions about their college majors, careers and other life goals. It emphasizes career research as a tool for making current career decisions and meeting changes in the future workplace. Students learn a systematic approach for making career and life decisions based on their interest, skills and values.

**AAC 150**  
**JOB SEARCH SKILLS (1 CR)**

This class presents the skills students need to conduct an effective job search, including locating job leads, writing resumes, and employment interviewing. Additionally, students will explore the importance of adapting to changes in the workplace to ensure their job survival and success. The class consists of lectures, activities, discussion and exercises in the career planning and job search process.

## **Accounting (ACCT)**

**ACCT 111**  
**SMALL BUSINESS ACCOUNTING (3 CR)**

This course will introduce the basic accounting procedures needed to maintain daily records for a small business and the use of such records in the decision-making process. Upon successful completion of the course, the student will be able to maintain a set of financial records with the occasional help of an outside accountant. This course does not prepare the student for Accounting II. 3 hrs./wk.

**ACCT 121**  
**ACCOUNTING I (3 CR)**

This course is an introduction to accounting fundamentals. Upon successful completion of this course, a student should be able to analyze transactions, use various journals and ledgers, prepare financial statements and summarize results at the close of the fiscal period for the sole proprietorship. 3 hrs./wk.

**ACCT 122**  
**ACCOUNTING II (3 CR)**

*Prerequisite: ACCT 121*

This course is a continuation of ACCT 121. Upon successful completion of this course, the student should be able to prepare and use financial statements with increased emphasis on interpretation and use of accounting data peculiar to partnerships, corporations and manufacturing firms. 3 hrs./wk.

**ACCT 131**  
**FEDERAL INCOME TAXES I (3 CR)**

This course teaches the student federal income tax rules and the procedures for reporting federal income tax. Upon completion of this course, the student should be able to do short- and long-range tax planning and keep records that will provide appropriate information for use in preparing federal income tax. The student should also be able to prepare the standard individual federal income tax return. 3 hrs./wk.

**ACCT 135**  
**COMPUTER ACCOUNTING APPLICAT (3 CR)**

*Prerequisite: ACCT 121 or ACCT 111*

Upon successful completion of this course, a student will be able to use the microcomputer to create a chart of accounts, accounts receivable and payable subsidiary ledgers, transaction journals, general ledgers, financial statements, reports and forecasts. 3 hrs./wk.

**ACCT 140**  
**COMPUTERIZED ACCT PROBLEMS (3 CR)**

*Prerequisite or Corequisite: ACCT 122*

The course will teach students how to use spreadsheet and database software to set up and solve accounting problems. 3 hrs/wk.

**ACCT 215**  
**ACCT/NONPROFIT ORGANIZATIONS (3 CR)**

*Prerequisite: ACCT 121*

This course is a three-hour survey course of not-for-profit accounting and its primary users: federal, state and local governments; hospitals; and schools. Upon successful completion of the course, the student should be able to effectively deal with the primary funds and accounting groups, assist in the budget process, and practice variances among the major nonprofit organizations according to their authoritative pronouncements. 3 hrs.wk.

**ACCT 221**  
**COST ACCOUNTING (3 CR)**

*Prerequisite: ACCT 122*

Upon completion of this course, the student should be able to develop and use accounting information to plan and control operations, value inventory, determine income in a manufacturing environment, and evaluate subsequent results. 3 hrs./wk.

**ACCT 222**  
**MANAGERIAL ACCOUNTING (3 CR)**

*Prerequisite: ACCT 122*

Upon completion of this course, the student should be able to develop and use accounting information as an instrument of management control. Students will recognize needed information,

determine where it can be obtained and decide how this information can be used by managers to plan, control and make decisions. Material covered includes financial statement analysis, cost application and budgeting reports management. 3 hrs./wk.

**ACCT 231**  
**INTERMEDIATE ACCOUNTING I (3 CR)**

*Prerequisite: ACCT 122*

The course will present the use of accounting theory in the preparation of financial reports. Upon successful completion of this course, the student should be able to solve problems that arise in the presentation of cash, receivables, inventories, tangible and intangible assets on the statement of financial position, and their related effect on the statement of income. 3 hrs./wk.

**ACCT 232**  
**INTERMEDIATE ACCOUNTING II (3 CR)**

*Prerequisite: ACCT 122*

Accounting theory learned through the study of accounting concepts and technical procedures will be presented in this course. Upon completion, the student should be able to solve problems in the presentation of capital structures, long-term investments, debts, leases, pensions, the analysis of financial statements, and price-level, and fair value accounting and reporting. 3 hrs./wk.

**ACCT 278**  
**ACCOUNTING INTERNSHIP I (1 CR)**

*Prerequisite: ACCT 121*

The student will be able to gain work experience in an approved training station under instructional supervision in an accounting or an accounting-related occupation. This internship is designed to give students the opportunity to apply the skills they have acquired in accounting specialty courses. The internship will require an average of 15 hours of job training per week by arrangement.

**ACCT 285**  
**ACCOUNTING CAPSTONE (3 CR)**

*Prerequisites: ACCT 122 and 15 hours of accounting courses and permission of the division administrator*

This course is designed as a capstone experience before entering the workplace. Students will maintain a complete set of books and related financial statements both manually and electronically through an accounting cycle. Students will use previously prepared financial statements to make informed judgments and solve problems, identify and apply ethical positions and effectively communicate this information to others both orally and in writing.

## **Administration of Justice (ADMJ)**

**ADMJ 120**  
**WRITING IN THE DISCIPLINES (1 CR)**

This course is designed to complement and/or support classes in which writing is intrinsic to the curriculum and provide students with a process that can be applied to the variety of written assignments typically assigned in classes other than composition. Students will practice writing a variety of short papers using a prescribed process for each assignment. The course is individualized. By arrangement.

**ADMJ 121**  
**INTRO TO ADMIN OF JUSTICE (3 CR)**

The student will study and understand the following themes in the history of the criminal justice system: considerations of the causes of crime and factors shaping public attitudes toward wrongdoing, techniques of law enforcement, systems of substantive criminal application of penal

sanctions, with an attempt to determine the underlying motivation for particular sanctions, and the effectiveness of the punishment. 3 hrs./wk.

**ADMJ 124**  
**CRIMINAL JUSTICE & CORRECTIONS (3 CR)**

This course is a detailed exploration of the subsystems of the criminal justice system. It will begin with the history and evolution of the penal system. The law, legal system and criminal justice process will be reviewed. The major focus of the course will be a sociological perspective of the penal system. This focus includes a detailed examination of jails, detention facilities, probation, prisons and parole. An overview of the state, local and federal correctional systems will provide a systemic view of society's response to criminal behavior. 3 hrs. lecture/ wk.

**ADMJ 127**  
**CRIMINOLOGY (3 CR)**

This class will explore various explanations for criminal behavior including choice, biosocial, psychological, social structure and social process theories. Society's responses to crime will also be examined. 3 hrs./wk.

**ADMJ 130**  
**CRIME PREVENTION (3 CR)**

Topics of special interest include the techniques public service agencies use to operate crime-prevention programs and provide technically accurate, cost-effective security recommendations to the community. 3 hrs./wk.

**ADMJ 133**  
**JUVENILE DELINQUENCY (3 CR)**

This class will provide an analysis of detention procedures, disposition, custody and treatment of juvenile offenders throughout the United States with a specific interest in area systems. The origin and development of juvenile agencies, as well as the organization, functions and jurisdiction of juvenile courts, will be studied. 3 hrs./wk.

**ADMJ 136**  
**POLICE AND THE PUBLIC (3 CR)**

This course will identify and analyze conflict that arises between police and the community they serve. 3 hrs./wk.

**ADMJ 140**  
**CONSTITUTIONAL CASE LAW (3 CR)**

Students will study Supreme Court decisions that have had significant effect on law enforcement techniques and procedures. 3 hrs./wk.

**ADMJ 141**  
**CRIMINAL LAW (3 CR)**

*Prerequisite: ADMJ 124 or PL 121*

After taking this course, the student will be able to state the two basic elements necessary for any crime and the philosophy behind these two elements. After a detailed exploration of common law crimes and selected Kansas and Missouri statutes, the student will be able to classify common law crimes and state the difference between a felony and a misdemeanor. The student will understand the significance of the separation of powers doctrine and its application to criminal law and the constant interplay of the U.S. Constitution in criminal law. 3 hrs./wk.

**ADMJ 145**  
**FUNDAMENTALS PRIVATE SECURITY (3 CR)**

In addition to understanding the general field of private security, the student will be able to differentiate between the security needs of industry, private business, government and selected educational institutions. 3 hrs./wk.

**ADMJ 146**  
**RETAIL SECURITY (3 CR)**

This is a study of retail security supervision and management. Topics will include employment practices, employee dishonesty, controlling shoplifters, and building and perimeter protection. 3 hrs./wk.

**ADMJ 148**  
**FAMILY VIOLENCE/SEXUAL ABUSE (3 CR)**

A description and causal analysis of the different physical, psychological and sexual abuse acts that may occur within the primary family unit will be provided in this course. The study will include possible causative factors; psychological and social effects on the various family members; psychological, social and legal implications; treatments; and the relationship between abuse and crime. 3 hrs./wk.

**ADMJ 154**  
**FUND CRIMINAL INVESTIGATION (3 CR)**

*Prerequisite: ADMJ 124*

Topics covered in this course will include crime-scene search techniques, collection and preservation of evidence, interviewing, and logical reconstruction of the crime. 3 hrs./wk.

**ADMJ 170**  
**INTRO/SUBSTANCE USE AND ABUSE (3 CR)**

This course explores mood-altering substance use and abuse, including these substances' history and evolution. The course will focus on the models of abuse, addiction and treatment. The current local and federal laws governing substance use and abuse will be examined. Students will gain a comprehensive grasp of the current facts, focuses and methods of dealing with mood-altering substances. 3 hrs. lecture/wk.

**ADMJ 221**  
**INTRODUCTION TO CRIMINALISTICS (3 CR)**

*Prerequisite: ADMJ 154 or approval of the program director*

This course will provide training in the techniques and methods used to establish the identity and individualization of persons and things in a criminalistic laboratory. 3 hrs./wk.

**ADMJ 224**  
**INTRODUCTION TO TERRORISM (3 CR)**

This course defines and describes for students and current police officers terrorism, current terrorist organizations, their personnel and history and their capacity to threaten the security and interests of the United States. Within this context, students learn how law enforcement officials can predict patterns of terrorist activities. The course focuses especially on law enforcement's methods for combating terrorism within multiple arenas, including deterrence, detection, prevention and swift response. The course further addresses the challenges facing law enforcement and intelligence agencies in developing a coordinated response to terrorism. 3 hrs. lecture/wk.

**ADMJ 230**  
**CRIMINAL BEHAVIOR (3 CR)**

*Prerequisite: PSYC 130*

This course is a detailed survey of the various psychological pathologies displayed by citizens when coming into contact with the police, as well as the sources of those pathologies. Various strategies of handling and dealing with troubled persons will be discussed. Student will learn about psychological profiling and mental status examination. Factors contributing to individual behavior will be explored. Students will receive an overview of common treatment procedures. 3 hrs. lecture/wk.

**ADMJ 265**  
**ADVANCED POLICE TRAINING**

*Prerequisite: Open only to currently employed full-time police officers attending the Police Academy under sponsorship of a law enforcement agency*

This course consists of 140 clock hours of law enforcement training provided in addition to the 400 hours required by the Kansas Minimum Standards Training Act for recruits attending the Police Academy. While the required 400-hour curriculum is provided without fee, enrollment in advanced training is required of all those attending the academy. The curriculum covers law, criminal investigations, patrol procedures, defensive tactics, report writing and specialized training required by local law enforcement agencies.

**ADMJ 281**  
**READINGS IN POLICE SCIENCE (3 CR)**

*Prerequisite: 15 credit hours in ADMJ courses*

The class will consist of selected readings in police science on topics such as police administration, criminal investigation, criminology, corrections, juvenile problems and evidence. By arrangement.

**ADMJ 285**  
**ADMIN JUSTICE INTERNSHIP (3 CR)**

*Prerequisite: Fifteen credit hours in ADMJ courses or division administrator approval and a grade point average of 2.0 or higher*

The student will gain experience in settings that reflect the application of knowledge and skills acquired in the Administration of Justice program. The student is expected to interact in a structured format with a professional agency, in a role related to study and career interests, and to develop insight and information that will help refine career directions and focus further study.

## **Anthropology (ANTH)**

**ANTH 125**  
**CULTURAL ANTHROPOLOGY (3 CR)**

This introductory course will examine the political, economic, religious, family and social aspects of major groups of people around the world. Hunters, tribesmen, peasants and industrial populations will also be studied. 3 hrs./wk.

**ANTH 126**  
**PHYSICAL ANTHROPOLOGY (3 CR)**

This course will be a study of the basic concepts, methods and research areas in physical anthropology. Scientific methods, forces of evolution, dating methods, archaeological techniques, primate characteristics and behavior, and the tracing of primate and human evolution through skeletal material and artifacts will be among the topics discussed. 3 hrs./wk.

**ANTH 130**  
**WORLD CULTURES (3 CR)**



This ethnographic course in anthropology will examine a representative group of cultures from each major region of the world. Foragers, tribal framers, pastoralists, agrarian societies and folk cultures will all be studied holistically and comparatively. 3 hrs./wk.

**ANTH 134**  
**NATIVE AMERICANS (3 CR)**

This ethnographic course in cultural anthropology seeks understanding of the prehistory, history and contemporary setting of the first nations of North, Central and South America. It examines the ecological framework in which these diverse societies have developed and their relationships with each other. It then analyzes the past and present status, legal and social, of a representative group of North American cultures. Finally, it describes the significant role that Native Americans will play in the national life of the United States in the 21st century. 3 hrs. lecture/wk.

**ANTH 140**  
**ARCHAEOLOGY (3 CR)**

This course will be a study of the basic concepts, methods and research areas in archaeology. Archaeology methods and techniques, the earliest evidence of tools and other cultural remains, the Middle Paleolithic to Upper Paleolithic transition, the peopling of the Americas, the development of agriculture and the evidence for complex societies will be among the topics discussed. 3 hrs./wk.

## **Architecture (ARCH)**

**ARCH 120**  
**INTRODUCTION TO ARCHITECTURE (3 CR)**

This course is an introduction to the profession of architecture through a study of its history, vocabulary, theories and practices. The facets that make up the total architectural curriculum as well as the various professional roles that architects can be expected to perform will be covered. Architectural study is seen as both an art and a science. The interdisciplinary character of architectural practice is emphasized. 3 hrs. lecture/wk.

**ARCH 130**  
**ARCHITECTURAL GRAPHICS I (3 CR)**

This course is designed to build a conceptual and manual foundation for further professional architectural education. Students will learn to apply a variety of media and drawing systems such as freehand drawing and architectural lettering; equipment usage; applied geometry; line, tone, texture and color studies; and multiview, paraline, axonometric and oblique drawings as they relate to architectural forms. Emphasis will be on learning to think in spatial terms as well as developing graphic presentation skills using standard graphic conventions. 6 hrs. integrated lecture, studio/wk.

**ARCH 131**  
**ARCHITECTURAL GRAPHICS II (3 CR)**

*Prerequisite: ARCH 130*

This course builds upon the conceptual and manual skills acquired in Architectural Graphics I. Students will expand their ability by learning to apply a variety of media and advanced drawing systems, such as design drawing techniques, model building, graphic diagramming, grid perspective drawing, projection perspective drawing, and shade and shadow studies. Emphasis will continue to be on learning to think in spatial terms as well as developing a new repertoire of graphic presentation skills. 6 hrs. integrated lecture, studio/wk.

**ARCH 140**  
**ARCHITECTURAL DESIGN (3 CR)**

*Prerequisite: ARCH 130*

This course introduces the student to the process and vocabulary of design. The purpose of the content is to develop the ability to solve two- and three-dimensional design problems with basic methods, vocabulary and media appropriate to the architectural profession. 6 hrs. integrated lecture, studio/wk

**ARCH 240**  
**ARCH HISTORY:ANCIENT/MIDDLE AG (3 CR)**

This course will trace the development of the built environment from Antiquity to the Middle Ages and explore pre-Columbian, Islamic and other non-Western architecture. Emphasis will be placed on how materials, technological advances and natural environment influence architecture. The shaping of architecture through cultural forces will be stressed. Fundamental design principles and analysis of the built form will also be covered. 3 hrs. lecture/wk.

**ARCH 241**  
**ARCH HIST:REN/ENLIGHTENMENT (3 CR)**

This course will investigate the architecture of the Renaissance, Baroque and Enlightenment periods. A brief exploration on non-Western architecture paralleling the Western periods will also be presented. The focus of this course will be on the principles of design, cultural forces and concept of the built environment within its historical context. The work of prominent architects from each period will be highlighted and analyzed. 3 hrs. lecture/wk.

**ARCH 281**  
**HONORS (1 CR)**

A description is not available for this course.

## **Art (ART)**

**ART 124**  
**DESIGN 2D (3 CR)**

This is an introductory study of the principles of visual perception, two-dimensional space organization and the visual elements of line, shape, texture and space. Concepts, materials and processes necessary to an understanding of two-dimensional form are explored using traditional and digital tools and techniques. 6 hrs./wk.

**ART 127**  
**DESIGN 3D (3 CR)**

*Prerequisite: ART 124*

This is a study of the function of three-dimensional organization in the development of visual ideas. Concepts, materials and processes necessary to an understanding of the three-dimensional relationships of space, form, form evolution and the dynamics of structure are explored. 6 hrs./wk.

**ART 129**  
**DESIGN COLOR (3 CR)**

This is a study of the nature of color, its physical properties and visual qualities. Basic theories, phenomena and their applications will be explored using pigment, colored paper and digital color systems. 6 hrs./wk.

**ART 130**  
**DRAWING I (3 CR)**

This is an introductory course with an emphasis on the development of fundamental drawing skills, increased power of observation and an awareness of the personally expressive and compositional aspects of drawing. 6 hrs./wk.

**ART 131**  
**DRAWING II (3 CR)**

*Prerequisite: ART 130*

This course involves intermediate problems in drawing with emphasis on individual expression based on historical as well as contemporary concerns and approaches in art. Students will work from models, still- life, and conceptual presentations. A variety of media will be explored. 6 hrs./wk.

**ART 135**  
**PAINTING I (3 CR)**

This course is an introduction to the basic elements of painting. Students will learn basic painting skills, color properties, color mixing, color relationships, applications and proper use of tools and equipment. 6 hrs./wk.

**ART 136**  
**PAINTING II (3 CR)**

*Prerequisite: ART 135*

This course involves intermediate problems in painting with emphasis on individual expression based on historical as well as contemporary concerns and approaches in art. 6 hrs./wk.

**ART 138**  
**DIGITAL IMAGING FOR ARTISTS (3 CR)**

This course is an introduction to the use of the computer as a medium for making fine art. The course will emphasize developing the student's skill in making expressive visual statements using computer technology. 6 hrs./wk.

**ART 142**  
**CERAMICS I (3 CR)**

This course is designed to build a conceptual and manual foundation for future ceramics education. Students will study the properties of clay, its preparation, hand and wheel techniques, surface design, firing methods, fundamental ceramic terms, principles of design, introductory ceramic history and orientation to safe practices for the ceramic artist. Emphasis will be on developing skills appropriate to the beginning student for the purpose of creative and technical expression. 6 hrs./wk.

**ART 143**  
**CERAMICS II (3 CR)**

*Prerequisite: ART 142*

This course deals with more advanced methods and studio experiences in creative ceramic wheel expression and glaze formation. Emphasis is on development of a sense of thrown form and creative decoration or optional creative non-wheel ceramic form development. The course focuses on advanced ceramic form production, aesthetic issues, investigative study and practice. Clay, glaze and firing techniques are investigated in depth. The student acquires a repertoire of studio skills, a deeper awareness of ceramic history and articulated criteria of judgment. Individual interpretation and conceptual development are expected. The study of aesthetics of ceramic form is undertaken. 6 hrs./wk.

**ART 145**  
**SCULPTURE I (3 CR)**

Students will explore and study natural and synthetic sculptural forms as they create work using traditional or contemporary media and techniques. Assignments require work in sandstone, clay, wax, bronze, aluminum and steel, and involve carving, modeling and building up. 6 hrs./wk.

**ART 146  
SCULPTURE II (3 CR)**

*Prerequisite: ART 145*

This continuation of ART 145 will focus on advanced methods and techniques with emphasis on materials, forms and the student's selection of an individual direction with individual material choices. 6 hrs./wk.

**ART 148  
METAL AND SILVERSMITHING I (3 CR)**

This course is a basic introduction to the terms, tools and techniques involved in creating jewelry and other wearables as they relate to the human figure. Casting, fabrication and construction will be explored. 6 hrs./wk.

**ART 149  
METAL AND SILVERSMITHING II (3 CR)**

*Prerequisite: ART 148*

Students will study advanced casting and construction techniques. Projects should show a higher degree of design and function. 6 hrs./wk.

**ART 172  
WATERCOLOR PAINTING (3 CR)**

This course is an introduction to transparent water media with emphasis on learning fundamental painting skills, the visual elements, composition, visual perception and an awareness of personal expression. 6 hrs./wk.

**ART 180  
ART HIST:ANCIENT/RENAISSANCE (3 CR)**

This course will acquaint students with the arts and ideas of world civilizations from the prehistoric period to the beginning of the Italian Renaissance. The course will examine the aesthetic elements that mark the styles of major periods in two-dimensional, three-dimensional and architectural works. Particular attention will be paid to the relationship between artistic elements and their various cultural and historical contexts. 3 hrs./wk.

**ART 182  
ART HISTORY:RENAISSANCE/MODERN (3 CR)**

This course will acquaint students with the arts and ideas of Western cultures from the beginning of the Italian Renaissance to the present. The course will examine the aesthetic elements that mark the styles of major periods in two-dimensional, three-dimensional and architectural works. Particular attention will be paid to the relationship between artistic elements and their various cultural and historical contexts. 3 hrs./wk.

**ART 184  
ART HISTORY:TWENTIETH CENTURY (3 CR)**

This course introduces the student to the arts and ideas of western Europe and the United States from the late 19th century to the present. The course will examine the aesthetic elements that mark the styles of major movements in two-dimensional, three-dimensional and architectural works. Particular attention will be paid to the relationship between artistic elements and their

various cultural and historical contexts. 3 hrs. lecture/wk.

**ART 186**  
**ART HISTORY:INTRO TO ASIAN ART (3 CR)**

This course will acquaint students with the arts and ideas that arose in India, China and Japan from the prehistoric to the early modern periods. The course will examine the aesthetic elements that mark the styles of major periods in two-dimensional, three-dimensional and architectural works. Particular attention will be paid to the relationship between artistic elements and their various cultural and historical contexts. 3 hrs. lecture/wk.

**ART 231**  
**LIFE DRAWING I (3 CR)**

*Prerequisite: ART 130*

This course is an introduction to the basic elements of drawing for students wanting a concentration in drawing the human figure. Students will acquire basic competence in developing drawings involving the human form. 6 hrs./wk.

**ART 232**  
**LIFE DRAWING II (3 CR)**

*Prerequisite: ART 231*

This course is an intermediate investigation of drawing from the human form. This class is for students wanting to concentrate on figure drawing beyond Life Drawing I. 6 hrs./wk.

**ART 235**  
**STUDIO WORKSHOP I (3 CR)**

*Prerequisite: ART 131 or ART 136*

This course involves advanced problems in painting (or drawing) with emphasis on individual expression based on historical as well as contemporary concerns and approaches in art. 6 hrs./wk.

**ART 236**  
**STUDIO WORKSHOP II (3 CR)**

*Prerequisite: ART 235*

This course involves advanced problems in painting (or drawing), above and beyond those experienced in Workshop I, with emphasis on individual expression. 6 hrs./wk.

**ART 244**  
**CERAMICS WORKSHOP I (3 CR)**

*Prerequisites: ART 143 and permission of the academic director*

Students will have the opportunity to pursue advanced individual research under the direction of the instructor. Emphasis is on creative expression and development of technical skills as well as the further pursuit of technical studies that have relevance for emerging personal specializations. Students will conduct a personal program of study on one aesthetic issue that emerges as personally significant and present the outcomes in an appropriate and acceptable manner at the close of the semester. Students should initiate and pursue studies in directions that inform and further their individual professional and creative growth, which leads to invention, innovation and refinement of their personal semester work, as agreed upon with the instructor. This course enables further pursuit of technical studies that have relevance for these emerging personal specializations. Skill refinement, three-dimensional imagination, with increased creative expression and creative product generation are anticipated. 6 hrs. lecture, lab/wk.

## **Astronomy (ASTR)**

**ASTR 120**

## **FUNDAMENTALS OF ASTRONOMY (3 CR)**

This course is a study of the universe from the earth, moon and planets to the stars and the most distant galaxies. Topics include black holes, quasars, the origin of the universe and the possibility of life on other planets. Current astronomical discoveries are discussed in class as they occur. Access to astronomical Web sites is available to students in this course. 3 hrs. lecture/wk.

## **ASTR 122 ASTRONOMY (4 CR)**

This course is a study of the universe from the earth, moon, and planets to the stars and the most distant galaxies. Topics include black holes, quasars, the origin of the universe and the possibility of life on other planets. Current astronomical discoveries are discussed in class as they occur. Access to astronomical Web sites is available to students in this course. 3 hrs. lecture, 2 hrs. lab/wk., 5 nighttime telescope sessions are required.

# **Automotive Technology (AUTO)**

## **AUTO 121 SMALL ENGINE SERVICE (3 CR)**

Upon successful completion of this course, the student should be able to compare and contrast operating principles of two-stroke and four-stroke cycle engines. The student should be able to describe lubricating, cooling, fuel and governor systems; troubleshoot engine problems; inspect engine components; and service the fuel, cooling and exhaust systems. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

## **AUTO 122 INTRODUCTION TO AUTO GLASS (3 CR)**

Upon successful completion of this course, the student should be able to diagnose, service and repair various automotive glass problems, provide professional service to customers, and manage and supervise jobs and employees. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and /or equipment. 2 hrs. lecture, 1 1/2 hrs. lab/wk.

## **AUTO 123 MOTORCYCLE MAINTENANCE &REPAIR (2 CR)**

Upon successful completion of this course, the student should be able to demonstrate the proper use of tools and equipment used in servicing motorcycles. Two-stroke and four-stroke cycle designs will be studied. Overhaul procedures will be demonstrated. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 3 hrs. lab/wk.

## **AUTO 125 INTRO TO AUTO SHOP PRACTICES (3 CR)**

This is a beginning course that is appropriate for both the automotive major and other interested students. Upon successful completion of this course, the student should be able to develop shop safety habits and become proficient in tire, battery, cooling system, lubrication service and minor electrical diagnosis. This course is an introductory course required for all students in the Automotive Technology program. Emphasis will be placed on learning basic skills needed to enter advanced automotive classes. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

**AUTO 128**  
**AUTOMOTIVE PARTS SPECIALIST (2 CR)**

Upon successful completion of this course, the student should be able to demonstrate good communication and basic math skills. Ordering and maintaining correct inventory, as well as displaying and selling automotive parts for a fair profit, will be studied. Lectures will be supported by parts specialists in the industry. 2 hrs. lecture/wk.

**AUTO 130**  
**DIESEL FUNDAMENTALS (2 CR)**

*Prerequisite or Corequisite: AUTO 125*

Upon successful completion of this course, the student should be able to identify diesel engine components and parts and troubleshoot and service all external components with emphasis on glow plugs, injectors and injector pumps. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 3hrs. lab/wk.

**AUTO 163**  
**AUTO STEERING & SUSPENSION (3 CR)**

*Prerequisite: AUTO 125 or approval of division administrator*

Upon successful completion of this course, the student should be able to describe manual and power steering component operation, summarize construction and operation of front and rear suspension systems, perform four-wheel alignment on current vehicles and service steering and suspension components. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 2hrs. lecture, 3 hrs. lab/wk.

**AUTO 165**  
**AUTOMOTIVE ENGINE REPAIR (4 CR)**

*Corequisite: AUTO 125 or approval of the program administrator*

Upon successful completion of this course, the student should be able to demonstrate an understanding of the four-stroke cycle internal combustion engine, calculating compression ratio, piston displacement, horsepower and torque, and correcting internal engine malfunctions. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 6 hrs. lab/wk.

**AUTO 167**  
**AUTOMOTIVE BRAKE SYSTEM (2 CR)**

*Corequisite: AUTO 125 or approval of program administrator*

Upon successful completion of this course, the student should be able to summarize disc and drum brake construction and operation, service all brake system components and describe anti-lock brake system services. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 3 hrs. lab/wk.

**AUTO 168**  
**AUTO MANUAL DRIVE TRAINS&AXLES (3 CR)**

*Corequisite: AUTO 125 or approval of program administrator*

Upon successful completion of this course, the student should be able to work safely in the shop; service the typical manual transmission/transaxle; service typical transfer cases; inspect, adjust and replace all clutch components; disassemble, reassemble and set up a differential; and service all front- and rear-wheel drive shaft components. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 2 hr. lecture, 3 hrs. lab/wk.

**AUTO 201**  
**ASE CERTIFICATION SEMINAR (1 CR)**

This course will prepare students to take any of the eight basic National Institute for Automotive Service Excellence (ASE) automotive certification tests, the Advanced Engine Performance Specialist (L1) test or the three ASE Engine Machinist tests. 1 hr. lecture/wk.

**AUTO 206**  
**AUTOMOTIVE RETAILING SALES (3 CR)**

*Prerequisite: MKT 133 or MKT 134*

Upon successful completion of this course, the student should be able to demonstrate the skills necessary for competency in automotive retailing. Student awareness and understanding will be directed toward: an introduction to automotive retailing, past, present and future; professionalism in sales; the components of sales transactions; a structured sales program and product knowledge; customer satisfaction and follow-up; building a clientele; and success through self-improvement. 3 hrs. lecture/wk.

**AUTO 210**  
**ADVANCED ENGINE REPAIR (3 CR)**

*Prerequisite: AUTO 165*

Upon successful completion of this course, the student should be able to plan, design, and build a performance engine. The student will also demonstrate knowledge of the relationships between displacement, horsepower and torque; regulations governing performance engines; and current trends in engine modification. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 1hr. lecture, 6 hrs. lab/wk,

**AUTO 230**  
**AUTO HEATING& AIR CONDITIONING (3 CR)**

*Corequisite: AUTO 125 or approval of program administrator*

Upon successful completion of this course, the student should be able to operate, service and diagnose automotive heating, ventilation and air conditioning systems. The course will cover the theory and operation of these systems, major components, testing, recycling and other service procedures. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

**AUTO 234**  
**AUTOMOTIVE ELECTRICAL SYSTEM (4 CR)**

*Prerequisite: AUTO 125 or approval of program administrator*

Upon successful completion of this course, the student should be able to service starting and charging system components; describe the operation and construction of starters, alternators and controlling devices; describe various lighting systems used in current automotive vehicles; and repair electrical lighting and accessory systems. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

**AUTO 250**  
**AUTOMATIC TRANSMIS/TRANSAXLES (4 CR)**

*Corequisite: AUTO 125 or approval of program administrator*

Upon completion of this course, the student should be able to diagnose, service and repair various automatic transmissions and automatic transaxles, including computer-controlled systems. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture/demonstration, 3 hrs. lab/wk.

**AUTO 254**  
**AUTOMOTIVE ENGINE PERFORMANCE (5 CR)**

*Prerequisite: AUTO 165 and AUTO 234*

Upon successful completion of this course, the student should be able to describe the operation and construction of automotive fuel system components such as carburetors, fuel pumps, injectors and controlling devices. The student should also be able to describe the operation and construction of ignition circuits to include computer controlled and DIS systems. Finally, students



should be able to service all performance systems on the automobile. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 6 hrs. lab/wk.

**AUTO 260**  
**AUTOMOTIVE SERVICE MANAGEMENT (3 CR)**

*Corequisite: AUTO 254*

Upon successful completion of this course, the student should understand the automotive service manager's job. The manager's job includes planning for inevitable change, maintaining flexibility, site planning, customer satisfaction, employee practices, meeting financial goals, and managing time, conflict and stress. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3hrs. lab/wk.

**AUTO 261**  
**AUTOMOTIVE SERVICE TECHNIQUES (3 CR)**

*Corequisite: AUTO 254*

Upon successful completion of this course, the student should become proficient in ordering of parts, writing repair orders, presenting work orders to customers, questioning customers about automobile service problems, answering the telephone, and supervising work loads. Students will also diagnose and perform service work on student and staff vehicles. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk.

**AUTO 271**  
**AUTOMOTIVE TECH INTERNSHIP (3 CR)**

*Prerequisite: Division administrator approval*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hr. lecture, 15 hrs. work min./wk

## **Biology (BIOL)**

**BIOL 110**  
**NUTRITION FOR LIFE (2 CR)**

Designed for students who wish to apply nutrition information to their lives, this course explores how food selection affects body size, body composition, performance, disease resistance and longevity. Students will analyze the composition of their diets and develop a plan of action to improve their eating behaviors. 2 hrs. lecture/wk.

**BIOL 115**  
**NATURAL HISTORY OF KANSAS (3 CR)**

Natural History of Kansas describes physical and biological processes that have led to the present Kansas landscape. Physical science topics include geology, climate patterns and soil formation. Biological science topics include ecology and a survey of the plants and animals of Kansas. The course will consider how the physical and biological environment relates to past and present human resource uses. 3 hrs. lecture/wk. Two 7-hr. Saturday labs required.

**BIOL 122**  
**PRINCIPLES OF BIOLOGY (3 CR)**

This course is an introduction to selected concepts and principles important to an understanding of how biological systems operate. The importance of scientific methods and processes will be

explored. Biological organization will be studied by examining the chemical, cellular, organismal and ecological properties that are unique to life. The diversity and unity of life will be explained in terms of classical and molecular genetics. 3 hrs./wk.

**BIOL 123**  
**PRINCIPLES OF BIOLOGY LAB (1 CR)**

*Prerequisite or corequisite: BIOL 122 or consent of the assistant dean*

This introductory lab examines basic biological concepts by focusing on the structures and functions of plants and animals. 2 hrs./wk.

**BIOL 124**  
**OCEANUS: THE MARINE ENVIRON (3 CR)**

This course for beginning students focuses on the marine environment as a unique feature of the planet earth and investigates areas of intense scientific and public concern: the pervasiveness of the ocean and its effect on the earth's weather, its stunning physical size and diversity of contained life forms, its contributions to the physical and historical development of man, its impact on geopolitical and economic matters, and the impact of oceanic pollutants and the potential exploitation of marine resources. 3 hrs. lecture/wk.

**BIOL 125**  
**GENERAL BOTANY (5 CR)**

This is a survey of the life, growth and structure of plants. Divisions of the plant kingdom will be presented with emphasis on life cycles, anatomy, physiology and ecology of major groups. Students will do microscopic and macroscopic analysis of the major division. 3 hrs. lecture, 4 hrs. lab/wk.

**BIOL 127**  
**GENERAL ZOOLOGY (5 CR)**

This is a survey of the life, structure, and growth of animals. Students will concentrate on identifying animals by their structural characteristics and looking at the role adaptation plays in anatomical and physiological features. Students will do dissections and microscopic analysis of the major phyla. 3 hrs. lecture, 4 hrs. lab/wk.

**BIOL 130**  
**ENVIRONMENTAL SCIENCE (3 CR)**

Environmental Science seeks to describe problems and solutions associated with human use of natural resources. Students will study the major physical and biological processes that govern the complex interactions in natural ecosystems. Major course topics include human population growth, resource use and pollution. Practical solutions aimed at sustainability will be identified and examined. This is an introductory, nonscience-major survey course. 3 hrs./wk.

**BIOL 131**  
**ENVIRONMENTAL SCIENCE LAB (1 CR)**

*Prerequisite or corequisite: BIOL 130*

In this lab, students will learn ecological principles that are necessary for understanding and solving environmental problems. Students will sample the local environment for various types of environmental pollution, conduct lab projects and computer simulations, and attend field trips. Field trips may include a visit to a local wastewater treatment plant, a stream ecosystem and a prairie ecosystem. 2 hrs.lab/wk. plus up to three field trips.

**BIOL 135**  
**PRINCIP CELL & MOLECULAR BIOL (4 CR)**

This is an integrated lecture and laboratory course for biology majors and students planning to take additional courses in biology. Subjects covered include basic biochemistry, cell structure and function, cellular metabolism, Mendelian and molecular genetics, natural selection and evolution, cell physiology and development of plants and animals from the single-celled stage to the embryonic stage. 3 hrs. lecture, 2 hrs. lab/wk.

**BIOL 140**  
**HUMAN ANATOMY (4 CR)**

Students will study gross and microscopic aspects of cells, tissues and organ systems of human body. They will concentrate on a detailed analysis of the structure of each body system. 3 hrs. lecture, 3 hrs. lab/wk.

**BIOL 144**  
**HUMAN ANATOMY AND PHYSIOLOGY (5 CR)**

This course provides basic knowledge on human structures and their function. Students will study the relationship of structures to function in the organ systems of the human body. Emphasis will be on the identification of the anatomical features and their functions. This course is integrated lecture and laboratory. 3 hrs. lecture, 4 hrs. lab/wk.

**BIOL 145**  
**HUMAN ANAT/PHYSIO DISSECTION (1 CR)**

*Prerequisites: BIOL 144 and consent of the Assistant Dean*

Students will dissect a cat and study the relationship of structures to function in the organ systems of the cat. In this laboratory course, they will also dissect a cow kidney, a heart, a brain and an eye. Students will compare and contrast these structures and functions with the organ systems of the human body. 2 hrs. lab/wk

**BIOL 146**  
**GENERAL/HEAD & NECK ANATOMY (4 CR)**

*Prerequisites: Admission to the Dental Hygiene Program and CHEM 122 and ENGL 121 and SOC 122 (with a minimum 2.0 GPA)*

The cells, tissues and organ systems of the body will be examined with emphasis on the head and neck. Discussion and analysis of each body region will be included, as well as embryology of the head and neck. 3 hrs. lecture, 3 hrs. lab/wk.

**BIOL 150**  
**BIOLOGY OF ORGANISMS (5 CR)**

*Prerequisite: BIOL 135 or consent of Assistant Dean*

This is a survey of the five kingdoms of life. Monera, fungi, protista, plant and animal kingdoms will be presented, with emphasis on life cycles, anatomy, physiology and ecology of the major groups. 4 hrs. lecture, 3 hrs. lab/wk.

**BIOL 160**  
**INTRODUCTION TO BIOTECHNOLOGY (2 CR)**

*Prerequisites: CHEM 122 Principles of Chemistry or consent of Assistant Dean and Prerequisite or Corequisite: CHEM 135 Cell and Molecular Biology*

This course is an introduction to biotechnology, including career exploration, history and applications of DNA/RNA technology, molecular biology, and bioethics. Topics include cloning, DNA, antibodies, gene therapy, plant biotechnology, the human genome project, DNA fingerprinting, genetic testing, diverse products made through biotechnology, and the ethical implications of this technology. The course is intended for those interested in pursuing a career in an industrial, academic, or biomedical research laboratory. 2 hrs. lecture/wk.

**BIOL 165**  
**LABORATORY SAFETY (1 CR)**

*Prerequisite: CHEM 122 or consent of Assistant Dean and Prerequisite or Corequisite: BIOL 135*

This course will emphasize laboratory safety and procedures. Additionally, regulations that govern the biotechnology laboratory will be discussed. Biological, chemical and radiation safety will all be handled through lectures, videotapes, demonstrations and field trips. There will also be exposure to good manufacturing practices (GMP), quality assurance and control procedures (QA/QC), and OSHA and FDA regulations. 1 hr. lecture/wk.

**BIOL 205**  
**GENERAL GENETICS (4 CR)**

*Prerequisite: BIOL 122 or the equivalent introductory college-level biology course.*

This introductory course emphasizes human heredity using concepts from classical and modern genetics. Themes of advancing technologies and bioethical issues are interwoven in the basic background fabric of the course. 3 hrs. lecture, 2 hrs. lab/wk.

**BIOL 225**  
**HUMAN PHYSIOLOGY (4 CR)**

*Prerequisites: BIOL 140 or BIOL 146 and CHEM 122*

This is an introduction to the dynamic functions of the human organism from the chemical and molecular mechanisms that sustain cellular processes through the control systems responsible for homeostasis and the influence of these systems on the cellular function of organ and systems operation. Laboratory investigation using selected biochemical and physiological preparations allows correlation of theory with experimental observations. 3 hrs. lecture, 3 hrs. lab/wk.

**BIOL 227**  
**HUMAN PATHOPHYSIOLOGY (4 CR)**

*Prerequisites: BIOL 144 or BIOL 225*

This introduction to the physiology of disease covers common disorders of the body from the cellular to the systemic level. Topics include causes, symptoms, diagnostic tests and treatments of disease. 4 hrs. lecture/wk.

**BIOL 230**  
**MICROBIOLOGY (3 CR)**

*Prerequisite CHEM 122 or one year of high school chemistry*

This is a general introductory course in microbiology. It provides a background in many areas of microbiology physiology, antimicrobial agents, immunology and host-parasite relationship of microorganisms will be studied, with an emphasis on bacteria. 3 hrs./wk.

**BIOL 231**  
**MICROBIOLOGY LAB (2 CR)**

*BIOL 231 students must be currently enrolled in BIOL 230 or have successfully completed BIOL 230 within the last three years.*

Students will learn aseptic techniques and apply them in the isolation of pure cultures of bacteria. Students will also perform various staining techniques and chemical tests to identify these bacteria. The response of bacteria to changes in environmental conditions will also be examined. Various life stages of medically important parasites will also be observed. 4 hrs./wk.

**BIOL 235**  
**GENERAL NUTRITION (3 CR)**

*Corequisite: BIOL 225 or the equivalent*

This introductory course provides a basic knowledge of human nutrition. Students will learn the sources and functions of the various nutrients. They will also explore the interaction of diet, disease prevention and treatment. Through the use of a computerized nutrition nutritional deficiencies and excesses. 3 hrs./wk.

**BIOL 240**  
**GENERAL PHARMACOLOGY (3 CR)**

*Prerequisite: BIOL 225*

This course provides a basic understanding of the science of drugs-how they work and what they do. Students will study various drug concepts including mechanism of action, pharmacologic class, pharmaco-kinetics, pharmacodynamics and clinical implications. 3hrs. lecture/wk. Spring.

### **BIOL 250 ECOLOGY (4 CR)**

*Prerequisites: BIOL 122 and BIOL 123 or BIOL 130 and BIOL 131 or equivalent courses or consent of the assistant dean*

This course will teach continuing science students basic ecological theories that are accepted and used by the professional ecological community. Laboratory exercises will test ecological theories by having students develop hypotheses, design experiments, collect and analyze data by using statistics that include T-tests and Kruskal-Wallis tests, and write scientifically formatted reports. 3 hrs. lecture, 3 hrs. lab/wk.

### **BIOL 260 BIOTECHNOLOGY METHODS (5 CR)**

*Prerequisite: BIOL 160 and BIOL 165 or consent of the assistant dean. Prerequisite or corequisite: BIOL 230*

This course is an introduction to the theory and laboratory techniques in molecular biology, protein biochemistry and immunology with an emphasis on gene expression and regulation, recombinant DNA, RNA transcription, and protein translation. Laboratory emphasis will be on molecular biological techniques utilized in modern research and industrial laboratories. Techniques include growth and maintenance of E. coli, gene cloning, DNA and protein electrophoresis protein purification and enzymatic and immunology assays. Lecture and laboratory exercises on the principles and practices of initiation, cultivation, maintenance, preservation of cell culture lines and applications will also be covered. 3 hrs lecture, 3 hrs. lab/wk.

### **BIOL 265 BIOTECHNOLOGY INTERNSHIP (4 CR)**

*Prerequisites: BIOL 160 and BIOL 165 and BIOL 260*

The internship will provide advanced students the opportunity to develop job and career-related skills while in a work setting. Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The work will be developed cooperatively with academic, industrial and private institutional biotechnology laboratories. 20 lab hrs./wk.

## **Business (BUS)**

### **BUS 120 MANAGEMENT ATTITUDES & MOTIVAT (3 CR)**

Upon successful completion of this course, the student should be able to assess personal strengths and weaknesses and set goals for personal and professional life, define communication and listening skills, analyze human relations problems, apply problem-solving strategies to human relations issues in the workplace, and define and compare management styles. Class meets for 48 hrs.

### **BUS 121 INTRODUCTION TO BUSINESS (3 CR)**

Upon successful completion of this course, the student should be able to explain the basic principles of the American free enterprise economic system. In addition, the student should be able to explain the fundamentals of starting a business and the interrelationship among the four functional areas: accounting, finance, management and marketing. 3 hrs./wk.

**BUS 122**  
**INTRODUCTION TO LAW (3 CR)**

Upon successful completion of this course, the student should be able to explain the major substantive and procedural aspects of law. This course is available to students with a general interest in the law, and is required for students seeking admission to the paralegal program. 3 hrs./wk.

**BUS 123**  
**PERSONAL FINANCE (3 CR)**

Upon successful completion of this course, the student should be able to define the role of a consumer in the economy; develop a basic financial plan; apply budgeting procedures in a daily and monthly spending plan; calculate principal and interest; define the types of consumer credit; identify the types of housing mortgages; and explain the important considerations in buying, selling and renting. In addition, the student should be able to calculate individual insurance needs in the areas of life insurance, health insurance, property and liability insurance, automobile insurance and other types of special insurance, and be able to explain employee and retirement benefits, including tax-sheltered plans. 3 hrs./wk.

**BUS 140**  
**PRINCIPLES OF SUPERVISION (3 CR)**

Upon successful completion of this course, the student should be able to define the supervisor's role within a company and identify the skills necessary to successfully fulfill that role. In addition, the student should be able to determine the supervisor's role in supervising employees on an individual basis and as a group. The student should also be able to apply the principles of supervision in simulated work situations. 3 hrs./wk.

**BUS 141**  
**PRINCIPLES OF MANAGEMENT (3 CR)**

Upon successful completion of this course, the student should be able to state the basic functions of management, explain the nature of organizations and organizational theories and types, explain the importance of effective communication within the organizational structure, develop and define the techniques for directing and motivating employees, explain the effects of change on an organization, and develop techniques for coping with those effects. In addition, the student should be able to explain and discuss the application of business ethics in managerial decision making. 3 hrs./wk.

**BUS 145**  
**SMALL BUSINESS MANAGEMENT (3 CR)**

Upon successful completion of this course, the student should be able to demonstrate an understanding of management techniques vital to small business. In addition, the student should be able to apply decision making skills in the areas of business start-up choosing the form of ownership, marketing, financial planning and managing the small business.

**BUS 150**  
**BUSINESS COMMUNICATIONS (3 CR)**

*Prerequisite: ENGL 121*

Upon successful completion of this course, the student should be able to explain the role of communication in the business environment and identify the most effective methods for creating, sending and receiving messages. In addition, the student should be able to use effective oral and written communication skills in business; write and evaluate business documents, including letters, memos, and reports using the principles of correct style, organization and format; and prepare an effective oral business presentation. 3 hrs./wk.

**BUS 215**  
**SAVINGS AND INVESTMENTS (3 CR)**

Upon successful completion of this course, the student should be able to define, analyze and evaluate types of savings instruments and other investments. In addition, the student should be able to determine which instruments are desirable for a personal financial plan. The student should also be able to demonstrate an understanding of basic financial-planning concepts and tax-planning procedures. 3 hrs./wk.

**BUS 225**  
**HUMAN RELATIONS (3 CR)**

Upon successful completion of this course, the student should be able to evaluate the impact of human relations as it relates to the social system, technical system and administrative system of a work environment. In addition, the student should be able to analyze these systems and their effects on individual group and organizational performance. 3 hrs./wk.

**BUS 230**  
**MARKETING (3 CR)**

Upon successful completion of this course, the student should be able to explain the concepts of production, consumption and distribution in relation to a free enterprise economy; list the basic channels of distribution available to the manufacturer of consumer and industrial products; explain and compare the distribution functions of the manufacturer, wholesale and retailer; and state the procedures necessary to develop a total marketing plan for a given product, service or product line. In addition, the student should be able to discuss the fundamental principles of consumer behavior in the buying process and apply those principles to target market strategies. 3 hrs./wk.

**BUS 235**  
**INTRO INTERNATIONAL BUSINESS (3 CR)**

This course is designed to introduce the student to the global economy. Differences in political, economic and cultural forces within countries will be analyzed and national competitiveness assessed. Cross-border trade and investment and the global monetary system will be introduced and analyzed. Competition and a firm's international business strategy in the global marketplace will be examined. Ethical issues in international business will also be discussed. 3 hrs./wk.

**BUS 240**  
**LEGAL ENVIRON INTERN BUSINESS (3 CR)**

*Prerequisite: BUS 235 and BUS 261 and BUS 263*

This course provides an introduction to the legal aspects of contracts for international sale of goods. Topics include multinational enterprises, sovereignty, international finance, international transportation, international marketing, protection of intellectual property, international dispute resolution, negotiation and diplomacy. 3 hrs. lecture/wk.

**BUS 243**  
**HUMAN RESOURCE MANAGEMENT (3 CR)**

Upon successful completion of this course, the student should be able to state the principles of human resource management; describe the human resource function as an integral part of management; differentiate between roles of the personnel and line manager in the management of human resources; define and evaluate strategic planning, recruitment, selection and training; define the primary methods of human resource development; employ methods of employer appraisal; and state the major components and coverages of the Equal Employment Opportunity Act and other personnel/human resource-related laws. 3 hrs./wk.

**BUS 250**

## **INTRODUCTION/CORPORATE FINANCE (3 CR)**

Upon successful completion of the course, the student should be able to explain the nature and role of finance in the U.S. economy and demonstrate an understanding of the concepts of corporate finance and the sources and types of corporate financing. Additionally, the student should be able to explain and accurately compute a firm's cost of capital and demonstrate an understanding of the capital budgeting process and how to manage and finance current assets. 3 hrs. lecture/wk.

## **BUS 261 BUSINESS LAW I (3 CR)**

This course is designed to introduce the students to the American legal system. Principles of legal ethics in business will be introduced. Principles of common law of contracts will be discussed. Sections of Uniform Commercial Code as applied to the law of sales and law of negotiable instruments will be introduced. 3 hrs./wk.

## **BUS 263 BUSINESS LAW II (3 CR)**

*Prerequisite: BUS 261*

A continuation of Business Law I, this course will introduce the student to the principles of Uniform Commercial Code as applied to secured transactions. The law of bankruptcy, principles of agency and business organizations such as partnerships, limited partnerships, joint ventures, corporations, and sole proprietorships will be discussed. Principles of real property, personal property, bailments, estate and trusts will be introduced. 3 hrs./wk.

# **Business Entrepreneurship (BUSE)**

## **BUSE 131 FINANCIAL MGT FOR SM BUSINESS (2 CR)**

*Prerequisite: ACCT 111 or ACCT 121*

Upon successful completion of this course, the student should be able to identify and evaluate the various sources available for funding a small business; demonstrate an understanding of financial terminology; read, prepare and analyze a financial statement; and write a loan proposal. In addition, the student should be able to explain the importance of working capital and cash management. The student should also be able to identify financing needs, establish credit policies, prepare sales forecasts and determine borrowing needs for a small business. 2 hrs./wk.

## **BUSE 142 FAST TRAC BUSINESS PLAN (3 CR)**

Upon successful completion of this course, the student will be able to evaluate a business concept and write a sound business plan. In the process of doing so, students will be able to assess the strengths and weaknesses of a business concept; collect, analyze and organize market research data into a marketing plan; and prepare the financial projections for their business concept. In addition, students will be able to identify and evaluate various resources available for funding small businesses. The course is required for the business plan certificate, the vocational certificate in business entrepreneurship and the associate of applied science degree in business entrepreneurship. 3 hrs. lecture/wk.

## **BUSE 160 LEGAL ISSUES FOR SM BUSINESS (2 CR)**

Upon successful completion of this course, the student should be able to identify the forms of business ownership and the legal and tax implications for each. In addition, the student should be able to explain laws concerning legal issues such as personnel, contracts and protection of intellectual property. The student should also be able to explain the reporting requirements for local, state and federal agencies. 2 hrs./wk.



**BUSE 180**  
**SEM: OPPORTUNITY ANALYSIS (2 CR)**

Upon successful completion of this course, the student should be able to assess the current economic, social and political climate for small businesses. In addition, the student should be able to explain how demographic, technological and social changes create opportunities for small business ventures. This course is required for the business plan certificate, the business entrepreneurship vocational certificate and the associate of applied science degree in business entrepreneurship. 2 hrs./wk.

**BUSE 190**  
**SEM: SM BUSINESS ANALYSIS (2 CR)**

*Prerequisite: BUSE 131 and BUSE 160 and BUS 145 and BUS 230 or permission of division administrator*

Upon successful completion to this course, the student should be able to identify problems that frequently arise in small business and use problem-solving skills to formulate solutions. In addition, the student should be able to apply the knowledge of business concepts and techniques in the analysis of cases and actual business situations. 2 hrs./wk.

**BUSE 210**  
**ENTREPRENEURSHIP INTERNSHIP I (1 CR)**

*Prerequisite: BUSE 140*

Upon the successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course consists of supervised work experience in an approved training situation. A minimum of 240 hours of on-the-job training is required. This course is required for an associate of applied science degree in business entrepreneurship. Either BUSE 210, Entrepreneurship Internship I, or BUSE 215, Entrepreneurship Internship II, is required for a vocational certificate in business entrepreneurship.

**BUSE 215**  
**ENTREPRENEURSHIP INTERNSHIP II (1 CR)**

*Prerequisite: BUSE 140*

Upon the successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course consists of supervised work experience in an approved training situation. A minimum of 240 hours of on-the-job training is required. This course is required for an associate of applied science degree in business entrepreneurship. Either BUSE 210, Entrepreneurship Internship I, or BUSE 215, Entrepreneurship Internship II, is required for a vocational certificate in business entrepreneurship.

## **Business Office Technology (BOT)**

**BOT 101**  
**COMPUTERIZED KEYBOARDING (1 CR)**

Upon successful completion of this course, the student should be able to operate a computer keyboard by touch to enter data with speed and accuracy. 1 hr./wk.

**BOT 103**  
**BUSINESS ENGLISH (3 CR)**

Upon successful completion of this course, the student should be able to demonstrate the basic rules of English, develop correct sentence structure and use accurate English grammar and mechanics when writing documents. Students also will be able to proofread written work using standard proofreading symbols. 3 hrs. lecture/wk.

**BOT 105**

## **KEYBOARDING/FORMATTING I (3 CR)**

Upon successful completion of this course, the student should be able to develop speed and accuracy by learning to use the alphabetic, numeric and symbol keys by touch; identify and operate the basic machine parts and special purpose keys; and format and type personal correspondence and business documents - letters, reports, tables and memos. Microsoft Word 2002 will be used in this class. 3 hrs./wk.

## **BOT 110 SKILLBUILDING I (1 CR)**

*Prerequisite: BOT 105 or equivalent*

Upon successful completion of this course, the student should be able to use a diagnostic approach to develop typing speed and accuracy. Specific problems will be identified, and the student should be able to complete specialized drills and activities tailored to the student's own typing needs to improve or eliminate deficiencies. 1 hr./wk.

## **BOT 115 ELECTRONIC CALCULATORS (1 CR)**

Upon successful completion of this course, the student should be able to review basic arithmetic, operate the electronic calculator by touch to build speed and accuracy, use basic calculator functions and operating controls, and solve business application problems. 1 hr./wk.

## **BOT 118 SKILLBUILDING II (1 CR)**

*Prerequisite: BOT 110*

Upon successful completion of this course, the student should further develop speed and accuracy. The student should be able to improve keyboard skills through diagnostic evaluation and by completing individualized drills and activities. 1 hr. lecture/wk.

## **BOT 120 MACHINE TRANSCRIPTION (1 CR)**

*Prerequisite: BOT 105 or equivalent*

Upon successful completion of this course, the student should be proficient in transcribing a variety of business documents from machine transcription. Emphasis is placed on operation of transcription equipment; development of speed and accuracy in transcription; and developing English, proofreading and formatting skills. 1 hr./wk.

## **BOT 122 MEDICAL KEYBOARDING (1 CR)**

*Prerequisite: BOT 105 or equivalent*

Upon successful completion of this course, the student should be able to develop keyboarding speed and accuracy in medical formats. The student should also be able to improve keyboard skills by completing drills and activities pertaining to the transcription of medical reports. 1 hr. lecture/wk.

## **BOT 125 DOCUMENT FORMATTING (1 CR)**

*Prerequisite: BOT 155*

Upon successful completion of this course, the student should be able to type business letters with special features, memorandums, reports, tables and a variety of administrative documents. The student should also be able to use Microsoft Word 2002 to complete these activities. 1 hr./wk.

## **BOT 130 OFFICE SYSTEMS CONCEPTS (3 CR)**

Upon successful completion of this course, the student should be able to understand and apply technological factors of contemporary office systems. Implementation of office automation concepts will be examined as they relate to people, technology and organizations. These concepts will be applied to organizational and strategic planning to enhance productivity in the office. 3 hrs./wk.

**BOT 150**  
**RECORDS MANAGEMENT (3 CR)**

Methods for developing and controlling an office records management program will be discussed. Selection of equipment for active and inactive records will be covered, along with procedures for document, card and special records; microrecords; mechanized and automated records; and records storage, retention and transfer. Upon successful completion of this course, the student should be able to file documents using alphabetic, subject, consecutive numeric, terminal digit numeric and geographic filing systems using requisition charge out and transfer procedures. The student should be able to create a computer database for records management; enter, modify and delete records; print reports; and determine disposition of records filed alphabetically, numerically, by subject and geographically. The course will cover the identification of evaluation methods and standards for both staff and programs in a records management department. 3 hrs./wk.

**BOT 155**  
**WORD PROCESSING APPLICATIONS I (2 CR)**

*Prerequisite: BOT 105 or equivalent*

Upon successful completion of this course, the student should be able to demonstrate skill in creating, saving, opening, closing, printing and editing documents. The student should be able to use beginning and intermediate features of Microsoft Word 2002. The student should be able to demonstrate file maintenance procedures. 2 hrs. lecture/demonstration/wk.

**BOT 160**  
**LEGAL TRANSCRIPTION (3 CR)**

*Prerequisite: BOT 155 or equivalent*

Upon successful completion of this course, the student should be able to demonstrate skill in spelling, defining, pronouncing and using legal terms in proper context. The student should also be able to use legal reference resources and transcribe legal documents from dictation using proper formatting rules. 3 hrs./wk.

**BOT 165**  
**MEDICAL TRANSCRIPTION (3 CR)**

*Prerequisites: AAC 130 and BOT 155 or equivalent*

Upon successful completion of this course, the student should be able to transcribe medical reports using proper formats and transcription rules. These reports concern in-patients with a specific medical problem. Reports include history and physical examinations, radiology reports, operative reports, pathology reports, requests for consultation, death summaries, discharge summaries and autopsy reports. Students should be able to spell, define, pronounce and use medical terms in proper context and be able to use medical reference books. 3 hrs./wk.

**BOT 170**  
**MEDICAL CODING AND BILLING (3 CR)**

*Prerequisite: AAC 130*

This course is designed to give the student an overview of the medical insurance billing process. This includes becoming acquainted with ICD-9, HCPCS and CPT procedural coding systems as well as Blue Cross/Blue Shield, Medicaid, Medicare and Champus/Champva programs. Students will be given hands-on coding advice for optimal insurance reimbursement. 3 hrs. lecture/wk.

**BOT 175**  
**CONFLICT IN THE WORKPLACE (1 CR)**

Upon successful completion of this course, the student should be able to develop the knowledge,

skills, process and understanding of good working relationships in an office environment. The student will also be able to recognize and understand behavior patterns and what work-related events might trigger workplace conflict. Strategies will be developed for dealing with conflict and difficult people. 1 hr. lecture/wk.

**BOT 180**  
**BUSINESS SPREADSHEET APPLICATIONS (1 CR)**

*Prerequisite: CPCA 110 or extensive experience using Windows-based spreadsheets*

Upon successful completion of this course, the student should be able to demonstrate competencies in using advanced formatting techniques, advanced features and advanced functions of Microsoft Excel 2002. The following topics will be covered: working with templates, workbooks and lists; using Excel's analysis tools; managing and auditing worksheets; collaborating with workgroups; creating and editing macros; and importing and exporting data. 1 hr. lecture/wk.

**BOT 185**  
**BUSINESS DATABASE APPLICATIONS (1 CR)**

*Prerequisite: CPCA 114 or extensive experience using Windows-based databases*

Upon successful completion of this course, the student should be able to demonstrate database development skills by effectively identifying the types of projects that should be developed using Microsoft Access 2002 rather than a spreadsheet; build tables that can be related to each other in order to eliminate data entry duplication; customize forms and reports; create basic and advanced queries; and define relational integrity between tables. The student should also be able to create basic and advanced queries with single and multiple tables using Boolean logic. The student should be able to identify and implement methods of troubleshooting and explain ways of getting additional help. 1 hr. lecture/wk.

**BOT 205**  
**PROFESSIONAL IMAGE DEVELOPMENT (1 CR)**

Upon successful completion of this course, the student should be able to develop work habits and self-management skills that will affect performance on the job by reducing stress, conflict and miscommunication. 1 hr. lecture/wk.

**BOT 210**  
**WORKING IN TEAMS (1 CR)**

Upon successful completion of this course, the student should possess the necessary skills to work in teams. Students should also be able to assess and adjust their perceptions of how they should communicate within a team environment and to assess their own workplace expectations, values and methods of communicating as a basis for understanding how to improve communication with others to achieve a common goal. 1 hr. lecture/wk.

**BOT 220**  
**PHARMACOLOGY TERMINOLOGY (2 CR)**

*Prerequisite: AAC 130*

Upon successful completion of this course, the student should be able to use pharmacological terminology in an appropriate context. This course includes an investigation of medication actions, dosage forms, routes of administration and uses. The course emphasizes the terminology necessary for transcription of medical reports. 2 hrs. lecture/wk.

**BOT 255**  
**WORD PROCESS APPLICATIONS II (2 CR)**

*Prerequisite(s): BOT 155 or extensive experience using the same software with approval of the program facilitator*

Upon successful completion of this course, the student should be able to demonstrate word processing skills using such features as macros, styles, tables of contents and indexes, graphics, master and subdocuments, and other advanced features of Microsoft Word 2002. 2 hrs. lecture-demonstration/wk.

**BOT 260**  
**DESKTOP PUBLISHING FOR OFFICE (3 CR)**

*Prerequisite: BOT 155 or the equivalent*

Upon successful completion of this course, the student should be able to use desktop publishing skills using PageMaker 7.0 to produce publications such as fliers, newsletters, brochures, operating manuals, price lists and bulletins. 3 hrs. lecture/demonstration/wk.

**BOT 265**  
**COMPUTERIZED OFFICE APPLIC (3 CR)**

*Prerequisites: CPCA 110 and CPCA 114 and CPCA 141 and BOT 255 and BOT 130. This capstone course should be taken near the end of the degree or certificate program.*

Upon successful completion of this course, the student will be able to use the basic features of word processing, database, spreadsheet and presentation applications. The student will also use advanced features to complete simulated office applications and to perform multitasking projects. 3 hrs./wk.

**BOT 270**  
**ADVANCED MEDICAL TRANSCRIPTION (3 CR)**

*Prerequisite: BOT 165*

Upon successful completion of this course, the student will develop medical transcription skills with emphasis on additional speed and accuracy. Students will apply language skills, decision-making skills and "common-sense" skills during the transcription process. Students will become familiar with the medical transcription profession, employment opportunities, the important role of the medical transcriptionist in the health care team, and personal attributes, knowledge and skills required to produce error-free documents according to the employer's and AAMT standards. 3 hrs. lecture/wk.

**BOT 275**  
**OFFICE INTERNSHIP I (1 CR)**

*Prerequisite: Admission to the Office Systems Technology Program*

Upon successful completion of this course, the student should be able to procure and gain work experience in an approved training situation under instructional supervision. The course will provide practical experience in the use of skills acquired in business office technology courses. 185 hrs. work experience.

**BOT 280**  
**OFFICE INTERNSHIP II (1 CR)**

*Prerequisite: BOT 275*

Upon successful completion of this course, the student should be able to procure and gain work experience in an approved training station under instructional supervision in the three degree options - administrative assistant, administrative assistant with medical emphasis, administrative assistant with legal emphasis - or the certificate options. The course will provide practical experience using skills acquired in the program. 185 hrs. work experience.

## **Chemistry (CHEM)**

**CHEM 120**  
**CHEMISTRY IN SOCIETY (4 CR)**

This course is designed for non-science majors who seek an understanding of the concepts of chemistry. Historical foundations of chemistry, applications to society and daily life, controversies of contemporary concern and current research topics are explored. Inquiry-based laboratory experiments will illustrate chemical principles. 3 hrs. lecture, 2 hrs. lab/wk.

**CHEM 122**  
**PRINCIPLES OF CHEMISTRY (5 CR)**

This course is an introduction to the fundamentals of chemistry, with emphasis on general concepts of inorganic chemistry and sufficient study of organic chemistry to introduce the student to biochemistry. The student will learn basic definitions and theories of chemistry, solve numerical problems related to chemical principles and apply chemical concepts in laboratory work. 4 hrs. lecture, 3 hrs. lab/wk.

**CHEM 124**  
**GENERAL CHEMISTRY I LECTURE (4 CR)**

*Prerequisite or corequisite: MATH 171 Corequisite: CHEM 125*

Students will relate atomic structure to chemical systems, calculate the amount of material used in chemical reactions, use the periodic table as an aid to understanding chemical systems and interpret chemical reactions. 4 hrs./wk.

**CHEM 125**  
**GENERAL CHEMISTRY I LAB (1 CR)**

*Prerequisite or Corequisite: CHEM 124 Students who withdraw from GENERAL CHEMISTRY I LECTURE must also withdraw from the corresponding laboratory GENERAL CHEMISTRY I LABORATORY Students may not withdraw from the laboratory course GENERAL CHEMISTRY I LABORATORY without withdrawing from CHEMISTRY I LECTURE.*

Experiments of a qualitative and quantitative nature that support topics from General Chemistry I Lecture will be carried out. 3 hrs./wk.

**CHEM 131**  
**GENERAL CHEMISTRY II LECTURE (4 CR)**

*Prerequisite: CHEM 124 and CHEM 125 Corequisite: CHEM 132*

Chemistry 131 is the second semester of a two-semester course in general chemistry in which the student will develop a working knowledge of some of the fundamental concepts and quantitative relationships involved in the study of chemical reactivity. Topics include chemical kinetics, chemical equilibrium, acid-base chemistry, chemical thermodynamics and electrochemistry, nuclear chemistry, and basic organic chemistry. 4 hrs./wk.

**CHEM 132**  
**GENERAL CHEMISTRY II LAB (1 CR)**

*Prerequisite: CHEM 124 and CHEM 125 Corequisite: CHEM 131*

The laboratory consists of qualitative and quantitative experiments designed to parallel and support General Chemistry II Lecture. 3 hrs./wk.

**CHEM 140**  
**PRIN OF ORGANIC CHEMISTRY (5 CR)**

*Prerequisite: CHEM 122 or CHEM 131 and CHEM 132*

This course covers nomenclature, theory and applications of basic organic chemistry and biochemistry in the area of carbohydrates, lipids, proteins and enzymes. The lab activities reinforce the topics presented in the lecture. 4 hrs. lecture, 3 hrs. lab/wk.

**CHEM 220**  
**ORGANIC CHEMISTRY I (5 CR)**

*Prerequisite: CHEM 131 and CHEM 132*

Organic Chemistry I is an introduction to the theories and principles of the chemistry carbon compounds. The student will develop an understanding of organic chemistry, which will be useful in the studies of chemistry and related fields such as medicine, engineering and pharmacy. The laboratory is supportive in nature, with a strong emphasis on developing laboratory techniques. Representative compounds will be prepared and used to introduce the student to instrumental analysis. 3 hrs. lecture, 6 hrs. lab/wk.

**CHEM 221**  
**ORGANIC CHEMISTRY II (5 CR)**

*Prerequisite: CHEM 220*

Organic Chemistry II is a continuation of Organic Chemistry I, the nomenclature, principles and theories of organic chemistry, with emphasis on electronic theories and reaction mechanisms. Laboratory is supportive in nature with emphasis on developing laboratory techniques and preparation of representative compounds. Organic Chemistry II completes the study of organic chemistry designed to prepare the student for continued work in chemistry and related fields. 3 hrs. lecture, 6 hrs. lab/wk.

**CHEM 250**  
**BIOCHEMISTRY (4 CR)**

*Prerequisite: CHEM 131 and CHEM 132 and CHEM 140 or CHEM 220*

This course is an introduction to the major topics in biochemistry. Topics include the major classes of biological molecules, such as proteins, lipids and nucleic acid; an overview of the major metabolic pathways; and developments and topics relating to molecular biology. 4 hrs. lecture/wk.

**CHEM 251**  
**BIOCHEMISTRY LABORATORY (2 CR)**

*Prerequisite: CHEM 131 and CHEM 132 and CHEM 140 or CHEM 220 Corequisite: CHEM 250*

The laboratory will consist of qualitative and quantitative experiments using biological molecules. Particular emphasis upon biochemistry laboratory techniques, including chromatography and spectroscopy, will be used. 3 hrs. lab, 1 hr. recitation/wk.

## **Civil Engineering Technology (CET)**

**CET 105**  
**CONSTRUCTION METHODS (3 CR)**

This course introduces the student to the terms, methods, procedures, sequences of operation, and types of construction and planning in civil and building construction. 3 hrs./wk.

**CET 120**  
**ENGINEERED PLUMBING SYSTEMS I (3 CR)**

Upon successful completion of this course, the student should be able to use codes and engineering principles and design engineering practices to analyze and design basic plumbing systems. Topics covered include codes, materials, hangers, supports, and expansion and contraction. Plumbing systems covered include fuel gas, domestic water and soil waste/vent. The student should also be able to interpret drawings related to plumbing technology. 3 hrs. lecture/wk.

**CET 122**  
**ENGINEERED PLUMBING SYSTEMS II (3 CR)**

Upon successful completion of this course, the student should be able to describe storm water, industrial wastes, compressed air and irrigation and fire sprinkler systems. Topics include water treatment, noise control, decorative pools, pumps, estimating, specifications and field inspection. 3 hrs. lecture/wk.

**CET 125**  
**CONSTRUCTION SPECIFICATIONS (2 CR)**

*Prerequisite: CET 105 or equivalent*

Upon successful completion of this course, the student will be able to describe the phases of a project, identify the bidding requirements, explain contractual relationships between parties, categorize the drawings, write specifications, list warranties and explain contract modifications. 2 hrs. lecture/wk.

**CET 127**  
**CONSTRUCTION ESTIMATING (3 CR)**

*Prerequisite: DRAF 129 or competence in reading building drawings*

This course introduces the student to the basic principles of construction estimating. Topics covered include estimating quantities of material from drawings and using reference books, tables and the C.S.I. format. Students will use industry-standard software for construction estimating. 2 hrs. lecture and 3 hrs. lab/ wk.

**CET 129**  
**CONSTRUCTION MANAGEMENT (3 CR)**

This course is intended for students interested in learning management principles for construction projects. Upon successful completion of this course, the student should be able to perform many processes associated with construction projects and complete forms typically used in project management. Topics include contract documents, scheduling, job costs and management issues. Project management software will be used to schedule and track project resources and progress. 2 hrs. lecture, 3 hrs. lab/wk.

**CET 133**  
**CONCRETE TESTING (2 CR)**

This course covers the principles of making and testing concrete. The emphasis will be on allowing concrete to reach the highest level of durability through proper mix design, placing and finishing techniques, and curing methods. This course will help prepare the student for ACI National Certification exam. 1 1/2 hr. lecture, 3 hrs.lab/wk.

**CET 140**  
**CIVIL ENGINEERING MATERIALS (3 CR)**

*Corequisite: MATH 133*

Upon successful completion of this course, the student will be able to analyze materials commonly used in civil engineering construction projects. Common properties of soil, concrete and asphalt will be studied for classification as engineering materials. Students will learn to perform typical materials tests in accordance with ASTM guidelines. 2 hrs. lecture, 3 hrs. lab/wk.

**CET 211**  
**TECHNICAL STATICS & DESIGN (3 CR)**

*Prerequisite: MATH 134 or MATH 172 or MATH 173 or MATH 241*

Upon successful completion of this course, the student should be able to evaluate and design force systems in equilibrium. Topics include truss analysis, stress and strain, shear, loading conditions, steel member selection, and connection design. Computer applications are included. 3 hrs. lecture/wk.

**CET 270**  
**FLUID MECHANICS (3 CR)**

*Prerequisites: MATH 172 or MATH 134*

Upon successful completion of this course, the student should be able to analyze fluid systems using the fundamental properties of pressure, hydrostatic force, buoyancy, flow in pipes, open channel flow and flow measuring devices. The student should also be able to solve practical problems related to engineering technology. Computer applications will be included. 3 hrs. lecture/wk.

## **Communication Design (CD)**

**CD 120**  
**INTROD TO COMMUNICATION DESIGN (3 CR)**



This course is designed to acquaint the student with the various aspects of the communication design field. Topics include the ways in which visual messages are used in society, the skills needed by a communication designer and the potential areas of specialization and employment. Emphasis will be on assisting the student to make an informed decision about communication design as a career. 3 hrs. lecture/wk.

**CD 130**  
**DRAWING AND MEDIA METHODS 1 (3 CR)**

*Prerequisites: ART 124 and CD 120*

This course will provide instruction in perceptual techniques, perspective theory and drawing process methods that relate to the visual analysis of the three-dimensional forms drawn from life. Focus will be on the application of theory, processes and techniques to attain structural accuracy and the illusion of three-dimensional form on a two-dimensional surface. 6 hrs. lecture and studio/wk.

**CD 131**  
**DRAWING AND MEDIA METHODS 2 (3 CR)**

*Prerequisite: CD 130*

This course is a continuation of Drawing and Media Methods I, with emphasis on the creative application of perspective theory, perceptual skill and drawing methods. Drawing methods and rendering techniques will be applied to visual problem-solving processes and the communication of design concepts. 6 hrs. lecture and studio/wk.

**CD 132**  
**TYPOGRAPHY (3 CR)**

*Prerequisites: ART 124 and CD 120 and CDTP 131*

This course will provide instruction in the basic principles of contemporary typographic design. Information concerning typography, from traditional letterpress through digital type design and typesetting, will be included. The course content will emphasize effective methods of communicating to a mass audience through the printed letter, word, line and page. 6 hrs. lecture and studio/wk.

**CD 134**  
**LAYOUT DESIGN (3 CR)**

*Prerequisite: CD 132*

This course will provide a basic study of layout elements. Students will acquire the skills necessary to produce layouts. These skills include photographic indication techniques, comp lettering, advertising and editorial grid systems, and electronic page design. This course is typically offered in the spring semester only. 6 hrs. lecture and studio/wk.

**CD 140**  
**TECHNICAL PROCESSES (3 CR)**

*Prerequisite: PHOT 121*

This course covers digital prepress applications, scanning, image manipulation and color output devices. The transition from conventional to digital production will be explored. Analysis of output and file management and the understanding of proofing systems will be covered. Proper usage of peripheral equipment will be emphasized. 6 hrs. lecture and studio/wk.

**CD 230**  
**DRAWING AND MEDIA METHODS 3 (3 CR)**

*Prerequisite: CD 131*

This course will provide an understanding of the application of illustration to communication design. Visual problem-solving processes acquired in Drawing Methods 2 will be further developed through problems in image composition emphasizing expressive communication. Techniques in traditional and digital media are explored. This course is typically offered in the fall semester only. 6 hrs. lecture and studio/wk.

**CD 231**  
**ADVANCED TYPOGRAPHY (3 CR)**

*Prerequisite: CD 134*

This course is a continuation of Layout Design. Emphasis will be on typographic solutions that explore verbal/visual messages. Projects include designs for publication, such as posters, brochures, packaging and graphic campaigns. Typography as a functional and experimental medium will be stressed. Design problem-solving for a diverse range of specifications, including audience, client needs and budget constraints, are included. Traditional and digital tools will be incorporated to produce comprehensives. This course is typically offered in the fall semester only. 6 hrs lecture and studio/wk.

**CD 235**  
**PRODUCTION METHODS (3 CR)**

*Prerequisites: CD 134 and CD 140*

This course will provide the fundamentals of preparing art for reproduction. Traditional camera-ready art techniques and digital prepress production methods will be emphasized. This course is typically offered in the fall semester only. 6 hrs. lecture and studio/wk.

**CD 236**  
**ELECTRONIC PRODUCTION (3 CR)**

*Prerequisites: CD 230 and CD 231 and CD 235 and PHOT 123*

This course is a continuation of the Production Methods course, providing experience in digital prepress and other electronic production techniques. The student will apply production skills to problems of professional scope and complexity, including specialty processes, trapping and color separation. Preparation of graphic files for screen presentation and for the Web will be explored. This course is typically offered in the spring semester only. 6 hrs. lecture and studio/wk.

**CD 244**  
**COMMUNICATION SYSTEMS (3 CR)**

*Prerequisites: CD 230 and CD 231 and CD 235 and either CIM 135 or PHOT 123*

This course will explore the scope and potential of graphic design as a vehicle for visual communication in contemporary society. Signs and symbols, as well as the communicative power of typographic, hand graphic and photographic modes, will be studied. Traditional and electronic methods will be used to develop projects. This course is typically offered in the spring semester only. 6 hrs. lecture and studio/wk.

**CD 245**  
**ADVANCED DESIGN PRACTICE (3 CR)**

*Prerequisites: CD 230 and CD 231 and CD 235 and either CIM 135 or PHOT 123*

This course will focus on the use of the student's total design capability and technical knowledge in solving graphic design problems of professional scope and complexity. Students will have the opportunity to work with three art directors and produce three professional projects for potential inclusion in their portfolios. This course is typically offered in the spring semester only. 6 hrs. lecture and studio/wk.

**CD 272**  
**PROFESSIONAL PREPARATION (3 CR)**

*Prerequisites: The student must have completed all required studio courses in the communication design program prior to the semester for which he or she is enrolling in this course or be co-enrolled in all fourth-semester studio courses.*

This course will provide communication design majors instruction in the organization and presentation of his or her work in a portfolio format of professional quality. A slide portfolio and resume will be produced. Instruction in interviewing techniques and employment searches will also be provided. 3 hrs. lecture and studio/wk.

**CD 275**  
**COMMUNICATION DESIGN INTERNSHP (1 CR)**

*Prerequisites: Communication Design faculty review committee approval.*

Students will work in an approved training situation under instructional supervision. The internship is designed to give the student the opportunity to use the skills learned in the communication design program. Student interns will complete a minimum of 180 hours on the job and will be compensated with at least the minimum hourly wage.

## **Computer Desktop Publishing (CDTP)**

### **CDTP 131**

#### **DESKTOP PUBLISH I:QUARKXPRESS (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124 or appropriate test scores.*

In this career-related course, students will create page layout documents using a variety of basic techniques on either the Macintosh or PC computer platform. Students will produce text material with complex tabs and indents and style attributes. Students will also be able to group and distribute multiple elements, demonstrate a basic proficiency with drawing tools, multiple document work, drop caps, text rotation, locking items and threading text blocks. 1 hr. lecture/wk.

### **CDTP 135**

#### **DESKTOP PHOTO MAN I: PHOTOSHOP (1 CR)**

*Prerequisites: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124 or appropriate test score*

This course is designed to explore the manipulation of digital photographs using a variety of techniques and tools. The application of painting and editing tools to digital images; the manipulation of selections, layers and resolution; and analyzing scanned images will be covered. 1 hr. lecture/wk.

### **CDTP 140**

#### **DESKTOP PUBLISHING I:INDESIGN (1 CR)**

*Prerequisites: CPCA 105 or CPCA 106 or appropriate test scores.*

In this career-related course, students will create page layout documents using a variety of basic techniques on either the Macintosh or PC computer platform. Students will produce text material with complex tabs and indents and style attributes. Upon successful completion of the course, students will also be able to group and distribute multiple elements and demonstrate a basic proficiency with drawing tools, multiple document work, drop caps, text rotation, locking items and threading text blocks. 1 hr. lecture/wk.

### **CDTP 145**

#### **DSKTP ILLUSTR I:ILLUSTRATOR (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124 or appropriate test score.*

In this career-related course, students will create basic computer-generated illustrations using a variety of techniques on either the Macintosh or Windows PC computer platform. Students will draw simple paths and shapes, create layers, import graphics, and add typographic elements in rows and columns with runarounds, baseline shifts and conversion to outlines. 1 hr. lecture/wk.

### **CDTP 151**

#### **DESKTOP PUBLISH II:QUARKXPRESS (1 CR)**

*Prerequisite: CDTP 131*

In this career-related course, students will create page layout documents using a variety of basic techniques on either the Macintosh or PC computer platform. Students will produce text material with complex tabs and indents and style attributes. Students will also be able to group and distribute multiple elements and demonstrate a basic proficiency with drawing tools, multiple document work, drop caps, text rotation, locking items and threading text blocks. 1 hr. lecture/wk.

### **CDTP 155**

#### **DESKTOP PHOTO MAN II:PHOTOSHOP (1 CR)**

*Prerequisite: CDTP 135*

This course presents advanced techniques of Photoshop. Topics covered include creating and manipulating text, importing existing images and creating new images. Other topics will include applying filter effects, correcting color, retouching and repairing images, adding special effects and preparing art for the Web. Students will explore solutions to specific Photoshop problems and will plan and create individual projects. 1 hr. lecture- demonstration/wk.

**CDTP 160**  
**DESKTOP PUBLISHING II:INDESIGN (1 CR)**

*Prerequisite: CDTP 140*

In this career-related course, students will create intermediate-level page layout documents using a variety of techniques on either the Macintosh or PC computer platform. Students will learn how to work with type styles, threads, columns, special characters, hanging indents, vertical spacing and tables as well as exploring PDF files. Students will also be able to master several aspects of working with graphic images: placing images, linking, clipping paths, libraries, grids, Bezier drawing, compound paths and reflections. Finally, students will work with advanced framing techniques to nest frames within shapes. 1 hr. lecture/wk.

**CDTP 165**  
**DESKTOP PUBLISH II:ILLUSTRATOR (1 CR)**

*Prerequisite: CDTP 145*

In this career-related course, students will create intermediate-level computer-generated illustrations using a variety of techniques on either the Macintosh or PC computer platform. Students will trace an object, create complex gradients with custom blends, create complex objects receding toward a vanishing point, and create an orthogonal projection to simulate depth. 1 hr. lecture /wk.

**CDTP 171**  
**DESKTP PUBLISH III:QUARKXPRESS (1 CR)**

*Prerequisite: CDTP 151*

In this career-related course, students will create several brochure layouts on either the Macintosh or PC computer platform that incorporate a variety of drawing techniques, including layering, blends, distribution, EPS files, Bozier shapes, merge shapes and multi-ink colors. Pre-press production for final art will also be covered. 1 hr. lecture/wk.

**CDTP 175**  
**DKTP PHOTO MAN III:PHOTOSHOP (1 CR)**

*Prerequisite: CDTP 155*

This course presents advanced techniques for using Photoshop. Advanced topics include painting techniques, photographic techniques, image manipulation techniques, and composing techniques. Airbrushing, blending modes, channels, clipping groups, colorizing, filters, gradients, layer effects, masks and modes, levels, lighting effects, masking, perspective and depth, posterizing, restoration, retouching, texturizing and tiling are techniques that will be covered. Students will explore and apply solutions to specific Photoshop problems by creating individual projects. 1 hr. lecture/wk.

**CDTP 180**  
**PHOTOSHP/WEB:PHOTSHP/IMAGE RDY (1 CR)**

*Prerequisite: CDTP 155*

This course is designed to explore the preparation of digital photographs and images for the Web using a variety of techniques and tools. Optimizing images for the Web, creating Web graphics using slices and rollovers, designing Web pages using multiple Adobe programs (Adobe Acrobat and Adobe GoLive), and creating animated images for the Web will be covered. 1 hr. lecture/wk.

**CDTP 185**  
**DESKTP ILLUSTR III:ILLUSTRATOR (1 CR)**

*Prerequisite: CDTP 165*

In this career-related course, students will create advanced computer-generated illustrations using a variety of techniques on either the Macintosh or PC computer platform. Students will create charts, autotrace scanned images, fill objects with various pen-and-ink filter effects and create an imagemap for the Web. 1 hr. lecture/wk.

## Computer Forensics (CFOR)

### **CFOR 150** **INTRO TO COMPUTER FORENSICS (3 CR)**

*Prerequisite: CIS 134 and CPCA 139*

In this course, students are introduced to computer forensics and incident response essentials. This course shows the student how to collect and analyze the digital evidence left behind in a digital crime scene. Computer forensics, the newest branch of computer security, focuses on the aftermath of a computer security incident. The goal of computer forensics is to conduct a structured investigation to determine exactly what happened and who was responsible and to perform the investigation in such a way that the results are useful in a criminal proceeding. 3 hrs. lecture/wk.

## Computer Information Systems (CIS)

### **CIS 110** **INTRODUCTION TO COMPUTERS (2 CR)**

This course provides a comprehensive overview of the computer-what it is, what it can and cannot do, how it operates and how it may be instructed to solve problems. The course will familiarize learners with the terminology of computer science. The course provides opportunities to examine the application of the computer to a broad range of organizational settings and social environments. The course is designed to prepare learners to understand and use computers in both their personal and professional lives. 2 hrs. lecture/wk.

### **CIS 124** **INTRO COMPUT/CONCEPTS & APPLIC (3 CR)**

In this introductory, nontechnical computer course, students study computing concepts, terminology, issues and uses. Extensive hands-on experience with the microcomputer is provided using business applications and the operating system to reinforce the concepts. 3 hrs. lecture/wk.

### **CIS 134** **PROGRAMMING FUNDAMENTALS (4 CR)**

At the completion of this course, the student should be able to use the elementary concepts of computers, including several number systems. In addition, students will design, develop and write modular programs on a microcomputer in a structured programming language using standard structured concepts. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

### **CIS 138** **VISUAL BASIC .NET (4 CR)**

*Prerequisite: CIS 134*

Upon successful completion of this course, students should be able to describe the Visual Basic programming environment, identifying the controls and objects available for creating .NET applications. Students should be able to define the basic terminology used by Visual Basic. They will create forms, draw the controls for each form, design menu bars, set form and control properties, write event and general procedures, and test and debug their applications. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 140**  
**EDITOR FOR COBOL (1 CR)**

*Prerequisite: CIS 134*

In this introductory course, students will focus on using an editor to create and manipulate files on a computer. They also will submit computer programs for execution. 1 hr. lecture, lab/wk.

**CIS 145**  
**ASSEMBLER LANGUAGE FOR MICROS (4 CR)**

*Prerequisite: CIS 134 or ENGR 171 or the equivalent experience. It is recommended that this course be taken after completion of CS200 or an equivalent programming course beyond PROGRAMMING FUNDAMENTALS or PROGRAMMING FOR ENGR & SCIENCE*

Students will study and use assembler language for the microcomputer in order to understand the basic concepts of the personal computer and its use in problem solving. Topics include the microcomputer CPU, registers and memory segmentation. Practical applications include DOS and BIOS systems services, array and bit processing, and library calls. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 148**  
**COBOL I (4 CR)**

*Prerequisite: CIS 134 Corequisite: CIS 140*

Students will study the use of the COBOL programming language by writing programs in COBOL in a mainframe environment. Emphasis will be on function and use of statements in the four divisions of ANSI COBOL. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 150**  
**ASSEMBLER LANGUAGE I (4 CR)**

*Prerequisite: CIS 134 Corequisite: CIS 140 It is recommended that this class be taken after CIS 148*

Students will write programs using assembler language in order to understand the basic concepts of the IBM mainframe. Topics include CPU, registers and memory fetching. Practical applications include I/O, array processing and bit manipulation. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 162**  
**DATABASE PROGRAMMING (4 CR)**

*Prerequisite: CIS 134 or the equivalent*

This course covers the use of an interactive environment and programming language to create, maintain and manipulate databases using Access as the RDBMS. The use of a command-level database programming language to customize business systems and selectively retrieve information using single or multiple database tables also will be studied. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 204**  
**UNIX OPERATING SYSTEM (3 CR)**

*Prerequisite: CS 200 or CS 205 or CS 201 and CPCA 139*

This course will cover the concepts and principles of the multi-user, multi-tasking UNIX operating system. Students will complete projects in UNIX ranging from using simple commands to writing shell scripts automating repetitive tasks. 3 hrs. lecture/wk.

**CIS 206**  
**PROGRAMMING IN PERL (4 CR)**

*Prerequisite: CS 200 or CS 205 or CS 201 and CPCA 139*

This course is an in-depth introduction to the Perl scripting language. Students successfully finishing the course should be familiar with the most common operations and language idioms used in Perl programs and should be able to produce useful Perl scripts. In addition, students will have been introduced to the more powerful and rich elements of the language. Lectures and lab projects will cover the many features of the Perl language. 3 hrs. lecture, 1.5 hrs. lab/wk.

**CIS 215**  
**OS/VS JOB CONTROL LANGUAGE (3 CR)**

*Prerequisite: CIS 148 or CIS 150*

Students will study the use of OS/VS JCL and typical applications. Emphasis will be on rules of coding JCL, optimizing resources, use of symbolic parameters and overriding statements. An IBM mainframe will be used in the application of JCL and utilities. 3 hrs. lecture/wk.

**CIS 235**  
**OBJECT-ORIENTED PROGRAMM/C++ (4 CR)**

*Prerequisite: CS 200 using C++*

This course is intended to prepare students to apply the object-oriented programming paradigm to solve typical business problems. The student should work with container classes such as Linked Lists, Trees, Stacks and Queues as tools in their program solutions. Students will be building application-oriented objects using the concepts of inheritance, function overloading and polymorphism. Students will also apply techniques of dynamic memory to build arrays and objects that can adjust memory requirements at run time. Students will be exploring the object-oriented and I/O capabilities as well as the string processing capabilities of the object-oriented language. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 238**  
**VISUAL BASIC INTERMED TOPICS (4 CR)**

*Prerequisite: CIS 138*

Upon successful completion of this course, students should be able to write and test a Visual Basic program that uses the .Net data access objects to access a local database. They will identify the commands necessary to open, display and maintain the database. They will correctly use Visual Basic keystroke events to edit and control input to the database. Students will use the Try Catch Error trapping structures to create robust projects. Students will generalize code for reuse, coordinates a TextBox and ListBox and can be deployed from the Toolbox. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 240**  
**ADVANCED TOPICS IN JAVA I (4 CR)**

*Prerequisite: CS 250 or CIS 235 or CS 255*

At the completion of this course, the student should be able to create Java applications and applets appropriate for implementation on the Internet and World Wide Web. The student will complete projects using Java's built-in features. The course will include graphics, graphical user interfaces, exception handling, multithreading and interactive media. 3 hrs. lecture, 2 hrs. lab/wk.

**CIS 242**  
**INTRO SYSTEM DESIGN/ANALYSIS (3 CR)**

*Prerequisite: One semester of a computer language beyond CIS 134 or ENGR 171*

Students will study the basic philosophy and techniques of developing and using business information systems. The emphasis will be on the human involvement necessary in systems design and implementation. The course will address the use of specific technical approaches available in information processing. 3 hrs. lecture/wk.

**CIS 243**  
**OBJECT-ORIENTED ANALYS/DESIGN (4 CR)**

*Prerequisite: One programming course using an object-oriented programming language, or equivalent experience*

This course includes information and materials that will introduce the student to an object-oriented analysis and design methodology suitable for designing systems that can be implemented in any object-oriented programming language. Experience in using specific techniques and tools will be gained through the completion of real-world projects. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 244**  
**ADVANCED TOPICS IN C# I (4 CR)**

*Prerequisite: CS 250 or CIS 235 or CS 255*

At the completion of this course, the student should be able to create C# applications appropriate for implementation on the .NET platform. The student will complete projects using C#'s built-in features. The course will include graphics, graphical user interfaces, exception handling, multi-threading and database access. 3 hrs. lecture and 1.5 hrs lab/wk.

**CIS 248**  
**COBOL II (4 CR)**

*Prerequisite: CIS 148*

In this advanced COBOL programming class, students will use ANSI COBOL to solve problems with data on a direct access device. They will work on methods for building, maintaining and using files in a sequential, random and indexed manner. They also will study the sort feature of COBOL. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 253**  
**CICS (4 CR)**

*Prerequisite: CIS 248*

This is an introduction to command-level CICS using the COBOL language. The class will cover basic CICS commands and their uses as well as CICS management modules and their functions, including program control, terminal control, basic mapping support, file control and temporary storage. Debugging on the transaction level will be discussed. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 254**  
**UNIX SYSTEM ADMINISTRATION (4 CR)**

*Prerequisite: CIS 204*

This course is designed to present the skills and provide the hands-on experience required to be a Unix system and Web administrator. Typical system administration duties to be covered include installation, backup, restoration and routine maintenance, including adding/removing users, managing system resources, monitoring and optimizing system activity, and automating activities. Typical Web administration duties to be covered include installation and management of a relational database management system, installation and management of a Web server and an FTP server, kernel recompiling relevant to Web technology, and audio/video streaming. 3 hrs. lecture, 2 hrs. lab/wk.

**CIS 258**  
**OPERATING SYSTEMS (3 CR)**

*Prerequisite: CIS 145 or CIS 148 or CIS 150 or CS 200*

The basic concepts and principles of a digital computer operating system will be explained. Also explored through a study of a typical digital computer operating system will be the relationships between hardware and software. 3 hrs. lecture/wk.

**CIS 260**  
**DATABASE MANAGEMENT (4 CR)**

*Prerequisite: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248*

Characteristics and objectives of database management systems (DBMS) versus traditional file management systems are discussed. Topics include relational, hierarchical and network models; data modeling using entity-relational model: normalization to avoid modification anomalies; and operational considerations of a relational database. Students will create and use a relational DBMS (currently Oracle) and a Standard Structured Query Language (SQL). SQL\*Plus and embedded SQL will be used in programs. 3 hrs. lecture, 2 hrs. lab/wk.

**CIS 262**  
**PROJECT MANAGEMENT (3 CR)**

*Prerequisite: CIS 242*

This course will prepare students to effectively manage projects, with a focus on information systems (IS) projects. Topics include project management terminology, project manager roles,



project success factors, integration, scope, time, cost, quality, human resources, communications, risk, professional responsibility and procurement management. Using case studies, students will plan, schedule, execute and control projects, modifying their timelines and resource allocations as required. 3 hrs. lecture/wk.

**CIS 264**  
**APPL DEVELOPMENT & PROGRAMMING (4 CR)**

*Prerequisites: CIS 242 and either CIS 260 or CIS 162 Prerequisite or Corequisite: CIS 238 or CIS 253 or CIS 269 or CIS 240 and CIS 262*

This course is designed for students to apply the foundations of systems analysis and design, database design and programming to a significant information system. Students should work within a team to analyze a problem, develop and present a proposed information system solution, build a demonstratable prototype of the system and develop a significant portion of the system. Students should also develop a project schedule and present progress information to the class. Students should also develop job search skills and both written and oral communication skills. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 269**  
**GUI PROGRAMMING (4 CR)**

*Prerequisite: CIS 235 or CS 250*

Upon completion of this course, students should be able to demonstrate applications in the graphical user interface (GUI) programming language and use the appropriate GUI library. Techniques of object-oriented programming developed in CIS 235 will be applied to problems involving user interaction. The common user access (CUA) standards of GUI programming will be used throughout the course. The message queue and ordered linked lists objects used in CIS 235 will be applied to problems involving user selection and updating information in a database. Students will make extensive use of the application framework for the GUI environment provided by the GUI language compiler. It is strongly recommended that students be familiar with common user programs that run under the chosen operating system (Windows, OS/2, X-Windows) before taking this course. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CIS 270**  
**INFORMATION SYSTEMS INTERNSHIP (3 CR)**

*Prerequisites: CS 250 or CS 255 or CIS 235 or CIS 238 or CIS 248 and approval of the internship coordinator*

Students will work in an approved training situation under instructional supervision. The internship is designed to give the student the opportunity to use the skills learned in information systems courses. Fifteen hours on-the-job training per week will be the usual workload for the student.

**CIS 275**  
**WEB ENABLED DATABASE PROGRAMMI (4 CR)**

*Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158*

At the completion of this course, the student should be able to create dynamic Web pages containing information accessed from a database for implementation on the Internet and World Wide Web. The student will complete projects using Dynamic HTML and a scripting language that can interface with a database. The course will include graphics, graphical user interfaces, exception handling, database and interactive media. 3 hrs. lecture, 2 hrs. lab/wk.

**CIS 277**  
**ACTIVE SERVER PAGES.NET (4 CR)**

*Prerequisites: CS 200 or CS 201 or CS 205 or CIS 162 and either CPCA 139 or CIS 204 and either CPCA 161 or CPCA 158*

At the completion of this course, the student should be able to create dynamic Web pages containing information accessed from a database for implementation on the Internet and World-Wide-Web. The student will complete projects using ASP.Net objects, Dynamic HTML and a scripting language that can interface with a database. The course will include graphics, graphical user interfaces, exception handling, database, and interactive media. 3 hrs. lecture, 2 hrs. lab/wk.

**CIS 279****ENTERPRISE GUI PROGRAMM IN C++ (4 CR)**

*Prerequisite: CIS 243 and CIS 269 and CIS 260*

Students will learn advanced programming techniques for Windows, including enterprise software tools, advanced user-interface techniques, multimedia, ActiveX and Internet programming. The course project provides students with real-world development experience covering analysis, design and implementation of a large-scale development project using an object-oriented software development methodology, version control technique, advanced testing techniques, defect-tracking and technical documentation. 3 hrs. lecture, 2 hrs. lab/wk.

**CIS 280****ADVANCED TOPICS IN JAVA II (4 CR)**

*Prerequisite: CIS 240*

At the completion of this course, the student should be able to create Java applications and applets that link to databases and provide the security and advanced GUI features appropriate for implementation on the Internet and World Wide Web. The student will complete projects using Java's built-in features. The course will include techniques for graphics optimization, building components for graphical user interfaces, client-server database connections in Java, handling security managers, building JAR files, using Java's remote objects and linking to other applications. 3 hrs. lecture, 2 hrs. lab/wk.

## **Computer Personal Computer App (CPCA)**

**CPCA 105****INTRO PERSONAL COMPUTERS:WIN (1 CR)**

This introductory course is designed to give the beginning computer user an overview of the personal computer. The student will gain confidence in basic computer skills and concepts through a hands-on approach while becoming familiar with a microcomputer and its primary uses. Topics include computer software, hardware and terminology; an introduction to microcomputer operating systems; and the graphical user interface. 1 hr. lecture /wk.

**CPCA 106****INTRO TO COMPUTING:MACINTOSH (1 CR)**

This introductory course is designed to give the beginning computer user an overview of the Macintosh personal computer. The student will gain confidence in basic computer skills and concepts through a hands-on approach while becoming familiar with a Macintosh computer and its primary uses. Topics include computer software, hardware and terminology; as well as an introduction to the Macintosh operating system, word processing, drawing, spreadsheets and database management. 1 hr. lecture/wk.

**CPCA 108****WORD PROCESSING ON MICROS I (1 CR)**

*Prerequisites: CPCA 105 or CPCA 106 or CIS 124 or DP 124 or CPCA 128*

Students will learn concepts and use of word processing software on the personal computer. Concepts covered will include creating, saving, printing and editing word processing files; searching and replacing text; creating headers and footers; inserting and resizing graphic images; setting up tables; creating and applying styles; and creating mail merge letters. 1 hr. lecture/wk.

**CPCA 110****SPREADSHEETS ON MICROS I (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CIS 124 or DP 124 or CPCA 128*

Students will learn concepts and uses of spreadsheet software on the personal computer. Business decision-making worksheet models will be created and modified by entering labels, functions and formulas. Various formatting techniques will be applied to enhance the appearance of printed worksheets. Students will also learn to display the worksheet data graphically with the

charting capabilities of the software. 1 hr. lecture/wk.

**CPCA 111**  
**SPREADSHEETS ON MICROS II (1 CR)**

*Prerequisite: CPCA 110 or CPCA 128 or DP 124 or CIS 124*

This course is a continuation of CPCA 110, Spreadsheets on the Microcomputer I, and will provide the student with intermediate level of spreadsheet concepts. Using typical business scenarios, the student will perform manual and automated "what-if" analyses, manage data in worksheets with tables and database functions, and use multiple worksheets to build consolidated statements. Basic macros will be introduced. 1 hr. lecture/wk.

**CPCA 114**  
**DATABASES ON MICROCOMPUTERS I (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124*

This course provides an introduction to the concepts and real-world applications of microcomputer relational database software. Foundational database competencies, including building tables, defining fields, relating tables, entering and editing data, filtering, and sorting will be covered. Students will query the database to select, calculate and summarize information. Students will build and customize forms and reports. 1 hr. lecture/wk.

**CPCA 115**  
**DATABASES ON MICROCOMPUTERS II (2 CR)**

*Prerequisite: CPCA 114*

Upon completion of this course, the student should be able to design and define a relational database; create custom forms and reports for data entry, updating and presentation; and build the necessary queries to support these objects. The student should be able to transfer data into and out of the database from various file formats; use database software to develop Web pages and hyperlinks; and manipulate the data and database with introductory macro, query language and programming skills. The course contains a capstone project in which the student uses all the skills learned to create a working database for a client based on a real-world situation. 2 hrs. lecture/wk.

**CPCA 116**  
**DATABASE:FILEMAKER PRO (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124*

In this career-related course, students will be introduced to the essential concepts of data management so they can store, organize and synthesize information for effective use in the day-to-day business needs of even a medium-sized organization. Students will create a database file with fields, records, calculations, summaries, auto entries and pop-up lists. Several layouts will be created with links between them. Sorts and finds will be created and saved as scripts with buttons. 1 hr. lecture/wk.

**CPCA 117**  
**DATABASES/ON MICROCOMPUTER III (1 CR)**

*Prerequisite: CPCA 115*

Upon successful completion of this course, the student should be able to analyze an existing database solution that is not working properly, import the data into Access and use action queries and SQL to normalize the database into an effective rational database. A case study emphasis will cover different database design and documentation issues. Students will also build complex forms and reports using Visual Basic for Applications programming code. Student will be introduced to Data Access Objects and ActiveX Data Objects. 1 hr. lecture /wk.

**CPCA 118**  
**GROUPWARE (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124*

This course provides an introduction to the concepts and applications of today's robust groupware applications. Students will use groupware to compose, send and receive e-mail; post and organize discussion group messages; manage calendars, appointments and to-do lists; and use contact

management features. 1 hr. lecture/wk.

**CPCA 121**  
**INTRO TO PROJECT MANAGEMENT (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124*

Upon completion of this course, the student should be able to effectively manage projects using project management software. Students will learn about project management goals and terminology, create a project schedule and use project management methodologies and tools such as the Gantt chart, critical path method (CPM) and program evaluation review technique (PERT) chart to update a project and communicate project progress to others. Students will use other project management techniques such as applying resources, leveling overallocations, evaluating constraints and analyzing planned versus projected schedule and budget variables. 1 hr. lecture/wk.

**CPCA 122**  
**ASSISTIVE TECHNOLOGY (1 CR)**

This introductory course is designed to give the student with or without disabilities an overview of the personal and the adaptive hardware and software available. The student will gain confidence in basic computer skills and concepts through a hands-on approach while becoming familiar with the adaptive software and hardware available on the campus. 1 hr. lecture/wk.

**CPCA 123**  
**PRESENTATION GRAPHICS (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or DP 124 or CIS 124 or CPCA 128*

Upon completion of this course, students should be able to organize and produce an effective on-computer or slide-generated presentation, complete with printed speaker notes and handouts plus overhead transparencies, using the basic features of a presentation graphics program. Students will use master pages, template files, text formatting, color schemes, various drawing tools, the automated outline feature and animation dissolve sequence and incorporate scanned photographs. Photographs will be covered. 1 hr. lecture/wk.

**CPCA 125**  
**WORD PROCESSING ON MICROS II (1 CR)**

*Prerequisite: CPCA 108*

This is a continuation of CPCA 108, Word Processing on Micros I. After completing this course, students should be able to use advanced concepts and applications of word processing software. The applications will include importing graphics, creating reports, newsletters, footnotes and endnotes, styles, columns, templates, macros, creating a Web page, on-screen forms, and linking and embedding an object. 1 hr. lecture/wk.

**CPCA 128**  
**PERSONAL COMPUTER APPLICATIONS (3 CR)**

Upon successful completion of this course, the student should be able to use Windows to create and organize files and folders and perform essential file management procedures such as copying, moving, deleting and renaming files and folders. An in-depth proficiency will also be attained with the use of word processing, spreadsheet, presentation graphics and Internet browser applications. Hands-on, practical projects will be performed to reinforce the concepts taught. 3 hrs./wk.

**CPCA 134**  
**MANAGING YOUR MACINTOSH (1 CR)**

*Prerequisite: CPCA 106*

In this career-related course, students will be introduced through lecture material and hands-on practical projects to the essential concepts of file organization, utility software installation and use, font management and backup techniques. 1 hr. lecture/wk.

**CPCA 138**  
**WINDOWS FOR MICROS (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124*

At the completion of this course, the student will be able to discuss the components of the Windows desktop, use the Windows Help system, create and organize a folder system on a disk, perform file management commands, customize the Windows desktop environment, use the Search tool to locate files and folders, and perform file backup and disk maintenance procedures. The student will also be able to use performance monitoring tools, add hardware and software to the system, and use basic MS DOS directory and file management commands.

**CPCA 139**  
**UNIX (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124*

This course will introduce students to the major commands of the Unix operating system. E-mail, the vi editor and Telnet will be covered. Basic file and disk management projects will be completed in this course. 1 hr. lecture/wk.

**CPCA 141**  
**INTERNET I (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106 or CPCA 128 or CIS 124 or DP 124*

This course will introduce the student to the commands and techniques required to effectively access the resources of the Internet. Windows applications to browse the Internet, locate and retrieve information and send and receive electronic mail will be covered. 1 hr. lecture/wk.

**CPCA 151**  
**INTERNET II (1 CR)**

*Prerequisite: CPCA 141*

This course will cover the commands and techniques required to effectively use various Internet application tools. The student will also use Windows and non-Windows applications to locate information, download and upload files, and create a Web page. Additionally the course will cover basic linux commands and publish a web page to a web server. 1 hr. lecture/wk.

**CPCA 158**  
**INTERNET APP & UTILITIES (3 CR)**

*Prerequisite: CPCA 141*

This course will introduce the student to the commands and techniques required to effectively access the resources of the Internet. Windows and non-Windows applications will be used to locate, retrieve and disseminate essential information. This course will cover the techniques required to create and publish World Wide Web pages using HTML. 3 hrs. lecture-demonstration/wk.

**CPCA 161**  
**INTRODUCTION TO WEB PAGES (1 CR)**

*Prerequisite: CPCA 151*

This course will cover the commands and techniques required to create and publish World Wide Web pages using HyperText Markup Language. Topics covered will include basic text layout, background colors, formatting, ordered and unordered lists, tables, frames that include graphic images in a page and linking to other Web pages. 1 hr./wk.

## **Computer Science (CS)**

**CS 180**  
**INTRO ARTIFICIAL INTELLIGENCE (3 CR)**

*Prerequisite: CIS 145 or DP 145 or CIS 148 or DP 148 or CIS 150 or DP 150 or CS 200*

Upon successful completions of this course, students should be able to understand simple

computer programs illustrating introductory concepts in artificial intelligence, define terms and application areas in the field and describe knowledge representation and problem-resolution techniques used in artificial intelligence. 3 hrs. lecture/wk.

**CS 200**  
**CONCEPTS/PROG ALGORITHMS C++ (4 CR)**

*Prerequisite: CIS 134 or ENGR 171 or equivalent experience*

This course emphasizes programming methodology and problem solving. Algorithm design and development, data abstraction, good programming style, testing and debugging will be presented. An appropriate block-structured high-level programming language will be studied and used to implement algorithms. 3 hrs. lecture, 2 hrs. lab by arrangement/wk.

**CS 201**  
**CONCEPTS/PROG ALGORITHMS C# (4 CR)**

*Prerequisite: CIS 134 or ENGR 171 or equivalent experience*

This course emphasizes programming methodology and problem-solving using C#. Algorithm design and development, data abstraction, good programming style, testing and debugging will be presented. 3 hrs. lecture, 1.5 hrs. lab/wk

**CS 205**  
**CONCEPTS/PROG ALGORITHMS JAVA (4 CR)**

*Prerequisite: CIS 134 or ENGR 171 or equivalent experience*

This course emphasizes programming methodology and problem-solving using Java. Algorithm design and development, data abstraction, good programming style, testing and debugging will be presented. 3 hrs. lecture, 1.5 hrs. lab/wk.

**CS 210**  
**DISCRETE STRUCTURES I (3 CR)**

*Prerequisites: MATH 171 or both MATH 116 and CIS 134 or appropriate test scores*

Upon successful completion of this course, the student should be able to use fundamental discrete mathematics as it relates to computers and computer applications. The student will be exposed to a variety of discrete mathematical topics. The course will include fundamental mathematical principles, combinatorial analysis, mathematical reasoning, graphs and trees, and Boolean logic circuits. 3 hrs. lecture/wk.

**CS 211**  
**DISCRETE STRUCTURES II (3 CR)**

*Prerequisite: CS 210*

Upon successful completion of this course, the student should be able to use fundamental discrete mathematics as it relates to computers and computer applications. The student will experiment with a variety of discrete mathematical topics. The course will include fundamental mathematical principles, combinatorial analysis, mathematical reasoning, graphs and trees, and Boolean logic circuits. 3 hrs. lecture/wk.

**CS 250**  
**BASIC DATA STRUCTURES/C++ (4 CR)**

*Prerequisite: CS 200 Prerequisite or Corequisite: CS 210 for students transferring to most four-year computer science programs.*

This course will cover advanced programming topics using C++. Files, recursion, data structures and large program organization will be implemented in projects using object-oriented methodology. Students will write programs using the concepts covered in the lecture. 3 hrs. lecture, 2 hrs. lab/wk.

**CS 255**  
**BASIC DATA STRUCTURES/JAVA (4 CR)**

*Prerequisite: CS 205*

This course will cover advanced programming topics using Java. Files, recursion, data structures and large program organization will be implemented in projects using object-oriented methodology. Students will write programs using queues, stacks, lists and other concepts covered in the lecture. 3 hrs. lecture, 1.5 hrs. lab/wk.

## **Computer Web (CWEB)**

### **CWEB 101 INTRO WEB/INTERNET EXPLORER (1 CR)**

*Prerequisites: CPCA 105 or CPCA 106 or CPCA 128 or DP 124 or CIS 124*

This course will introduce the student to commands and techniques required to effectively use the resources of the World Wide Web. Topics to be covered will include how to browse, search and retrieve information on the Internet using Internet Explorer, how to create and manage "favorites", how to protect computers from viruses, how to send and receive electronic mail, and how to create a basic home page. 1 hr. lecture/wk.

### **CWEB 105 INTRO WEB PAGES: DREAMWEAVER (1 CR)**

*Prerequisite: CWEB 101*

This course will cover the commands and techniques required to create and revise Web pages using Dreamweaver. Topics to be covered will include basic text layout, viewing and identifying basic HTML tags, creating a site map, formatting a Web page, applying background color, inserting images and sounds, creating ordered and unordered lists, inserting files, and creating links on Web pages. 1 hr. lecture/wk.

### **CWEB 106 INTRO/MICROSOFT FRONTPAGE (1 CR)**

*Prerequisite: CWEB 101*

This course will cover the commands and techniques required to create and revise World Wide Web pages using Microsoft FrontPage. Topics to be covered will include basic text layout, viewing and identifying basic HTML tags, formatting a Web page, inserting background color, adding pictures and sounds, creating ordered and unordered lists, inserting files and creating links to other Web pages. 1 hr. lecture/wk.

### **CWEB 107 WEB TOOLS: MICROSOFT OFFICE (1 CR)**

*Prerequisites: CWEB 101 and CPCA 110 or CPCA 114*

Upon successful completion of this course, the student should be able to create static and dynamic Web pages based documents, Excel spreadsheets, PowerPoint presentations and Access databases. 1 hr. lecture/wk. backup and storage options. 1 hr. lecture/wk.

### **CWEB 108 GOLIVE I (1 CR)**

*Prerequisite: CPCA 105 or CPCA 106*

This short course provides instruction in the creation, production and management of Web pages and Web sites. The course covers introductory concepts and techniques in Web page creation, from the initial preplanning and page layout through the actual publishing of Web pages to a Web site. The emphasis is on introductory, practical experience in Web page creation and management using Adobe GoLive. 1 hr. lecture/wk.

### **CWEB 111 INTERMEDIATE WEB USING IE (1 CR)**

*Prerequisite: CWEB 101*

This course is a continuation of CWEB 101, Introduction to the Web using IE, and will cover intermediate commands and techniques required to use various Web-based tools and programs. Topics to be covered will include using complex search strategies; finding people, businesses, and

e-mail addresses on the Web; accessing and using Newsgroups; joining and leaving mailing lists; using a Web-based chat facility; locating and downloading freeware and shareware programs; and identifying online backup and storage options. 1 hr. lecture/wk.

**CWEB 115**  
**INTERMED WEB PAGES:DREAMWEAVER (1 CR)**

*Prerequisite: CWEB 105*

This course will cover intermediate-level commands and techniques required to create and enhance a Web page using Dreamweaver. Topics to be covered will include tracing images, layers, converting layers to tables, custom tables, cascading style sheets, templates and libraries, and publishing a Web site. 1 hr. lecture/wk.

**CWEB 116**  
**INTERMED MICROSOFT FRONTPAGE (1 CR)**

*Prerequisite: CWEB 106*

This course is a continuation of CWEB 106, Introduction Web Pages: FrontPage, and will cover intermediate-level commands and techniques required to create and enhance a FrontPage Web site. Topics to be covered will include shared borders and themes, publishing a Web site, new Web site creation on a Web server, database integration and using office components and styles. 1 hr. lecture/wk.

**CWEB 130**  
**INTRODUCTION TO FLASH (1 CR)**

*Prerequisite: CPCA 161 or CWEB 105 or CWEB 106*

This course will cover the commands and techniques available to add Flash content to Web pages and CD-ROMs. Topics covered will include using drawing tools, manipulating text with text tools, adding and modifying sound, creating animation and publishing work. This class will be taught in a classroom with both Macintosh and Windows computers. 1 hr. lecture/wk.

**CWEB 135**  
**WEB DATABASES I USING ACCESS (1 CR)**

*Prerequisite: CPCA 114*

Upon completion of this course, the student should be able to create dynamic Web pages used to publish database information or create user entry forms. Using a browser, students will be able to open the Web pages to find, sort, enter and update data in the underlying database. Students will be introduced to underlying Internet technologies, such as Web servers, ODBC, HTML, and HTTP, and how they relate to a data-driven Web site. 1 hr. lecture/wk.

**CWEB 140**  
**INTERMEDIATE FLASH (1 CR)**

*Prerequisite: CWEB 130*

This course will build on the fundamental skills learned in CWEB 130, Introduction to Flash. Topics will include complex animation techniques; interactivity with simple frame actions; and interactivity using objects such as buttons, hot spots and movie clips. 1 hr. lecture/wk.

**CWEB 145**  
**WEB DATABASES II/ACCESS (1 CR)**

*Prerequisite: CWEB 135*

Upon completion of this course, the student should be able to create advanced dynamic Web pages used to publish database information, create complex user entry forms and analyze data interactively with advanced controls such as charts. Using a browser, students will be able to open the Web pages to manipulate and analyze data in the underlying database. Students will implement Internet technologies, such as Web servers, ODBC, HTML and HTTP, to build an intranet-based Web-enabled database. 1 hr. lecture/wk.

**CWEB 150**  
**ADVANCED FLASH (1 CR)**



*Prerequisite: CWEB 140*

This course will build on the skills learned in CWEB 131, Intermediate Flash. Students will do projects to control movie clips, sound, external data, multiple timelines and text fields. Some ActionScripting will be introduced. 1 hr. lecture/wk.

**CWEB 160**  
**INTRODUCTION TO JAVASCRIPT (1 CR)**

*Prerequisite: CWEB 105 or CWEB 106 or CPCA 161*

This course will cover the commands and techniques available to add functionality to Web pages using JavaScript. Topics to be covered include integrating JavaScript into an HTML file, creating pop-up windows, adding scrolling messages, validating forms and enhancing the use of image and form objects. 1 hr. lecture/wk.

**CWEB 165**  
**INTRODUCTION TO ADOBE ACROBAT (1 CR)**

This course will introduce students to the Adobe Acrobat software program. Students will be presented with the basics of Adobe Acrobat and will be shown how to create and edit PDF files using Acrobat and Distiller. Topics will include how to gather Web page content for off-line viewing and how to use JavaScript inside a PDF document to make it interactive. Projects will include how to add navigation, multimedia elements and data forms to PDF files. 1 hr. lecture/wk.

**CWEB 170**  
**INTERMEDIATE JAVASCRIPT (1 CR)**

*Prerequisite: CWEB 160*

This course builds on the skills learned in CWEB 160, Introduction to Web Scripting: JavaScript. Students will learn to use JavaScript in their Web pages to build menus and navigational structures. They will also learn to use intermediate techniques for cookie manipulation and storage. Complex use of operators (Bitwise, Assignment, Comparison, Arithmetic and Boolean) will be explained. 1 hr. lecture/wk.

**CWEB 180**  
**E-COMMERCE USING JAVASCRIPT (1 CR)**

*Prerequisite: CWEB 170*

This course builds on the skills learned in CWEB 160, Introduction to Web Scripting: JavaScript, and CWEB 161, Intermediate JavaScript. The student will build a complete e-Commerce site that will support online ordering and payment with JavaScript. 1 hr. lecture/wk.

**CWEB 190**  
**ACTIONSRIPT FOR FLASH (1 CR)**

*Prerequisite: CWEB 150*

This course will teach the basic skills needed to use ActionScripts in Flash movies. Students will build interactivity into their movies using ActionScript. They will also manipulate data and control Flash objects such as movie clips. ActionScript logic and functions will be explained. 1 hr. lecture/wk.

**CWEB 230**  
**INTRO E-COMMERCE APPLICATIONS (1 CR)**

*Prerequisite: CWEB 101 or CPCA 141*

This course will introduce students to e-commerce in a software-driven, hands-on way. It will use software tools to discuss and explore a variety of e-commerce activities. Students will examine an extensive list of e-commerce sites, such as those that support purchasing, delivery, support, auction, business-to-business, virtual community and Web-portal business goals. They will populate a store catalog, create sitewide navigation links and publish the store. 1 hr. lecture/wk.

**CWEB 240**

## **INTERMEDIATE E-COMMERCE APPLIC (1 CR)**

*Prerequisite: CWEB 230*

This course will use software tools such as Internet Explorer and Netscape Communicator to discuss and explore a variety of intermediate e-commerce activities. For example, students will examine e-commerce security issues, such as cookies, privacy risks and property threats, including copyright issues, viruses, security policies, encryption, digital signatures and transaction integrity. Students will study electronics payment systems, including script, electronic checks, credit card purchases, electronic wallets, smart cards and electronic cash. Students will explore international and legal issues, such as language and custom barriers, laws and regulations, and tax considerations. They will also explore ethical issues, such as trust and defamation issues. Finally, they will explore careers in electronic commerce. 1 hr. lecture/wk.

# **Cosmetology (AVCO)**

## **AVCO 102 NAIL TECHNOLOGY**

This course provides skill instruction in determining nail disorders and care as well as the artistic application of tips, overlays and sculptured nails. Upon successful completion, students are prepared to take the Kansas State Board of Cosmetology onychology examination. 350 contact hrs.

## **AVCO 110 INTRODUCTION TO COSMETOLOGY**

This course provides skill instruction in shampooing, cutting, shaping, curling and coloring. Also included is curriculum from nail technology and cosmetology technician I and II. The first 500 contact hours are in the basic lab and the classroom without client contact. 500 contact hrs.

## **AVCO 112 CLINICAL COSMETOLOGY**

This course provides continuing skill instruction in shampooing, cutting, shaping, curling and coloring. Included are an introduction to client relations skills and sales promotion techniques. Instruction includes classroom and salon. 500 contact hours.

## **AVCO 114 ADVANCED COSMETOLOGY**

*Prerequisite: AVCO 110*

This course provides advanced instruction in shampooing, cutting, shaping, curling and coloring. This course prepares the student for the Kansas State Board of Cosmetology examination. 500 contact hrs.

## **AVCO 118 ESTHETICS**

This course provides skill instruction in skin care. Topics include sanitation, skin sciences, waxing, skin treatments, makeup, and business practices. This course prepares the student for the Kansas State Board of Cosmetology esthetician examination. 650 contact hrs.

## **AVCO 212 COSM INSTRUCTOR TRAINING**

*Prerequisite: Current Kansas Cosmetology and Esthetics or Nail Technology License; minimum of one year of practice in trained area*

This 300-contact-hour course is design to meet the educational requirements for licensure by

Kansas Board of Cosmetology for instructors in the cosmetology sciences. Students will attend 40 hours of lecture and participate in 260 hours of observation, clinic supervision and classroom teaching. Topics covered include instructor characteristics, student motivation, methods and evaluation. 300 contact hrs.

**AVCO 218**  
**ADVANCED ESTHETICS TRAINING**

*Prerequisite: Must possess current esthetics license granted by the Kansas Board of Cosmetology or a current cosmetology license.*

This 100-contact-hour course is designed to meet the education requirements for licensure by the Missouri Board of Cosmetology for estheticians in the cosmetology sciences and meet the needs of students who desire exposure to advanced esthetics techniques. Students will attend 48 hours of lecture/demonstration, practice 48 hours of integrated lecture/clinical, and participate in eight hours of community service. Topics covered include body treatments, theory on the day spa, airbrush makeup, microdermabrasion and manual lymphatic drainage. 100 contact hrs.

## **Dental Assisting (KDA)**

**KDA 100**  
**DEVELOPMENTAL DENTISTRY (3 CR)**

*Prerequisite: Admission to the dental assisting program*

The emphasis in this course will be on head and neck anatomy, histology, oral embryology and tooth morphology, management of medical emergencies, overview of nutrition and dietary counseling as it may relate to the dental patient. 3 hrs. lecture/wk.

**KDA 105**  
**DENTAL LAB PROCEDURES (2 CR)**

*Prerequisite: Admission to the dental assisting program*

This course will cover basic physics and chemistry, actions, reactions and physical properties of dental temporary crowns, baseplate, bite rims, custom trays and alginate materials. 1 hr. lecture, 3 hrs. lab/wk.

**KDA 110**  
**CHAIRSIDE ASSISTING I (5 CR)**

*Prerequisite: Admission to the dental assisting program*

Topics covered in this course are dental terminology; responsibilities of the dental assistant in the dental operatory; patient preparation; instrument identification; charting; sterilization techniques; and basic operative chairside skills, ethics and jurisprudence. 2 hrs. lecture, 6 hrs. lab/wk.

**KDA 115**  
**DENTAL RADIOLOGY I (3 CR)**

*Prerequisite: Admission to the dental assisting program*

This course will cover radiography history; characteristics of radiation and radiation production; film composition; x-radiation terminology; effects of radiation exposure and protection; and exposing, processing and mounting radiographs taken on a radiographic manikin. 2 hrs. lecture, 3 hrs. lab/wk.

**KDA 125**  
**CLINICAL PRACTICE I (2 CR)**

*Prerequisite: Concurrent enrollment in the dental assisting program*

Clinical experience in operative and oral hygiene procedures using four-handed dentistry will be held in the dental hygiene clinic at the University of Missouri-Kansas City School of Dentistry. 1 hr. lecture, 6 hrs. clinic/wk.

**KDA 126**

**DENTAL ASSISTANT SEMINAR I (1 CR)**

*Prerequisite: Concurrent enrollment in the KDA 125*

This course is an evaluation of experiences in Clinical Practice I. 1 hr. lecture/wk.

**KDA 200  
BODY STRUCTURE AND FUNCTION (2 CR)**

*Prerequisite: Admission to the dental assisting program*

Basic anatomy and physiology of the human body, oral pathology, pharmacology, principles of disease processes and micrology will be studied in this course. 2 hrs. lecture/wk.

**KDA 205  
DENTAL BIOMATERIALS (2 CR)**

*Prerequisite: KDA 105*

This course will cover manipulation of dental cements, amalgam, esthetic restoratives, alginate and gypsum products, and sealants. 1 hr. lecture/wk.

**KDA 210  
CHAIRSIDE ASSISTING II (2 CR)**

*Prerequisite: KDA 110*

This course will emphasize dental specialties including the theory of orthodontics, periodontics, prosthodontics, oral surgery and endodontics. There will be the application of the concepts of chairside assisting to these specialties. 3 hrs. lecture, 6 hrs. lab/wk.

**KDA 215  
DENTAL RADIOLOGY II (1 CR)**

*Prerequisite: KDA 115*

The course will emphasize radiographic techniques, procedures and hygiene. The student will have practical experience in exposing, processing and mounting radiographs taken on patients and radiographic manikins. 3 hrs. lab/wk.

**KDA 225  
DENTAL OFFICE MANAGEMENT (2 CR)**

*Prerequisite: Admission to the dental assisting program*

This course will cover the principles of business management in the dental office. Topics covered include the control of the appointment book, filing, financial management, insurance forms, supply inventory and recall systems by conventional and computerized methods. Dental computer applications and use will also be covered. 1 hr. lecture, 2 hrs. lab/wk.

**KDA 250  
CLINICAL PRACTICE II (4 CR)**

*Prerequisite: KDA 125*

Advanced clinical experience in the front office, and at chairside, in radiographic and laboratory assisting techniques in general, and in specialty dental offices and clinics. 16 hrs. clinic/wk.

**KDA 260  
DENTAL ASSISTING SEMINAR II (1 CR)**

*Prerequisite: Concurrent enrollment in KDA 250*

This seminar course is the preparation for the Dental Assisting National Board Examination and for successful employment, and evaluation of experiences from Clinical Practice II. 1 hr. lecture/wk.

## Dental Hygiene (DHYG)

**DHYG 121**  
**CLINIC DENTAL HYG 1:PRECLINIC (5 CR)**

*Prerequisites: Admission to the Dental Hygiene Program and CHEM 122 and ENGL 121 and SOC 122 and PSYC 130 and BIOL 230 (minimum 2.0 GPA) Corequisites: BIOL 146 and DHYG 125 and DHYG 135*

This course will include information and techniques relating to the history, development, current status and future of the profession of dental hygiene. Students will be introduced to fundamental dental hygiene services, instrumentation, patient assessment, preventive treatment, transmissible diseases, exposure barriers and infection control. 2 hrs. lecture, 13 hrs. lab/wk.

**DHYG 125**  
**DEVELOPMENTAL DENTISTRY (2 CR)**

*Corequisites: BIOL 146 and DHYG 121 and DHYG 135*

This course will include a study of embryology; oral histology; developmental disturbances of the face, oral cavity and related structures; and dental morphology and occlusion. 1 hr. lecture, 3 hrs. lab/wk.

**DHYG 135**  
**DENTAL MATERIALS (2 CR)**

*Corequisites: DHYG 121 and DHYG 125 and BIOL 146*

This course is designed to provide students with a knowledge base of the science and physical properties of dental materials. Through laboratory exercises, students will have hands-on experience with dental materials used in dental hygiene and dentistry while applying their knowledge of dental material sciences. 1 hr. lecture, 2 hrs. lab/wk.

**DHYG 140**  
**CLINICAL DENTAL HYGIENE II (4 CR)**

*Prerequisite: DHYG 121 or DHYG 136 Corequisites: DHYG 142 and DHYG 146 and DHYG 148 and BIOL225 and DHYG 136 with no grade below a "C" in DHYG courses.*

The focus of this course will be on the clinical application of dental hygiene techniques, instrumentation skills, oral health products, patient motivation and educational techniques. Procedures for medical and dental emergencies in the dental office will also be covered as well as an introduction to selected dental specialties. 2 hrs. lecture, 8 hrs. clinic/wk.

**DHYG 142**  
**DENTAL RADIOLOGY (2 CR)**

*Prerequisites: DHYG 121 and no grade below a "C" in DHYG courses Corequisites: DHYG 136 and DHYG 140 and BIOL 225 and DHYG 146 and DHYG 148*

This class will concentrate on the theory and clinical practice of exposing, processing, mounting and evaluating oral radiographs with emphasis on radiation protection and infection control for the patient and operator. 1 hr. lecture, 3 hrs. lab/wk.

**DHYG 146**  
**PERIODONTICS (3 CR)**

*Prerequisites: No grade below a "C" in DHYG courses and DHYG 121 Corequisites: DHYG 136 and DHYG 140 and BIOL 225 DHYG 142 and DHYG 148*

This course will include recognition of the etiology and clinical signs and symptoms of periodontal diseases. The inflammatory process, treatment planning and nonsurgical

**DHYG 148**  
**DENTAL HEALTH EDUCATION (2 CR)**

*Prerequisites: DHYG 121 and no grade below a "C" in DHYG courses Corequisites: BIOL 225 and DHYG 136 and DHYG 140 and DHYG 142 and DHYG 146*

Students will study health and apply educational methods for individuals and groups, with special emphasis on behavior modification, compliance, communication and motivation. Exercises in the research process and evaluation research articles are included. 1 hr. lecture, 2 hrs. lab/wk

**DHYG 221**  
**CLINICAL DENTAL HYGIENE III (6 CR)**

*Prerequisites: No grade below a "C" in DHYG courses and DHYG 140 and BIOL 235 and DHYG 142*  
*Corequisites: DHYG 225 and DHYG 230 and DHYG 240*

Students will continue development in the areas of patient management, preventive dental hygiene treatment and proficiency in clinical techniques through practical application. Current advances in dental hygiene services will also be introduced. 2 hrs. lecture, 16 hrs. clinic/wk.

**DHYG 225**  
**PATHOLOGY (3 CR)**

*Prerequisites: No grade below a "C" in DHYG courses and DHYG 140 and BIOL 235*  
*Corequisites: DHYG 221 and DHYG 230 and DHYG 240*

This course will introduce the students to concepts related to general systemic and oral pathology. General principles of pathology include inflammation, immunity, neoplasia and wound healing. Specific systems will be explained, including cardiovascular, hematopoietic and skeletal systems. Basic pathological processes of oral conditions, their etiologies and treatments will be discussed. 3 hrs. lecture/wk.

**DHYG 230**  
**DENTAL THERAPEUTICS (3 CR)**

*Prerequisites: DHYG 140 and BIOL 235 and no grade below a "C" in DHYG courses*  
*Corequisites: DHYG 221 and DHYG 225 and DHYG 240*

This course will introduce the basic principles of drug actions, emphasizing dental-related therapeutics and drugs associated with common systemic disorders, information on the selection of professional products, and principles necessary in administering local anesthesia. 2 hrs. lecture, 2 hrs. lab/wk.

**DHYG 240**  
**COMMUNITY DENTAL HEALTH (2 CR)**

*Prerequisites: DHYG 140 and BIOL 235 and no grade below a "C" in DHYG courses*  
*Corequisites: DHYG 221 and DHYG 225 and DHYG 230*

Topics will include public health agencies, statistical procedures for critiquing scientific literature, identifying dental needs of different groups and planning dental health education programs. Preventive techniques, health promotion, consumer advocacy and the role of the dental hygienist in public health will be emphasized. Field experience will be included. 1 hr. lecture, 3 hrs. lab/wk.

**DHYG 245**  
**NITROUS OXIDE ANALGESIA (1 CR)**

*Prerequisite: DHYG 230*  
*Corequisite: DHYG 250*

This course will concentrate on the principles of administering and monitoring nitrous oxide analgesia. Upon completion of the course, didactic and clinical proficiency in nitrous oxide analgesia will meet certification standards set by state dental boards. 1 hr. lecture, lab/wk.

**DHYG 250**  
**CLINICAL DENTAL HYGIENE IV (6 CR)**

*Prerequisites: No grade below a "C" in DHYG courses and DHYG 221*  
*Corequisite: DHYG 245*

This course will offer continued development of proficiency in clinical techniques and current procedural practices of the dental hygienist with emphasis on self-evaluation. Topics will include ethics, jurisprudence, office management, current dental hygiene issues and preparation for board exams. 2 hrs. lecture, 16 hrs. clinic/wk., 1 hr. board review for first 8 wks.

## **Drafting/CAD/AutoCAD (DRAF)**

**DRAF 120**  
**INTRODUCTION TO DRAFTING (2 CR)**

This course should be taken by students without prior drafting experience. Upon successful completion of this course, the student should be able to identify and apply the essential, basic skills necessary to proceed through the drafting program, including lettering, measuring, geometric construction, sketching, isometrics, orthographic views, dimensioning and auxiliary views. 1 hr. lecture, 3 hrs. lab/wk.

**DRAF 123**  
**INTERPRETING MACHINE DRAWINGS (2 CR)**

*Prerequisite or Corequisite: DRAF 120 or approval of the program assistant dean*

This course is a required course in the computer aided drafting and design technology program. Upon successful completion of this course, students should be able to interpret graphics used to fabricate, assemble, maintain and operate the equipment and products of industry. General detail and assembly prints will be evaluated for title block information, general notes, dimensioning, tolerance specification and symbology. Specialized drawings will include cams, gears, numerical control, plastics, sheet metal and instrumentation. 2 hrs. lecture/wk.

**DRAF 129**  
**INTERPRTING ARCHITECT DRAWINGS (2 CR)**

This beginning course will explain the fundamentals of interpreting (reading) architectural drawings. Upon successful completion of this course, students should be able to understand plan and elevation views, sections, details, schedules, specifications, symbols and abbreviations found on most residential and commercial construction drawings. 2 hrs./wk.

**DRAF 130**  
**INTRODUCTION TO CAD CONCEPTS (3 CR)**

*Prerequisite: DRAF 120 or approval of division administrator*

This course provides a basic knowledge of AutoCAD. Students will learn to use CAD equipment, including input/output devices and microcomputers as drafting tools. Emphasis will be on a basic understanding of CAD terms and concepts as they are applied in industry. Students will be provided an overview of many of the key features of a major microcomputer CAD package with hands-on experience at a workstation. Basic instruction will be provided on drawing setup, drawing commands, editing commands and screen control. The important concepts of layering, standard symbols and dimensioning will be introduced. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 132**  
**INTRODUCTION TO AUTOCAD LT (3 CR)**

This course provides a basic knowledge of computer-aided drafting (CAD). Students will learn basic AutoCAD LT commands and the use of CAD equipment, including input/output devices as drafting tools. The latest version of AutoCAD LT, student version, will be used to cover topics including creating and setting up a drawing, using blocks and wblocks, editing a drawing, saving completed drawings, developing template drawings, printing from paper space, dimensioning, layering, drawing defaults and hatching. This course is for beginning AutoCAD users. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 135**  
**GRAPHIC ANALYSIS (3 CR)**

*Prerequisite: DRAF 120 and DRAF 130 or approval of assistant dean*

This course expands on introductory knowledge in drafting and CAD. Upon successful completion of this course, the student should be able to solve descriptive geometry problems, locate intersections of geometric shapes and produce developments of geometric shapes. Most assignments in this course will be completed using AutoCAD software. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 140**  
**TOPICS IN CAD I (2 CR)**

This course provides training for a specific design application software. Students will learn software commands and terminology. Students will be provided with in-depth coverage of the selected software and be given hands-on experience. Emphasis will be placed on the application of software to industry projects. 2 hrs. lecture, lab/wk.

**DRAF 222**  
**MECHANICAL DRAFTING (3 CR)**

*Prerequisite: Approval of the program assistant dean and DRAF 123 and DRAF 230 Prerequisite and/or Corequisite: MATH 134*

Students successfully completing this course should be able to draw details and assembly views of mechanical parts. The types of parts discussed in this class include castings, sheet metal pieces, jigs and fixtures, and gauges. Important concepts include dimensioning, form and position tolerancing, coordinate tolerancing, and calculations related to material allowances and manufacturing. Project assignments will be completed using computer-aided drafting software. 2 hrs lecture, 3 hrs. lab/wk.

**DRAF 225**  
**CIVIL DRAFTING (3 CR)**

*Prerequisite: DRAF 230 or ENGR 131 Corequisite: MATH 134*

Upon successful completion of this course, the student will be able to apply drafting techniques used in civil engineering offices. The student will learn to draw civil engineering plans from surveying and engineering data. The student will be able to produce plan and profile drawings, roadway cross sections, earthwork calculations, subdivision plats, topographic maps and property maps. The student will use CAD in drawing projects. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 228**  
**INDUSTRIAL DESIGN APPLICATIONS (3 CR)**

*Prerequisites: CET 211 and DRAF 222 and DRAF 250 and DRAF 252*

This course examines industrial systems. Topics include interdisciplinary considerations of manufacturing processes, machine elements, electrical controls and structural design. Systems will include pumping systems or material handling systems. Team project/protocol will be used to develop graphic, ISO and ANSI-approved solutions. Job books and journals for a project are required from all students. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 230**  
**INTERMEDIATE CAD (3 CR)**

*Prerequisites: DRAF 130 or approval of division administrator*

This course provides an increased knowledge of autocad as it is used in today's industries. Students will build on their CAD experience by learning new commands and techniques that increase system productivity. Special emphasis will be on developing construction techniques and command usage to increase CAD proficiency. Additional study of standard symbols, layers and editing functions will occur. Concepts covered will include dimensioning variables and styles, attributes and external referencing, as well as paper space and model space, as used in multiple-view drawings. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 231**  
**COMPUTER-AIDED DRAFTING 3-D (3 CR)**

*Prerequisite: DRAF 230*

In this course students will explore the use of computer-aided drafting and design software for the construction of three-dimensional computer models. Emphasis will be on using 3-D software to produce multiple-view drawings. Visualization commands and techniques will be discussed and developed. Topics will include view commands and wire-frame and surface construction, as well as solid modeling

**DRAF 232**  
**CAD APPLICAT WORKSTAT ENVIRON (2 CR)**

*Prerequisite: DRAF 230 or approval of division administrator*

This course provides instruction for customizing the CAD workstation and handling files in a



network environment. Students will receive instruction in software commands and terminology and be provided with in-depth coverage of customizing the CAD environment and managing CAD data files in a production environment. Emphasis will be on hands-on application of the covered topics. 2 hrs. lecture, lab/wk.

**DRAF 233**  
**CAD ADMINISTRATION (2 CR)**

This course covers topics necessary for an individual to manage a CAD department in a production environment. Topics include managing CAD data, selecting types of equipment/software and establishing drafting policies and procedures. Also discussed are personnel issues for CAD employees/employers. 2 hrs. lecture/wk.

**DRAF 238**  
**ARCHITECTURAL DRAFTING (3 CR)**

*Prerequisites: DRAF 129 and DRAF 230*

This course is an introduction to the production of architectural drawings for residential and commercial construction. Upon successful completion of this course, the student will be able to draw floorplans, sections, elevations, dimensions and schedules and use industry standards. Projects will be completed using CAD software. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 240**  
**INTRODUCTION TO AUTOLISP (2 CR)**

*Prerequisites: DRAF 230*

This course covers techniques for automation of AutoCAD drafting procedures through the use of the AutoLISP programming language. The scope of this course will expressions and program files. It covers basic techniques concepts needed to begin using AutoLISP effectively. 1 1/2 hrs. lecture, 1 hr. lab/wk.

**DRAF 242**  
**TOPICS IN CAD II (2 CR)**

*Prerequisite: DRAF 230 or approval of division administrator*

This course provides training for a specific CAD-related software. Students will learn software commands and terminology. Students will be provided with in-depth coverage of the selected software and be given hands-on experience. Emphasis will be on the application of the selected software to industry projects. 2 hrs. lecture, lab/wk.

**DRAF 243**  
**ARCHITECTURAL DESKTOP (2 CR)**

*Prerequisite: DRAF 230 or ENGR 131 or approval of program assistant dean*

This course introduces the student to the Architectural Desktop software used by many architectural and engineering design firms. Topics include software commands, project setup and the design process. Emphasis will be placed on the hands-on application of software to industrial projects. It is recommended that students have previous architectural design knowledge or have taken DRAF 238, Architectural Drafting. 2 hrs. lecture and lab/wk.

**DRAF 244**  
**LAND DEVELOPMENT DESKTOP (2 CR)**

*Prerequisite: DRAF 230 or ENGR 131 or approval of the program assistant dean*

This course introduces the student to the Land Development Desktop software used by many land planning, civil engineering and surveying firms. Topics include software commands, project setup and the design process. Emphasis will be placed on the hands-on application of the software to industrial projects. It is recommended that students have previous civil engineering design knowledge or have taken DRAF 225, Civil Drafting. 2 hrs. lecture and lab/wk.

**DRAF 245**  
**MECHANICAL DESKTOP (2 CR)**

*Prerequisite: DRAF 230 or ENGR 131 or approval of the program assistant dean*

This course introduced the student to the Mechanical Desktop software used by many industrial and mechanical design firms. Topics include software commands, project setup and the design process. Emphasis will be placed on the hands-on application of the software to industrial projects. It is recommended that students have previous mechanical engineering design knowledge or have taken DRAF 222, Mechanical Drafting. 2 hrs. lecture and lab/wk.

**DRAF 250**  
**ELECTRICAL DRAFTING (3 CR)**

*Prerequisites: MATH 133 and DRAF 230 or ENGR 131*

Upon successful completion of this course, the student should be able to identify drafting techniques applicable to industrial lighting, motor controls, power distribution and generation. Emphasis will be on the use of tables, catalogs and applications software as aids to decision making required on electrical drawings. Project assignments will be completed primarily using CAD. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 252**  
**STRUCTURAL DRAFTING (3 CR)**

*Prerequisites: DRAF 230 or ENGR 131 Corequisite: MATH 134*

Upon successful completion of this course, the student should be able to produce structural drawings and details of steel, concrete and wood structures for manufacturing, construction, engineering and architectural firms. Project work will be done using CAD. 2 hrs. lecture, 3 hrs. lab./wk.

**DRAF 261**  
**GRAPHIC COMM I/INTERIOR DESIGN (3 CR)**

Upon successful completion of this course, the student should be able to interpret residential drawings, draft architectural drawings and use industry references. Drawings studied include floor plans, exterior elevations, interior elevations, sections, details and schedules. In addition to workbook assignments, student will draft on coldpress board, vellum and plastic film. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 264**  
**CAD:INTERIOR DESIGN (3 CR)**

*Corequisite: ITMD 122 or approval of division administrator*

This course is an introduction to the use of computer aided drafting (CAD) as used in the interior design field. Upon successful completion of this course, the student should be able to draw floor plans and elevations of interiors using a computer-aided drafting system. AutoCAD LT software will be used. No previous computer experience is required. 2 hrs. lecture, 3 hrs. lab/wk.

**DRAF 266**  
**GRAPHIC COMM II/INTERIOR DESGN (3 CR)**

*Prerequisite: DRAF 261*

Upon successful completion of this course, the student should be able to draft three-dimensional representations of interior spaces, furniture, window treatments and decorative accessories. One-point and two-point perspective drawing, isometric drawing and perspective grids are covered. Student will draft in pencil on vellum and ink on mylar. 2. hrs, lecture, 3 hrs. lab/wk.

**DRAF 271**  
**DRAFTING INTERNSHIP I (3 CR)**

*Prerequisite: Approval of the division administrator*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students the opportunity to develop job- and career-related skills while in a work setting. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 15 hrs. min./wk.

**DRAF 272**  
**DRAFTING INTERNSHIP II (3 CR)**

*Prerequisites: DRAF 271 and approval of the division administrator*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students the opportunity to develop job- and career-related skills while in a work setting. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 15 hrs. min./wk.

## **Economics (ECON)**

**ECON 130**  
**BASIC ECONOMIC ISSUES (3 CR)**

Upon successful completion of this course, the student should be able to use basic economic theory, concepts and nomenclature to analyze current economic issues at the local, national and international levels. This course is primarily for students who take only one economics course and for those who want a nontechnical introduction to economics. 3 hrs. lecture/wk.

**ECON 132**  
**SURVEY OF ECONOMICS (3 CR)**

Upon successful completion of this course, the student should be able to explain basic macroeconomic and microeconomic theory, fiscal and monetary policies, the role and significance of international economics and government trade and regulatory policies. In addition, the student should be able to describe the characteristics and consequences of the differing business units in the economy, as well as the functioning of the labor market and how national income is distributed. The course is primarily for students who desire a one-semester, nontechnical overview of the basic components of macroeconomic and microeconomic theory and the functioning of the United States economy. 3 hrs. lecture/wk.

**ECON 230**  
**ECONOMICS I (3 CR)**

Upon successful completion of this course, the student should be able to use economic terminology and principles to explain and discuss basic macroeconomic concepts, including supply of and demand for products, national income determination, money and banking, and monetary and fiscal policy. The student enrolling in this course should have successfully completed one year of high school algebra or the equivalent. (Macro) 3 hrs./wk.

**ECON 231**  
**ECONOMICS II (3 CR)**

Upon successful completion of this course, the student should be able to use economic terminology and principles to explain and discuss basic microeconomic concepts, including extended analysis of product supply and demand and theory of the firm and product and resource market structures. Students enrolling in this course should have successfully completed one year of high school algebra or the equivalent. (Micro) 3 hrs./wk.

## **Education and Early Childhood (EDUC)**

**EDUC 121**  
**INTRODUCTION TO TEACHING (3 CR)**

*Note: For elementary and secondary education only.*

Teaching concepts and practices as they apply to today's elementary and secondary schools will be introduced. Topics will include the roles and responsibilities of the teacher, various modes of

instruction, specialized areas in teaching, and professional requirements and concerns. Twenty hours of observation in a school setting are required. 3 hrs./wk.

**EDUC 130**  
**FOUNDATIONS EARLY CHILD EDUC (3 CR)**

This introductory survey course is designed to provide students with current information on topics relevant to employment in early childhood programs. The course explores the historical and philosophical roots of early childhood education, general principles in child development, the teacher's role, values and ethics in early childhood education, curriculum design, and classroom management. Twenty hours of observation in a group child care setting are required. 3 hrs. lecture/wk.

**EDUC 131**  
**EARLY CHILDHOOD CURRICULUM I (3 CR)**

*Prerequisite or corequisite: EDUC 130*

This methods course is designed for students who are, or will be, working in an early childhood education setting and parents or others who desire to develop an intellectually challenging environment for young children. The focus of the course is curriculum areas that deal with language and physical development. 3 hrs. lecture/wk.

**EDUC 205**  
**CONCEPTS/EARLY CHILDHOOD EDUC (3 CR)**

*Prerequisite or corequisite: EDUC 130 for certificate only*

This course will provide early childhood care and education professionals, and those aspiring to the profession, with the opportunity to apply early childhood education experience and continuing professional education to college credit. Students will gain and apply knowledge in many aspects of teaching young children in child-care and educational settings. The student will spend seven hours a week (105 clock hours total) in a supervised practical experience at the Hiersteiner Child Developments Center at JCCC and will complete 1.5 CEUs in early childhood education. Credit for prior experience may be substituted for completing this course. The program facilitator must assess the documents (i.e., CDA) provided by the student and/or arrange and evaluate the practical experience before offering credit for this course. Completion of an application for this credit is required and may be obtained from the program facilitator. For certificate only. 3 hrs. lecture/wk.

**EDUC 210**  
**CREATIVE EXPERIENCES FOR CHILD (3 CR)**

*Prerequisites: EDUC 130 and one of the following: PSYC 215 or PSYC 218 or EDUC 270*

This course is a study of constructing and maintaining an environment for young children that fosters aesthetic sensitivity and creativity. The course includes the young child's developmental stages in art, music, movement, language, and creative and dramatic play; methods and materials that nourish developmentally appropriate creative experiences and support an inclusive, anti-bias curriculum; integration of creative experiences in the whole curriculum; the use of technology; and helping families understand the creative experience. 3 hrs. lecture/wk.

**EDUC 215**  
**YOUNG CHILDREN/SPECIAL NEEDS (3 CR)**

This course is a study of creating and maintaining a developmentally appropriate inclusive environment for young children with special needs. The course includes the history of education and care for young children with special needs, federal and state legislation, types of differing abilities, developmental stages and capabilities of all young children, an inclusive approach to early education, and curriculum development for young children with special needs. Health, safety and nutrition; screening and assessment; interaction techniques; the role of the educator specific to the child's special needs; partnering with the family, other disciplines and community; and advocating for children are presented. The laboratory will include demonstration of the subject matter. 2 hrs. lecture, 3 hrs. lab/wk.

**EDUC 220**  
**SURVEY OF EXCEPTIONAL CHILD (3 CR)**

This is a survey of the exceptional children now being served in public schools and their characteristics. Included will be mental retardation; learning disabilities; behavior and communication disorders; hearing, visual, physical and health impairments; and giftedness. 3 hrs./wk.

**EDUC 225**  
**INFANT/TODDLER EDUCATION & CARE (3 CR)**

*Prerequisite: EDUC 130*

This course is a study of creating and maintaining a developmentally appropriate environment for infants and toddlers. The course will include the history of education and care, theories of child development, developmental stages and capabilities of the very young child, and curriculum development for infants and toddlers. Health, safety and nutrition; assessment; interaction techniques; the role of the educator specific to the needs of the infant and toddler; partnering with family and community; and advocating for the very young are presented. The laboratory will include demonstration of the subject matter. 2 hrs. lecture, 3 hrs. lab/wk.

**EDUC 231**  
**EARLY CHILDHOOD CURRICULUM II (3 CR)**

*Prerequisite: EDUC 131*

This methods course is designed for students who are, or will be, working in an early childhood education setting and parents or others who desire to develop an intellectually challenging environment for young children. The focus of the course is on curriculum areas that deal with the physical and social aspects of the world. Included in this inquiry curriculum are mathematics, science, social studies and nutrition. 3 hrs./wk.

**EDUC 235**  
**PARENTING (2 CR)**

*Prerequisite or corequisite: PSYC 215 or PSYC 218 or EDUC 270*

This course is a study of effective parenting. The course is designed for teachers of young children and parents and guardians who desire to provide an environment that reflects sensitivity to the unique needs of the individual child and family. Topics covered during the course are the history of child-rearing methods, an overview of child development, types of families, parent/guardian fears and concerns, purposes of child behavior, and effective communication techniques. Problem prevention and resolution, nurturing self-esteem in children and building effective, collaborative relationships between teachers and families are also covered. 2 hrs. lecture/wk.

**EDUC 240**  
**SCHOOL AGE PROGRAM/CURRICULUM I (3 CR)**

*Prerequisite: EDUC 130*

This methods course is designed for students who are, or will be, working in an early childhood education setting and parents and caregivers who desire to develop an intellectually challenging environment for school-age children. The focus of the course is on curriculum areas the school-aged child and extended day and summer programs. 3 hrs. lecture/wk.

**EDUC 250**  
**CHILD HEALTH, SAFETY/NUTRITION (3 CR)**

This course is a study of the basic health, nutrition and safety management practices for young children. Information on establishing and maintaining a physically and psychologically safe and healthy learning environment appropriate for the needs of young children will be included. The interrelation of health, safety and nutrition is stressed, with emphasis on appraisal procedures, prevention and protection, services and educational experiences for young children and their families. 3 hrs. lecture/wk.

**EDUC 260****OBSERVE & INTERACT W/YNG CHILD (3 CR)**

*Prerequisite or corequisite: PSYC 215 or PSYC 218 or EDUC 270*

This course is a study of the role of observation to assess and monitor the development and learning of children, birth through age 8, and the appropriate techniques for interacting with young children, considering their individual differences. Included will be the purposes and types of observation procedures, interpretation and use of findings, reporting techniques, and legal and ethical responsibilities. Expected age-related child behavior, fundamental principles of and theoretical approaches to child guidance, guidance techniques, working with families, and issues of diversity are presented. The laboratory will include demonstration of the subject matter. 2 hrs. lecture, 3 hrs. lab/wk.

**EDUC 270****EARLY CHILDHOOD DEVELOPMENT (3 CR)**

This course is a comprehensive account of human development from conception through age 8. The course integrates genetic, biological, physical and social influences with psychological processes affecting the development of young children. 3 hrs. lecture/wk.

**EDUC 280****1 (3 CR)**

This course is a study of the organization and administration of early childhood programs. The topics include the skills and characteristics of effective administrators; types of programs; planning, implementing and evaluating programs; policy development; staff supervision and development; finances and budget; record keeping; relevant state regulations and laws; developing, equipping and maintaining a facility; organizing a developmentally appropriate environment; collaboration with family and community; public relations; and contributing to the profession. The lab will include demonstration of the subject matter. 2 hrs. lecture, 3 hrs. lab/wk.

**EDUC 284****SEMINAR:EARLY CHILDHOOD EDUC (3 CR)**

*Corequisite: EDUC 285*

The course will focus on conduct and responsibilities of the intern; early childhood codes, laws and regulations; child development; activity planning and curriculum development; observation and guidance of young children; authentic assessment; responsibilities to the young child's family and community and to the teaching profession; employability skills; self-assessment; and job-seeking skills. The student's practical application of information in the internship will be discussed, and a portfolio will be developed. 3 hrs. lecture/wk.

**EDUC 285****INTERNSHIP:EARLY CHILDHOOD (3 CR)**

*Prerequisite: Program facilitator recommendation. Corequisite: EDUC 284*

This supervised field experience in early childhood education is designed for students to apply their knowledge of teaching young children. The student will participate in curriculum design and presentation; observing and interacting with young children; providing for the health, safety and nutrition of young children; the general management of a program setting; and working with families and the community. A self-assessment and a professional development plan are completed. The student will spend 20 hours a week (320 clock hours total) in at least two different early childhood settings, serving children of two different ages.

## Electrical Technology (ELTE)

**ELTE 122****NATIONAL ELECTRICAL CODE I (4 CR)**

This is an introductory course on the use and interpretation of the current National Electrical Code.

Students should develop a working knowledge of the code that will permit them to apply it to everyday applications. Upon successful completion of this course, the student should be able to use the code to design service entrances, feeders and branch circuits and discern between wiring methods used in different occupancies. 4 hrs. lecture /wk.

### **ELTE 123 ELECTROMECHANICAL SYSTEMS (4 CR)**

Upon successful completion of this course, the student should be able to identify electrical components and their relationships to the various repair and troubleshooting techniques. The materials in this course will prove useful to service technicians whose background in electricity is limited. The course includes material from basic electrical theory to troubleshooting complex electrical circuits. This course will provide practice in the application of electrical theory as well as in the interconnection of components of heating and cooling systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. This is a beginning course in electrical theory that is required for HVAC, electrical and power plant technology but is appropriate for all interested students. Common components found in the HVAC industry are used to develop these skills. 3 hrs. lecture, 3 hrs. lab/wk.

### **ELTE 125 RESIDENTIAL WIRING METHODS (4 CR)**

*Prerequisite or corequisite: HVAC 123 or ELTE 123*

This is an introductory course on residential wiring methods that includes practical application and hands-on experience in implementing the code requirements. Upon successful completion of this course, the student should acquire the necessary skills to wire a residence to meet the minimum requirements as set forth in the current National Electrical Code for residential occupancies. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

### **ELTE 200 COMMERCIAL WIRING METHODS (4 CR)**

*Prerequisite: HVAC 123 or ELTE 123*

This advanced course covers commercial wiring methods. Upon successful completion of this course, the student should be able to read commercial blueprints and apply the current National Electrical Code to commercial wiring systems. The student will gain working knowledge and hands-on experience with commercial wiring techniques. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

### **ELTE 205 INDUSTRIAL ELECTRICAL WIRING (4 CR)**

*Prerequisite: ELTE 125 or ELTE 200 or ELTE 122*

This advanced course covers industrial wiring methods. Upon successful completion of this course, the student should be able to read industrial blueprints and apply the current National Electrical Code to industrial wiring systems. The student will gain working knowledge and hands-on experience with industrial wiring techniques. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

### **ELTE 210 CODE CERTIFICATION REVIEW (3 CR)**

*Prerequisite: ELTE 122*

Upon successful completion of this course, the student should be able to use the current National Electrical Code to do calculations involving loads, lighting and circuit sizing. The course will cover typical load calculations used in both residential and commercial settings. 3 hrs. lecture/wk.

### **ELTE 215 GENERATORS, TRANSFORMERS & MOTORS (4 CR)**

*Prerequisites: ELTE 123 and one of the following: ELTE 122 or ELTE 125 or ELTE 200 or equivalent experience and division administrator's approval*

This is an advanced course on the use of generators, transformers and motors. Upon successful completion of this course, the student should be able to interpret and apply the rules of the current National Electrical Code to wiring systems composed of these electrical components. Also, the student will gain a working knowledge of the theory of these single-phase and 3-phase electrical components and their practical applications in everyday use in the electrical industry. 4 hrs. lecture/wk.

### **ELTE 271 ELECTRICAL INTERNSHIP I (3 CR)**

*Prerequisite: Approval of the division administrator*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students with on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hr. lecture, minimum 15 hrs. on-the-job training/wk.

### **ELTE 272 ELECTRICAL INTERNSHIP II (3 CR)**

*Prerequisites: ELTE 271 and approval of the division administrator*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students with on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hr. lecture, minimum 15 hrs. on-the-job training/wk.

## **Electronics (ELEC)**

### **ELEC 120 INTRODUCTION TO ELECTRONICS (3 CR)**

This is a beginning course in electronics technology that is appropriate for both electronic majors and other interested students. An overview of basic electronic theory, principles and components is presented. In addition, the laboratory exercises will emphasize the operation and use of the primary pieces of electronic test equipment and the fabrication of selected circuits. 2 hrs. lecture, 2 hrs. lab-lecture, 2 hrs. lab/wk.

### **ELEC 122 CIRCUIT ANALYSIS I (3 CR)**

*Prerequisites: ELEC 120 and MATH 133 or MATH 171 or MATH 173*

This course covers resistive circuits having DC sources. Analysis topics include Ohm's law, Kirchoff's law, the superposition theorem, Thevenin's theorem and Norton's theorem. The current, voltage and resistance relationships in series, parallel and combination circuits will be studied. 3 hrs. lecture/wk.

### **ELEC 124 MICROCOMPUTER HARDWARE (3 CR)**

This is an introductory course on personal computer hardware. The course will include topics necessary to prepare students to buy, optimize, upgrade and maintain personal computers. Course topics will be supported by laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

### **ELEC 125 DIGITAL ELECTRONICS I (4 CR)**



This is a beginning course in which students will study and practice the basic concepts of digital electronics. Topics will include digital number systems, logic gates, logic circuits, flip-flops, digital arithmetic, counters and registers. 3 hrs. lecture, 3 hrs. lab/wk.

**ELEC 130**  
**ELECTRONIC DEVICES I (4 CR)**

*Prerequisite or corequisite: ELEC 140*

This is the first course in electronic devices. Topics include diodes and transistors, special purpose diodes and diode application circuits. Both bipolar junction transistors (BJTs) and field effect transistors (FETs) are examined and application circuits for both transistor types are constructed. 3 hrs. lecture, 3 hrs. lab/wk.

**ELEC 131**  
**INTRO/SENSORS AND ACTUATORS (3 CR)**

This course examines types and uses of industrial sensors and actuators. Topics include temperature, pressure, optical, position and flow sensors. Operation of AC and DC motor drives will also be covered. The course will also include wiring and troubleshooting of sensors and actuators. Lecture topics will be supported by hands-on lab projects. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 133**  
**PROGRAMMABLE CONTROLLERS (3 CR)**

This is an introductory course in programmable logic controllers. The course is designed for individuals without extensive electrical or controller backgrounds. Hardware aspects and programming aspects of controller operation are covered. The foundational controller logic symbols and controller logic operations necessary to interpret and write ladder logic programs are taught in this class. Students will enter, edit and test controller programs through assigned laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 140**  
**CIRCUIT ANALYSIS II (3 CR)**

*Prerequisites: ELEC 122 and MATH 134 or MATH 172 or MATH 173*

The analysis techniques presented in Circuit Analysis I will be applied to complex circuits driven by AC and pulsed sources. The responses of circuits having resistance, inductance and capacitance will be analyzed. Other topics include transformers and electrical filters. 3 hrs. lecture/wk.

**ELEC 150**  
**INTRO TO TELECOMMUNICATIONS (3 CR)**

This is an introductory-level course in telecommunications principles that includes both voice and data communications. An examination of the communications industry and its regulatory environment will be provided. Topics include voiceband communications, digital transmission, switching and signaling, and emerging technologies. 3 hrs. lecture/wk.

**ELEC 165**  
**ADV PROGRAMMABLE CONTROLLERS (3 CR)**

*Prerequisite: ELEC 133*

This course is a continuation of ELEC 133. Principle topics include sequences, file and block transfers, analog control and PID functions. In addition, methods of networking of PLCs and advanced user interfaces will be covered. Lecture topics will be supported by laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 175**  
**TELECOMMUNICATIONS (3 CR)**

*Prerequisite or corequisite: ELEC 130*

This course studies hardware and software functions of telecommunication systems. Topics include both voice and data aspects of telecommunication, systems, including terminology, interfaces, protocols, transmission media, networks and networking technologies. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 185**  
**LAN CABLING AND INSTALLATION (3 CR)**

This course is designed to provide specialized skills for installing and testing local area network cabling and wireless installation. Twisted-pair, coax and fiber cables will be introduced and contrasted based on their characteristics and applications. Laboratory exercises for terminating and testing network cables and installing wireless systems will accompany the lectures. Students will be trained on how to use common wiring tools and testing instruments. Methods of documenting LAN systems will also be introduced. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 225**  
**DIGITAL ELECTRONICS II (3 CR)**

*Prerequisite: ELEC 125*

Students will continue their study of digital concepts and will learn how to build digital circuitry using digital integrated circuit chips and basic concepts of computer organization. In addition, emphasis will be placed on learning how to troubleshoot digital circuits and digital systems. Each student will build a digital computer through a series of laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 230**  
**ELECTRONIC DEVICES II (3 CR)**

*Prerequisite: ELEC 130*

This class is a continuation of the electronic devices sequence. Topics include operational amplifiers, thyristors and voltage regulators. Operational amplifier applications include comparators, summing amplifiers, integrators, differentiators and active filters. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 240**  
**ELECTRONIC COMMUNICATION SYSTS (4 CR)**

*Prerequisite or corequisite: ELEC 230*

This course provides a study of electronic communication systems. Topics include the electromagnetic spectrum, decibels, noise, amplitude modulation, antennas, transmission lines and the global positioning satellite system. 3 hrs. lecture, 3 hrs. lab/wk.

**ELEC 245**  
**MICROPROCESSORS (3 CR)**

*Prerequisite: ELEC 225*

This course provides students with a basic knowledge of microprocessors and how microprocessors interface with other devices to create microcomputer systems. Students will learn how to write assembly language and machine language programs for a microprocessor as well as how to interface memory, input devices and output devices to a microprocessor. Additionally, emphasis will be placed on learning how to troubleshoot microprocessor-based systems. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 250**  
**MICROCOMPUTER MAINTENANCE (3 CR)**

*Prerequisite: ELEC 124*

This course is a continuation of the study of personal computers and will further the student's ability to maintain and repair them. In addition, this course will assist the student in preparing for computer-maintenance certification. Topics will include interaction of hardware and operating systems, resource conflicts, networking capabilities, common hardware and software problems, hardware differences of portable computers, and upgrading computers. The course topics will be supported by laboratory projects. 2 hrs. lecture, 3 hrs. lab/wk.

**ELEC 271**  
**ELECTRONICS INTERNSHIP I (1 CR)**

*Prerequisite: Approval of division administrator*

This course affords the student the opportunity to apply classroom knowledge to an actual work environment. It will provide selected advanced electronics technology students with appropriate on-the-job experience with area employers, under instructional oversight, that will promote the student's career goals. 18 hrs. approved and appropriate work activity/wk.

**ELEC 272**  
**ELECTRONICS INTERNSHIP II (1 CR)**

*Prerequisites: ELEC 271 and approval of the division administrator*

This course is a continuation of ELEC 271. It affords the student the opportunity to apply classroom knowledge to an actual work environment. It will provide selected advanced electronics technology students with appropriate on-the-job experience with area employers, under instructional oversight, that will promote the student's career goals. 18 hrs. of approved and appropriate work activity/wk.

## **Emergency Medical Science/MICT (EMS)**

**EMS 121**  
**CPR I-BASIC LIFE SUPPORT HC PR (1 CR)**

This course provides an overview of the cardiovascular and respiratory systems, a discussion of medical and environmental emergencies leading to the need for CPR, and introduction to diagnostic signs and triage, as well as insight into the structure and function of the emergency medical services system. The most current practical CPR skills will be taught, including CPR and airway obstruction techniques for adults, children and infants. Upon successful completion of all American Heart Association standards, the student will receive affirmation at the Healthcare Provider level. 4 hrs. lecture, lab/wk. for 5 wks.

**EMS 125**  
**CPR II-BASIC CPR INSTRUCTOR (1 CR)**

*Prerequisite: Successful completion of EMS 121 and/or current certification by AHA as Basic Rescuer*

This class will include a review and affirmation of Basic Rescuer techniques, practice in the design and implementation of CPR courses, demonstration of manikin maintenance and decontamination procedures, and mini-lectures. Upon successful completion of this class, students will be eligible for affirmation by the American Heart Association as a BLS instructor. Each participant must teach or co-teach a CPR class while being monitored by an AHA faculty member before the instructor affirmation card will be issued. 2.5 hrs. lecture, lab/wk. for 8 wks. (average).

**EMS 128**  
**EMS FIRST RESPONDER (5 CR)**

This course is designed to provide training in emergency medical care for those who are apt to be the first persons responding to an emergency incident. Fire, police, civil defense personnel, school bus drivers, day-care providers, utility workers and industrial workers are a few examples of those persons who would benefit from this training. The student will receive both didactic and psychomotor skills training in CPR, patient assessment, fracture management, airway management and trauma management. Successful completion of this course will enable the student to sit for the First Responder certification exam administered by the Kansas Board of Emergency Medical Services. 6 hrs. lecture, 6.5 hrs. lab/wk. for 8 wks. (average).

**EMS 130**  
**EMERGENCY MEDICAL TECHNICIAN (9 CR)**

*Prerequisite: EMS 128 or equivalent, or be an active member in a health-related occupation (firefighter, rescue, ambulance, law enforcement, industrial first-aid personnel or other health-related field), or attained the minimum of an associate's degree*

This program is designed for individuals interested in providing medical care to patients in the pre-hospital setting. It will provide the participants with opportunities to gain information, skills and attitudes necessary for certification and practice as an emergency medical technician (EMT) in the State of Kansas. This program has been approved by the Kansas Board of Emergency Medical Services (BEMS). It addresses information and techniques currently considered the responsibility of the EMT according to the United States Department of Transportation, National Standard Curriculum. The program consists of didactic instruction, practical skill training and clinical experience. Attendance at one Saturday session is required. Saturday date and time will be announced during the first class session. Classroom instruction includes anatomy, physiology, recognition and care of medical emergencies, and trauma-related injuries. CPR, bandaging, splinting, childbirth techniques and airway management are among the skills taught. An extrication session will give students hands-on experience with automobile accident situations. Upon instructor recommendation, students will participate in clinical and field observation. All transportation to and from off-campus sites is the responsibility of the student. Students completing this course with a minimum grade of "C" will be allowed to sit for the Kansas EMT State Certification Examination administered by the BEMS. 7 hrs. lecture, 4 hrs. lab/wk. (average)

### **EMS 133 EMT PRACTICUM (3 CR)**

*Prerequisite: EMS 130 or equivalent and a copy of current EMT-B card.*

EMT Practicum is designed to give the newly certified EMT-B the additional skills and confidence needed to successfully compete for a position as an EMT-B with an EMS service. Skills will include ambulance operation, driving, map reading, insurance billing and unit maintenance. This course will also provide high-fidelity scenario training in all aspects of the EMS call as well as extensive field lab time with a local EMS service. Students will participate in realistic medical emergency scenarios with "actors" playing life-like patients and bystanders as well as numerous field internship shifts on a licensed ambulance. Students will work through all phases of an ambulance call. They will be presented with complex patient care situations that require the development of critical thinking and decision-making skills. Students will be tested on their ability to lead a team of pre-hospital caregivers in the diagnosis, proper treatment and evacuation of a patient. Scenario simulations will be set up to be as life-like as possible. 2 hrs. lecture, 10 hrs. lab/wk.

### **EMS 140 BASIC CARDIOLOGY & EKG RECOGN (3 CR)**

*Prerequisites: Prospective students should be certified in a health profession, i.e. EMT, RN, LPN, EMT-P. Permission of the academic director is required.*

The health care worker with an understanding of ECG tracing will function more effectively when providing care for the cardiac patient. Increasing numbers of professionals are being called upon to utilize ECG tracing in their work settings, but without adequate knowledge of its use. This course will serve as both continuing education and the preparation for the job entry and/or job advancement. During the course, students will learn to apply monitoring and 12-lead electrodes, diagnose ECG dysrhythmias and infarct locations, treat ECG dysrhythmias, and defibrillate ventricular fibrillation. 3 hrs. lecture/wk.

### **EMS 203 KS EMT-I/D (11 CR)**

*Prerequisites: EMT-B and additional prerequisite and/or documentation requirements. See academic director for details.*

This course will cover selected advanced emergency medical care concepts and practices. This intermediate-level course advances the basic emergency medical technician's knowledge and skills in patient assessment, airway management, intravenous cannulation and manual defibrillation. The KS EMT-I/D's knowledge and skills are intermediate between the EMT-Basic and the EMT-Paramedic. Upon successful completion of this course, the student will be able to utilize the assessment findings to formulate a field impression and implement the treatment plan for the patient suffering a medical or trauma emergency. As the KS-EMT-I/D demonstrates cognitive and motor skill competency in the classroom and skills laboratory, his or her training will proceed to the clinical and field environments, where the knowledge, skills and attitudes necessary for professional practice will be practiced, synthesized and perfected. 7 hrs. lecture, 5 hrs. lab, 10 hrs. clinical/field experience/wk.

### **EMS 210 EMS INSTRUCTOR COORDINATOR (5 CR)**

*Prerequisites: Prospective students must meet all the requirements for selection as set forth by the Kansas Board of Emergency Medical Services, which includes certification as a care provider, documentation of pre-hospital experience and successful completion of the BEMS pre-selection process.*

This course covers the basic tenets of adult education as they apply to teaching emergency medical services provider courses. Students are oriented to all Kansas requirements for conducting initial courses of instruction for ambulance attendants. Successful completion will be the first step toward certification as a Kansas EMS instructor coordinator. This program has been approved by the Kansas Board of Emergency Medical Services (BEMS). It addresses information and techniques currently considered the responsibility of the EMT-IC according to the United States Department of Transportation, National Standard Curriculum. 5 hrs. lecture-demonstration/wk. for 8 wks.

## **EMS 220** **MICT I (10 CR)**

*Prerequisite: Admission to the MICT program*

MICT I is the first of four courses in advanced out-of-hospital emergency medical care leading to the opportunity to sit for the National Registry Examination for Paramedics. In this narrowly focused but intense foundational course, the paramedic student will gain a significant knowledge of patient assessment, pharmacology and medication administration techniques, electrocardiography, advanced airway management, and paramedic scope of practice. Much material will be covered rapidly, and emphasis is on organization, internalization and synthesis of the basic knowledge of the discipline in this 9-week course. Additionally, during the initial psychomotor teaching labs, students will gain the ability to assess patients, administer medications, treat dysrhythmias and manage the airway through manikin practice. 24 hrs. lecture/wk.

## **EMS 225** **MICT II (10 CR)**

*Prerequisite: EMS 220 with a minimum grade of "C"*

MICT II is the second of four courses in advanced out-of-hospital emergency medical care leading to the opportunity to sit for the National Registry Examination for Paramedics. This course builds on the foundational knowledge developed in MICT I and covers advanced management of medical and trauma emergencies in the out-of-hospital environment. Much material will be covered rapidly, and emphasis is on organization, internalization, synthesis and application of the basic knowledge of the discipline in this 9-week course. Students demonstrate competency at motor skill performance, and extensive simulation practice is afforded. Students begin field observation with a paramedic ambulance crew and complete an Advanced Cardiac Life Support Course. 24 hrs. avg. lecture/wk., 12 hrs. lab/field observation avg./wk.

## **EMS 230** **MICT III CLINICALS (12 CR)**

*Prerequisite: EMS 225 with the minimum grade of "C"*

MICT III is the third of four courses in advanced out-of-hospital emergency medical care leading to the opportunity to sit for the National Registry Examination for Paramedics. During MICT III, paramedic students have the opportunity to take the knowledge and skills gained in MICT I and II and apply them in actual supervised clinical practice. MICT III represents a brief, intense 14-week course in which knowledge and skills are synthesized and applied to patients under supervision of physicians and nurses in clinical practice in the emergency department, critical care unit, surgery/recovery room, labor/delivery room, pediatric emergency department and burn center. Field observation lab and classroom and laboratory review are included as well. 4 hrs. lecture avg./wk., 44 hrs. clinical/lab/field avg./wk.

## **EMS 271** **MICT IV FIELD INTERNSHIP (15 CR)**

*Prerequisite: EMS 230 with a minimum grade of "C"*

MICT IV is the final of four courses in advanced out-of-hospital emergency medical care leading to the opportunity to sit for the National Registry Examination for Paramedics. During MICT IV, paramedic students have the opportunity to take the knowledge and skills gained in MICT I, II and III and apply them in an actual practice environment. MICT IV represents an intense 4-month course in which knowledge, skills and professional behaviors are synthesized and applied to victims of sudden trauma or medical emergencies under supervision of paramedic preceptors at

the emergency scene and in the ambulance. Entry-level competence into the profession is demonstrated as the student demonstrates the ability to assess the scene and the patient, develop a plan for therapeutic intervention as well as scene management, and effectively lead the out-of-hospital resuscitation team's effort. Classroom and laboratory review are included. 4 hrs. lecture avg./wk., 56 hrs. clinical/lab/field avg./wk.

## Engineering (ENGR)

### **ENGR 121** **ENGINEERING ORIENTATION (2 CR)**

Upon successful completion of this course, the student should be able to describe careers in engineering and use fundamental concepts in engineering problem solving. Topics include engineering disciplines, aptitude and academic requirements, professional responsibilities, problem definition and solution, engineering design, and terminology. Students will meet professional engineers during field trips to engineering companies and work sites. The primary intent of this course is to introduce students to the engineering problem-solving process and to help each student make the best career decision. 2 hrs. lecture/wk.

### **ENGR 131** **ENGINEERING GRAPHICS I (4 CR)**

*Corequisite: MATH 133 and MATH 171 and MATH 172 and MATH 173 or MATH 241*

Upon successful completion of this course, the student will be able to apply graphic principles used in the engineering design process. The student will master graphics concepts using computer-aided drafting (CAD) software. Topics include 2-D and 3-D CAD commands; geometric construction; multi-view, orthographic projection; sectional views; isometrics; dimensioning; and descriptive geometry. 3 hrs. lecture, 4 hrs. lab/wk.

### **ENGR 171** **PROGRAMMING FOR ENGR & SCIENCE (3 CR)**

*Prerequisite: MATH 171*

At the completion of this course, the student should be able to design algorithms for the solution of engineering and science problems using pseudocoding and flowcharting techniques; code the solution in the FORTRAN programming language; and compile, test and debug the program. Programming concepts covered will include data input from the keyboard and data files, formatted output, sequence, selection and iteration structures, function and subroutine subprograms and array processing. Proficiency with conversions and math in the decimal, binary and hexadecimal numbering systems will also be attained. This is a beginning course that will prepare students for more advanced studies in engineering and science computer applications. 2 hrs. lecture, 3 hrs. lab/wk.

### **ENGR 180** **ENGINEERING LAND SURVEYING I (3 CR)**

*Corequisite: MATH 134 or MATH 172*

Upon successful completion of this course, the student should be able to identify the basic applications of plane surveying procedures; measurement of horizontal distances, directions, angles, leveling, traversing, curves and stadia coordinates; computations with the aid of a computer; and topographical property and construction surveying. Students will take part in field operations using equipment such as auto levels, theodolites, EDM and total station. 2 hrs. lecture, 3 hrs. lab/wk.

### **ENGR 251** **STATICS (3 CR)**

*Prerequisite: MATH 242 Corequisite: PHYS 220*

Upon successful completion of this course, the student should be able to describe and predict the conditions of rest and motion of bodies under the action of forces. The principles used will include vectors, force systems, equilibrium, free body diagram, centroids, moments of inertia, trusses, frame, and shear and moment diagrams. 3 hrs. lecture/wk.

**ENGR 254**  
**DYNAMICS (3 CR)**

*Prerequisites: ENGR 251*

Upon successful completion of this course, the student should be able to apply the principles of dynamics, the branch of engineering mechanics that studies objects in motion. Topics covered will include unbalanced force systems (Newton's second law), displacement, velocity and acceleration, work and energy, and impulse and momentum. Computer applications will be included. 3 hrs. lecture/wk.

## English (ENGL)

**ENGL 100**  
**ENGLISH AS A SECOND LANG I (3 CR)**

*Prerequisite: Appropriate assessment score*

This course provides basic instruction in speaking and listening, writing and grammar for students who are non-native English speakers. Students will learn to converse, write and give oral presentations in an integrated setting. The course includes conversations and dialogs, written compositions, grammar and editing practice, and oral reports. This course is for beginner to intermediate-level ESOL students. 3 hrs./wk. This course does not fulfill degree requirements.

**ENGL 101**  
**ENGLISH AS A SECOND LANG II (3 CR)**

*Prerequisite: ENGL 100 or appropriate assessment score*

This course provides integrated instruction in speaking, listening, writing and grammar for students who are non-native English speakers. Students will learn to converse clearly, write effectively and correctly, and summarize orally. This course will include conversations and dialogs, short written compositions and essays, grammar and proofreading practice, and oral presentations based on readings. This course is for intermediate and advanced-level ESOL students. 3 hrs./wk. This course does not fulfill degree requirements.

**ENGL 102**  
**WRITING STRATEGIES (3 CR)**

*Prerequisite: Appropriate placement test score*

This course assists the student in developing strategies for sentence writing. The course is designed to meet a variety of learning styles, levels and needs. Students will develop strategies for self-monitoring errors in written products. Students are taught strategies for writing a variety of sentence formats and have extensive practice in writing sentences as a means of implementing new information. 3 hrs./wk.

**ENGL 103**  
**PRACTICAL WRITING SKILLS (1 CR)**

At the completion of this course, the student should be able to recognize and write complete sentences. The student will write a variety of sentences using strategies for building sentences with phrases and clauses as well as editing sentences through coordination and subordination. The student will then practice developing paragraphs in various organizational modes. Along with writing the student will read selected prose and write responses to these readings. The course is designed specifically to aid non-native speaking students in acquiring writing skills through individualized instruction. The aim of this course is to enhance/supplement the English as a Second Language program already offered at JCCC. Also, because hearing-impaired students have similar difficulties with the English language as ESL students, this course addresses the challenges often faced by this student population. By arrangement. This course does not fulfill degree requirements.

**ENGL 105**  
**BASIC ENGLISH GRAMMAR (3 CR)**

The aim of English 105 is to introduce the student to the basic structures in English grammar: parts of speech, sentence types, phrases and clauses. Students learn to use correct punctuation. Moving from joining short phrases to the basic sentence, students learn to combine ideas to form a variety of sentence structures. Students practice skills, working in class (often in pairs or groups) and making use of computer programs in the Writing Center. Grammar games are used to help prepare students for a test. 3 hrs./wk. This course does not fulfill degree requirements.

**ENGL 106**  
**INTRODUCTION TO WRITING (3 CR)**

*Prerequisite: ENGL 102 or appropriate placement test score*

Beginning with a review of basic sentence skills, this course focuses on paragraph development, including subject selection, topic sentences, methods of development, transitional devices, and effective introductions and conclusions. The last part of the course will focus on developing multiple-paragraph essays. 3 hrs./wk. This course does not fulfill degree requirements.

**ENGL 107**  
**SENTENCE PATTERN SKILLS (1 CR)**

At the completion of this course, the student should be able to identify the parts of speech, elements of a sentence and basic sentence patterns. Emphasis is on sentence combining and sentence composing. Students are told that grammar in isolation will not improve writing skills, and they are encouraged to practice writing. By arrangement. This course does not fulfill degree requirements.

**ENGL 108**  
**COMPOSING SKILLS (1 CR)**

After completing Composing Skills, students will be able to choose a topic, narrow the topic, and organize and develop with supporting evidence a variety of paragraph modes. The student will be able to achieve paragraph unity, coherence and emphasis. Also, the student will learn revision and editing strategies. By arrangement. This course does not fulfill degree requirements.

**ENGL 109**  
**PROOFREADING SKILLS (1 CR)**

This 1-credit module is designed to provide students with strategies and rules that will help them recognize and repair common grammar, usage and mechanical errors in their writing. This course focuses on the major and minor errors as set forth in the English program objectives (available in the Writing Center). Students will learn to recognize and correct these errors, not only on exercise sheets, but also in their own writing. By arrangement. This course does not fulfill degree requirements.

**ENGL 110**  
**ENGLISH GRAMMAR REVIEW (1 CR)**

English Grammar Review helps students to review the parts of speech, elements of a sentence, basic sentence patterns, major sentence level errors, agreement errors and punctuation. Students are encouraged to practice writing. By arrangement. This course does not fulfill degree requirements.

**ENGL 112**  
**RESEARCH SKILLS (1 CR)**

Research Skills is a review of the various aspects of the research process, beginning with limiting the subject and moving to revising the finished product. Emphasis is on the gathering of resource materials, synthesizing the information and developing an essay in which the resource information is used to support a thesis and is documented in an approved academic form. By arrangement. This course does not fulfill degree requirements.



**ENGL 115**  
**REVISION SKILLS (1 CR)**

Revision Skills is designed to instruct the practicing writer in skills needed to revise all writing, including business, college and personal writing. Students will use computer programs and self-paced materials. Revision Skills is intended to complement courses in which writing is assigned. Students will be encouraged to bring in business communication or college assignments to apply the learned skills. By arrangement. This course does not fulfill degree requirements.

**ENGL 120**  
**WRITING IN THE DISCIPLINES (1 CR)**

This course is designed to complement and/or support classes in which writing is intrinsic to the curriculum. It also provides students with a process that can be applied to the variety of written assignments typically assigned in classes other than composition. Students will practice writing a variety of short papers using a prescribed process for each assignment. The course is individualized. By arrangement. This course does not fulfill degree requirements.

**ENGL 121**  
**COMPOSITION I (3 CR)**

*Prerequisite: ENGL 106 or appropriate placement test score*

Composition I focuses on writing nonfiction prose suitable in its expression and content to both its occasion and its audience. Students will have an opportunity to improve in all phases of the writing process: discovering ideas, gathering information, planning and organizing, drafting, revising and editing. Each essay written in the course should clearly communicate a central idea or thesis, contain sufficient detail to be lively and convincing, reflect the voice of the writer, and use carefully edited standard written English. 3 hrs./wk.

**ENGL 122**  
**COMPOSITION II (3 CR)**

*Prerequisite: ENGL 121*

Because so much writing required in college and in the workplace demands the ability to synthesize information gathered from various sources, Composition II will focus on skills essential to gathering, comprehending, analyzing, evaluating and synthesizing information. Composition II also emphasizes organizing and polishing steps important in composing expository, evaluative and persuasive prose. 3 hrs./wk.

**ENGL 123**  
**TECHNICAL WRITING I (3 CR)**

*Prerequisite: ENGL 121*

This course provides a basic knowledge of technical writing. Students will learn the writing process (prewriting, writing and rewriting) to follow when constructing correspondence, including memos, letters, e-mail, reports, instructional manuals and Web pages. Students also will learn seven key traits of effective technical writing: clarity, conciseness, document design, organization, audience recognition, audience involvement and accuracy. Accuracy specifically entails the need for students to adhere to rules of grammar and mechanics. Students will learn how to create computer-generated graphics and learn word processing skills. Finally, the students will learn how to work in teams, modeling Total Quality Management skills. 3 hrs./wk.

**ENGL 130**  
**INTRODUCTION TO LITERATURE (3 CR)**

*Prerequisite: ENGL 121*

Students will read, discuss and analyze works from three literary genres: the short story, the poem and the play. Students will learn and apply the technical vocabulary used in the criticism of these literary forms. Students will be introduced to representative works from various literary traditions and cultures, including numerous works from contemporary writers. 3 hrs./wk.

**ENGL 140**  
**WRITING FOR INTERACTIVE MEDIA (3 CR)**

*Prerequisite: ENGL 121*

This course is designed to have students apply the writing process as well as the fundamental rhetorical and composition skills to various interactive media, including Web pages, CD-ROMs and DVDs, e-mail, kiosks, computer program packages, and other electronic media. The course will focus on skills essential to selecting, evaluating and synthesizing information from primary and secondary sources; in addition, it will emphasize the different approaches to organization that these media require, as well as the variety of discourse styles used in informative, instructional, persuasive and entertainment media texts. This course also fulfills an elective requirement for the Computer Interactive Media certificate. 3 hrs. lecture/wk.

**ENGL 210**  
**TECHNICAL WRITING II (3 CR)**

*Prerequisite: ENGL 123*

This course provides an advanced knowledge of technical writing. Students will learn the writing process (prewriting, writing and rewriting) to follow when constructing correspondence. Types of technical writing covered in this course include memos, letters, e-mail, short reports, long reports, instructional manuals, Web pages, PowerPoint presentations, brochures, newsletters, journal articles, resumes and online resumes. Students also will learn seven key traits of effective technical writing; clarity, conciseness, document design, organization, audience recognition, audience involvement and accuracy. Accuracy specifically entails the need for students to adhere to rules of grammar and mechanics. Students will learn how to create computer-generated graphics and learn word-processing skills. Finally, the students will learn how to work in teams, modeling Total Quality Management skills. 3 hrs./wk.

**ENGL 222**  
**ADVANCED COMPOSITION (3 CR)**

*Prerequisite: ENGL 122*

This course offers challenging insights into the act of writing. We will move beyond Composition I and Composition II, focusing on writing persuasively to a select audience; working together to anticipate and defuse objections; supply convincing evidence; synthesize the ideas of others to support our ends; look critically at all sources; and perfect a mature, polished style that is suitable to audience and occasion. 3 hrs./wk.

**ENGL 223**  
**CREATIVE WRITING (3 CR)**

*Prerequisite: ENGL 122*

Students will study and practice writing in three of the major literary modes of writing: poetry, fiction and drama. The reading assignments are based on the premise that, to be good writers, students must have knowledge of literary techniques and be perceptive readers and critics. Students will examine techniques of three of the literary genres and then apply their knowledge to write in each genre. Also, students will receive information on marketing their work. 3 hrs./wk.

**ENGL 224**  
**CREATIVE WRITING WORKSHOP (3 CR)**

*Prerequisite: ENGL 223*

In this workshop, students explore writing and marketing techniques for both fiction and nonfiction. They will produce a substantial amount of written work, which may include, among other types, fiction narratives, such as the short story and novel, and nonfiction pieces, such as the profile and interview article. They will read other students' work and provide useful feedback on that work. 3 hrs./wk.

**ENGL 230**  
**INTRODUCTION TO FICTION (3 CR)**

*Prerequisite: ENGL 122*

This course features significant opportunities to write about the literature and the reader's response. Students will learn the historical precedents of the short story; the similarities and differences between the short story and other narrative forms, such as the novel; the differences

between the short story and its historical precedents; between short stories and film adaptations of them; and between commercial and literary short stories. Students will discover the place of short stories in major literary movements, the key elements of short stories and interpretive approaches to short stories. 3 hrs./wk.

**ENGL 231**  
**AMERICAN PROSE (3 CR)**

*Prerequisite: ENGL 122*

American Prose presents a series of literary works by American writers that reflect the attitudes and identity of our national literature and culture. By grappling with the ideas and characterizations presented in each literary work, the student develops meaningful insights into the attitudes and human conditions that influence America's national literary identity. 3 hrs./wk.

**ENGL 232**  
**CHILDREN'S LITERATURE (3 CR)**

*Prerequisite: ENGL 122*

Children's Literature is meant for all students interested in bringing children and books together but is especially suited for who are students with English or education majors; teachers already in the elementary school classroom; parents; those working with children in preschools, day-care centers and libraries; and grandparents and prospective parents. The course would also benefit those exploring the field of writing and illustrating for children. Students will identify children's needs and interests, list the criteria for choosing books for children, and demonstrate the means by which we can bring children and books together. Students will read, examine and critique a variety of children's literature selected by author, genre and historical time period. 3 hrs./wk.

**ENGL 235**  
**DRAMA AS LITERATURE (3 CR)**

*Prerequisite: ENGL 122*

This course introduces students to the analysis of plays as literature. Beginning with the Greek dramatists and ending with the contemporary scene, students will read full-length plays and the comments of playwrights, directors, actors and critics. They will analyze drama from psychological, historical, philosophical, structural and dramatic perspectives. Students will write essays demonstrating their understanding of the works studied. 3 hrs./wk.

**ENGL 241**  
**BRITISH WRITERS (3 CR)**

*Prerequisite: ENGL 122*

This course emphasizes reading and discussion of works by selected major British writers and includes related writing projects. Students will identify important biographical details; explore the historical, cultural and artistic context of major writers and their works; and identify and evaluate the use of significant literary devices. The course emphasizes the relationships among influential writers, their lives and times and their works important to our cultural heritage. 3 hrs./wk.

**ENGL 243**  
**LITERATURE OF SCIENCE FICTION (3 CR)**

*Prerequisite or corequisite: ENGL 122*

This course examines the literature of science fiction, especially from 1960 through the present. Students explore the unifying concepts of science and technology depicted through imaginative narratives of the past, present and future. Students read short stories and/or novels, view science fiction films and discuss key science fiction concepts. 3 hrs. lecture/wk.

**ENGL 245**  
**WRITING LIT FOR CHILDREN (3 CR)**

*Prerequisite: ENGL 232*

Writing Literature for Children is a continuation of Introduction to Children's Literature aimed primarily at those students interested in writing and publishing literature for children. The students will review children's needs and interests, research topics and collect data for possible books. Then students will write and assemble a variety of children's literature. Students will critique their

own work and that of their peers and revise their work accordingly. Finally, students will compose all correspondence typically required by publishers. 3 hrs./wk.

**ENGL 250**  
**WORLD MASTERPIECES (3 CR)**

*Prerequisite: ENGL 122*

World Masterpieces introduces students to literary study using major literary works composed from the times of Homer to Shakespeare that have been influential in shaping and expressing values of Western culture. Students will read selections representative of the epic, tragic, comic and lyric traditions primarily to gain knowledge of the works assigned. In addition, students will analyze the assigned texts as literary works and as cultural artifacts and influences. Finally, students will compare and contrast contemporary understandings of the individual and society with those expressed in the works studied. In completing the course objectives, students will learn the conventions of writing about literature and become familiar with general reference materials useful in studying literature. 3 hrs./wk.

**ENGL 254**  
**MASTERPIECES OF THE CINEMA (3 CR)**

*Prerequisite: ENGL 122*

This course examines the development of cinema from the early experiments in the late 1800s up to the present day, presenting the history and art of both American and international cinema. Students read the textbook, view short and full-length films, and discuss important cinematic techniques and concepts. Students verify their judgments by summarizing and analyzing these important concepts, using discussions, and writing effective, well-organized essays in response to cinematic presentations and explanations. 3 hrs./wk.

**ENGL 256**  
**AMERICAN POETRY (3 CR)**

*Prerequisite: ENGL 122*

American Poetry presents a planned reading schedule and directed discussion of poems that reflect the attitudes of American poets and American culture. By grappling with the ideas and characterizations presented in these poems, students can develop meaningful insights into the attitudes and human conditions that have influenced America's national literary identity. 3 hrs./wk.

## **Fashion Merchandising/Design (FASH)**

**FASH 121**  
**FASHION FUNDAMENTALS (3 CR)**

Upon successful completion of this course, the student should be able to define appropriate fashion terminology and explain the structure of the industry, including the design process and marketing of the fashion product. 3 hrs./wk.

**FASH 123**  
**APPAREL CONSTRUCTION I (4 CR)**

Upon successful completion of this course, the student should be able to apply clothing construction principles, techniques and skills in apparel construction. The class will use lecture, demonstration and hands-on experience to teach the skills needed to plan and construct four garments during this class. 2 hrs. lecture, 4 hrs. lab/wk.

**FASH 124**  
**APPAREL CONSTRUCTION II (4 CR)**

*Prerequisite: FASH 123 or two years of high school apparel construction training or division administrator approval*

Upon successful completion of this course, the student should be able to apply intermediate

apparel construction principles, techniques and skills in the production of various garments. This continuation of FASH 123 will focus on the planning and construction of an ensemble of intermediate complexity made from muslin fitting samples, with emphasis on precise fitting alteration. 2 hrs. lecture, 4 hrs. lab/wk.

**FASH 125**  
**VISUAL MERCHANDISING (3 CR)**

Upon successful completion of this course, the student should be able to explain and apply the principles of design in visual merchandising. In addition, the student should be able to identify and explain the use of mannequins and other forms, display fixtures and lighting systems; apply color theory; and present merchandise effectively in visual displays. The student should also be able to demonstrate the use of appropriate types of displays for in-store promotions. 3 hrs./wk.

**FASH 127**  
**CAD:PATTERN DESIGN I (4 CR)**

Upon successful completion of this course, the student should be able to apply the use of flat pattern methods in developing patterns for original apparel designs. Basic slopers and the CAD (computer-assisted design) Pattern Design System will be used to develop and manipulate patterns. The class will use lecture, demonstration and hands-on experience to teach skills needed in manual and computer-assisted pattern design. The student will plan and create patterns in this class. 2 hrs. lecture, 4 hrs. lab/wk.

**FASH 128**  
**CAD: PATTERN DESIGN II (4 CR)**

*Prerequisite: FASH 127*

Upon successful completion of this course, the student should be able to apply advanced methods of flat pattern design in developing patterns. This class is a continuation of FASH 127, CAD: Pattern Design I. Lecture, demonstration and hands-on experience will be used to teach techniques needed in computer-assisted and manual advanced pattern design. Industry standards will be used for sloper manipulation. Each student will create advanced flat patterns in this class. 2 hrs. lecture, 4 hrs. lab/wk.

**FASH 130**  
**FASHION ILLUSTRATION I (3 CR)**

Upon completion of this course, students should be able to create fashion illustrations for their portfolios. In addition, the student should be able to apply color, mood, detail and form using various media. 3 hrs./wk.

**FASH 132**  
**MARKETING COMMUNICATIONS (3 CR)**

Upon successful completion of this course, the student should be able to explain advertising and promotion from an integrated marketing communications perspective that combines theory with planning, management and strategy. In addition, the student will be able to explain advertising, sales promotion, direct marketing and publicity/public relations and the need for integration of these promotional mix elements in an overall marketing communications program. 3 hrs./wk. Fall.

**FASH 135**  
**IMAGE MANAGEMENT (1 CR)**

Upon successful completion of this course, the student should be able to conduct an extensive wardrobe inventory. In addition, the student should be able to apply principles of personal grooming, elements of design and fabric, and accessory knowledge to the development of an individual professional wardrobe plan based on individual budget constraints. 1 hr./wk.

**FASH 140**  
**GARMENT DESIGN I (3 CR)**

*Prerequisite: FASH 123*

Upon successful completion of this course, students should be able to translate garment ideas from color sketches (croquis); continue the design process through fabric selection and pattern drafting; figure yardage, notions and wholesale cost; and construct a finished garment. 6 hrs. lecture, lab/wk.

**FASH 143**  
**TAILORING (4 CR)**

*Prerequisite: FASH 124*

Upon successful completion of this course, the student should be able to apply advanced construction principles, techniques and skills in the production of tailored garments. This course is a continuation of FASH 124, Apparel Construction II. The class will use lecture, demonstration and hands-on experience as the student completes a trial muslin for a jacket or coat plus a finished three-piece ensemble of advanced complexity during this class. 2 hrs. lecture, 4 hrs. lab/wk.

**FASH 150**  
**TEXTILES (3 CR)**

Upon successful completion of this course, the student should be able to differentiate fibers and fabrics according to their specific characteristics and to select fibers and fabrics for specific applications. In addition, the student should be able to identify properties and characteristics of natural and man-made fibers, the properties and characteristics of yarns, fabric construction methods including weaving and knitting and various finishing processes including printing and dyeing. 3 hrs./wk.

**FASH 220**  
**CAD APPAREL DESIGN (3 CR)**

Upon successful completion of this course, the student should be able to apply the elements and principles of design in evaluating and designing women's, men's and children's apparel. A project of designing a line will apply the student's aesthetic knowledge, the relationship of apparel design to the current socioeconomic conditions and apparel production knowledge. Projects use computer-aided design software. 3 hrs./wk.

**FASH 224**  
**HISTORY OF COSTUME (3 CR)**

Upon successful completion of this course, the student should be able to identify the political, economic, technological and sociological factors that have influenced Western costume worn by women, men and children from ancient Egyptian times to the present. 3 hrs./wk.

**FASH 225**  
**STORE PLANNING (3 CR)**

*Prerequisite: FASH 125*

Upon successful completion of this course, the student should be able to demonstrate the skills needed to plan and execute the display methods and store planning concepts for promoting merchandise within a large or small store interior. These plans will use the student's understanding of design, fixtures, traffic patterns, floor sets, graphics/signage and materials. This course is a requirement for the visual merchandising certificate. 3 hrs. lecture/wk.

**FASH 230**  
**FASHION ILLUSTRATION II (3 CR)**

*Prerequisite: FASH 130*

Upon successful completion of this course, the student should be able to produce refined fashion

illustrations to enhance the portfolio. Fashion Illustration II is a continuation of Fashion Illustration I. Greater emphasis is placed on development of a personal illustration style and presentation of a professionally executed portfolio. 3 hrs./wk.

**FASH 231**  
**MERCHANDISE PLANNING & CONTROL (3 CR)**

*Prerequisite: MATH 120*

Upon successful completion of this course, the student should be able to describe the management structure of retail merchandising operations, contrast merchandising functions among various types of retail operations, explain the buying process, explain the financial operations of retail merchandising and apply these principles in computer-simulated case situations. 3 hrs./wk. Spring.

**FASH 242**  
**CONSUMER PRODUCT EVALUATION (3 CR)**

Upon successful completion of this course, the student should be able to evaluate a wide range of textile and nontextile products, from lingerie to china, on the basis of specialized product knowledge. In addition, the student should be able to prepare research projects on selected products. 3 hrs./wk. Spring.

**FASH 268**  
**FIELD STUDY:THE MARKET CENTER (3 CR)**

*Prerequisite: FASH 121*

Upon successful completion of this course, the student should be able to identify and distinguish between national, regional and local retail market centers. In addition, the student should be able to explain the importance of market centers, analyze the marketing mix of selected retailers and describe uses of fashion auxiliary services. 3 hrs./wk. Spring.

**FASH 277**  
**FASHION SEMINAR:CAREER OPTIONS (2 CR)**

Upon successful completion of this course, the student should be able to define individual career goals after a thorough examination of five career areas within the fashion industry. In addition, the student should be able to explain strategies for success in the workplace. 2 hrs./wk. Fall.

**FASH 280**  
**CAPSTONE; INDUSTRY TOPICS (3 CR)**

*Prerequisites: FASH 283 and FASH 284 Corequisite: FASH 231*

Upon successful completion of this course, the student should be able to exhibit knowledge and work-based skill inherent to fashion retailing, wholesaling and manufacturing. The student will have opportunities to apply knowledge gained in prior courses analyzing industry topics. This capstone course will review and evaluate competencies that are essential for employment in the fashion industry. 3 hrs. lecture/wk. Spring.

**FASH 283**  
**FASHION INTERNSHIP I (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in the fashion industry. A minimum of 15 hours on-the-job training/wk.

**FASH 284**  
**FASHION INTERNSHIP II (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in the fashion industry. A minimum of 15 hours on-the-job training/wk.

**FASH 285**  
**FASHION INTERNSHIP III (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in the fashion industry. A minimum of 15 hours on-the-job training/wk.

**FASH 286**  
**FASHION INTERNSHIP IV (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in the fashion industry. A minimum of 15 hours on-the-job training/wk.

**FASH 298**  
**EUROPEAN FASHION EMPHASIS (3 CR)**

Upon successful completion of this course, the student will be able to compare American and European retail merchandising, advertising and visual presentation. This travel-for-credit course includes visits to selected European cities.

## **Fire Services Administration (FIRE)**

**FIRE 130**  
**FIRE INVESTIGATION (1 CR)**

*Prerequisite: FIRE 175*

This course provides instruction in basic fire investigation. Students will learn basic cause and origin determination, scene and evidence security techniques, and report-writing skills. This course meets the job performance requirements pertaining to fire investigation identified in NFPA 1021, Fire Office Professional Qualifications. 1 hr./wk.

**FIRE 135**  
**BUILDING AND FIRE CODES (3 CR)**

*Prerequisite: FIRE 175*

This course entails application and interpretation of codes and ordinances, especially the Life Safety Codes used extensively in fire prevention. 3 hrs./wk.

**FIRE 162**  
**FIRE TACTICS AND STRATEGY (3 CR)**

*Prerequisite: FIRE 175*

Fire control through manpower, equipment and extinguishing agents will be explored, including theoretical models and practical applications. 3 hrs./wk.

**FIRE 175**  
**ESSENTIALS OF FIREFIGHTING (9 CR)**

*Prerequisite or corequisite: HPER 240*

This course provides cognitive, psychomotor and affective instruction for those students seeking



certification as a fire fighter in the state of Kansas. The class covers hazardous materials, fire department communications, fire ground operations (first responder: operations level), rescue operations and prevention, preparedness and maintenance. Upon successful completion of the cognitive examinations and all psychomotor skills evaluations, student will be allowed to sit for the Kansas Fire Fighter II state certification examination, which is administrated by the University of Kansas, Fire Service Training. 5 hrs. lecture, 7 hrs. lab/wk.

**FIRE 220**  
**FIRE ADMINISTRATION (3 CR)**

*Prerequisite: FIRE 175*

Techniques and methods used in managing fire departments are explored, including budgeting processes, administrative functions and types of political systems that affect a fire department. 3 hrs./wk.

**FIRE 222**  
**FIRE SCIENCE LAW (3 CR)**

*Prerequisite: FIRE 175*

The law as it pertains to the fire service will be explained, along with tort law and business law. 3 hrs. /wk.

**FIRE 224**  
**INCIDENT COMMAND SYSTEMS (3 CR)**

*Prerequisite: FIRE 175*

This is a course in basic incident command. Disaster control, disaster management, communications for disaster management and types of disasters are presented. 3 hrs. /wk.

**FIRE 250**  
**FIRE SERVICE INSTRUCC METHODS (3 CR)**

*Prerequisite: FIRE 175*

This course is designed to provide the instructional skills and knowledge necessary to develop, conduct and evaluate formal training programs in in-service and classroom formats. This course meets NFPA 1041 standards for fire service instructor.

## Foreign Language (FL)

**FL 116**  
**ELEMENTARY LATIN I (3 CR)**

Students will have the opportunity to learn the basic vocabulary and structural patterns, or grammar, of Latin. Emphasis will be on fundamental grammar concepts, extensive word study for English vocabulary growth and the lasting contributions Roman society made to Western civilization. 3 hrs./wk.

**FL 117**  
**ELEMENTARY LATIN II (3 CR)**

*Prerequisite: FL 116 or one year of high school Latin*

This course will complete the presentation of basic Latin vocabulary and grammar. Fundamental grammar concepts, extensive word study for English vocabulary growth and the lasting contributions of Roman society to Western civilization will be emphasized. 3 hrs./wk.

**FL 120**  
**ELEMENTARY GERMAN I (5 CR)**

This course presents the sounds, vocabulary and basic structural patterns of German, focusing on

the development of listening comprehension, speaking, reading and writing skills. Cultural material will be integrated into the course. 5 hrs./wk.

**FL 121**  
**ELEMENTARY GERMAN II (5 CR)**

*Prerequisite: FL 120 or one year of high school German*

This course will continue the presentation of the vocabulary and basic structural patterns begun in Elementary German I, with continued emphasis on the development of listening comprehension, speaking, reading and writing skills. 5 hrs./wk.

**FL 130**  
**ELEMENTARY SPANISH I (5 CR)**

In this basic course, students will study Spanish grammar conversation, composition and the culture of Spanish- speaking countries. 5 hrs./wk.

**FL 131**  
**ELEMENTARY SPANISH II (5 CR)**

*Prerequisite: FL 130 or one year of high school Spanish*

This course will continue the presentation of the material introduced in Elementary Spanish I. Graded reading selections will be added as a basis for conversation and composition in discussion periods. 5 hrs./wk.

**FL 133**  
**BASIC SPANISH/HOSPITALITY MGT (2 CR)**

In this basic course, students will be introduced to terminology related to the hospitality industry, basic Spanish grammar and phrases related to work. 2 hrs./wk.

**FL 140**  
**ELEMENTARY FRENCH I (5 CR)**

Areas covered in this basic course include vocabulary building, grammar study, conversation and an introduction to French culture and civilization. The emphasis is on conversation. 5 hrs./wk.

**FL 141**  
**ELEMENTARY FRENCH II (5 CR)**

*Prerequisite: FL 140 or one year of high school French*

This course continues the presentation of the material introduced in Elementary French I. Graded reading selections will be used as the basis for conversation. 5 hrs./wk.

**FL 150**  
**ELEMENTARY RUSSIAN I (5 CR)**

In this course, students will learn the basic sounds, vocabulary and structural patterns of Russian. Emphasis will be on listening comprehension, speaking, reading and writing skills. Cultural material will be included. 5 hrs./wk.

**FL 151**  
**ELEMENTARY RUSSIAN II (5 CR)**

*Prerequisite: FL 150 or one year of high school Russian*

This course completes the presentation begun in Elementary Russian I. Students will gain listening comprehension, speaking, reading and writing skills appropriate to a second-level course. 5 hrs./wk.

**FL 160**  
**ELEMENTARY ITALIAN I (5 CR)**

Students will be introduced to the sounds, vocabulary and basic structural patterns of Italian, with primary focus on the development of listening comprehension and speaking, reading and writing skills. Integrated throughout the course will be an introduction to the culture of Italy. 5 hrs./wk.

**FL 161**  
**ELEMENTARY ITALIAN II (5 CR)**

*Prerequisite: FL 160 or one year of high school Italian*

A continuation of the presentation of the vocabulary and basic structural patterns of Italian, this course will emphasize the development of listening comprehension, speaking, reading and writing skills. Cultural material also will be integrated into the course. 5 hrs./wk.

**FL 165**  
**ELEMENTARY CHINESE I (5 CR)**

This course will introduce students to the basic sounds, vocabulary, grammar and usage, characters and reading of the Chinese language. The emphasis will be on developing basic conversational skills. Students will develop an understanding and appreciation of Chinese culture. 5 hrs./wk.

**FL 166**  
**ELEMENTARY CHINESE II (5 CR)**

*Prerequisite: FL 165 or one year of high school Chinese*

This course offers a continuation of Elementary Chinese I, emphasizing the sounds, vocabulary, grammar, usage, characters and reading of the Chinese language. Students will develop more advanced conversational skills and cultural understanding. 5 hrs./wk.

**FL 170**  
**ELEMENTARY JAPANESE I (5 CR)**

This course is an introduction to the sounds, vocabulary, grammar, usage and readings of the Japanese language. The emphasis will be on developing basic conversational skills. Cultural materials will be included. 5 hrs./wk.

**FL 171**  
**ELEMENTARY JAPANESE II (5 CR)**

*Prerequisite: FL 170 or one year of high school Japanese*

A continuation of Elementary Japanese I, this course will emphasize the sounds, vocabulary, grammar, usage and reading of the Japanese language. The emphasis is on developing more advanced conversational skills and cultural understanding. 5 hrs./wk.

**FL 175**  
**ELEM BRAZILIAN PORTUGUESE I (5 CR)**

In this basic course, students will study Portuguese grammar, conversation, composition and the culture of Brazil. 5 hrs./wk.

**FL 176**  
**ELEM BRAZILIAN PORTUGUESE II (5 CR)**

*Prerequisite: FL 175*

This course will continue the presentation of the material introduced in Elementary Brazilian Portuguese I. Graded reading selections are added as a basis for conversation and composition in

discussion periods. 5 hrs./wk.

**FL 178**  
**INTERMEDIATE RUSSIAN I (3 CR)**

*Prerequisite: FL 151 or two years of high school Russian*

This course will emphasize vocabulary development and more advanced study of Russian grammar. Students will practice reading, listening comprehension, speaking and writing at the intermediate level. 3 hrs./wk.

**FL 179**  
**INTERMEDIATE RUSSIAN II (3 CR)**

*Prerequisite: FL 178 or three years of high school Russian*

Students will study Russian language and culture that would prepare them to travel in a Russian-speaking country and engage in simple conversation with the citizens. 3 hrs./wk.

**FL 180**  
**ELEMENTARY AMER SIGN LANG I (3 CR)**

This course will focus on the development of beginning American Sign Language communication skills. Comprehension skills and linguistic features of the language taught in context will be emphasized. 3 hrs. /wk.

**FL 181**  
**ELEM AMERICAN SIGN LANGUAGE II (3 CR)**

*Prerequisite: FL 180 or INTR 120*

This course will focus on continued development of elementary American Sign Language skills beyond those taught in Elementary ASL I. Students will work on developing communication competencies, concentrating on comprehension and production skills. Information about the linguistic and cultural features will be included in the context of language learning experiences. 3 hrs./wk.

**FL 190**  
**INTERMEDIATE JAPANESE I (3 CR)**

*Prerequisite: FL 171 or two years of high school Japanese*

This course is a continuation of the study of Japanese language and culture, emphasizing the sounds, vocabulary, grammar, usage and readings of the Japanese language. Emphasis will be on developing further advanced conversational skills by increasing vocabulary and variety of sentence patterns. Cultural understanding will also be stressed. 3 hrs/wk.

**FL 191**  
**INTERMEDIATE JAPANESE II (3 CR)**

*Prerequisite: FL 190 or three years of high school Japanese*

This course is a continuation of the study of Japanese language and culture, emphasizing the sounds, vocabulary, grammar, usage and readings of the Japanese language. Emphasis will be on developing further advanced conversational skills by increasing vocabulary and variety of sentence patterns. Cultural understanding will also be stressed. 3 hrs./wk.

**FL 192**  
**INTERMEDIATE CHINESE I (3 CR)**

*Prerequisite: FL 166 or equivalent*

This course is a continuation of study of the Chinese language and culture, emphasizing the sounds, vocabulary, grammar, usage and readings of the Chinese language. Focus will be on developing more advanced conversational skills by increasing vocabulary and variety of sentence patterns. Cultural understanding will also be stressed. 3 hrs./wk.

**FL 193**  
**INTERMEDIATE CHINESE II (3 CR)**

*Prerequisites: FL 192 or equivalent*

This course is a continuation of study of the intermediate Chinese language and culture, emphasizing the sounds, vocabulary, grammar, usage and readings of the Chinese language. Focus will be on developing more advanced conversational skills by increasing vocabulary and variety of sentence patterns. Cultural understanding will also be stressed. 3 hrs./wk.

**FL 205**  
**CONVERSATIONAL JAPANESE (2 CR)**

*Prerequisite: FL 171 or two years of high school Japanese*

This course is designed to enhance the ability of students to express themselves orally in Japanese through vocabulary building and reiteration of essential grammatical structures. The vocabulary will stress everyday situations and current events. 2 hrs./wk.

**FL 220**  
**INTERMEDIATE GERMAN I (3 CR)**

*Prerequisite: FL 121 or two years of high school German*

This class will emphasize vocabulary building and grammar review primarily through extensive reading of German texts. There will be additional practice in listening comprehension, speaking and writing. 3 hrs./wk.

**FL 221**  
**INTERMEDIATE GERMAN II (3 CR)**

*Prerequisite: FL 220 or three years of high school German*

This class will further expand the mastery of German vocabulary and structure through extensive reading of more advanced texts with additional practice in listening comprehension, speaking and writing. 3 hrs./wk.

**FL 223**  
**CONVERSATIONAL GERMAN (2 CR)**

*Prerequisite: FL 121 or two years of high school German*

By applying vocabulary and structures presented in the text and handouts and by applying knowledge gained in a systematic review of German, the successful student will be able to communicate in German in situations that typically arise while traveling in a German-speaking country. 2 hrs./wk.

**FL 230**  
**INTERMEDIATE SPANISH I (3 CR)**

*Prerequisite: FL 131 or two years of high school Spanish*

This is a reading course designed to build vocabulary, increase understanding of Hispanic culture and increase speaking fluency. The course will include composition and conversation. 3 hrs./wk.

**FL 231**  
**INTERMEDIATE SPANISH II (3 CR)**

*Prerequisite: FL 230 or three years of high school Spanish*

Extensive study of Hispanic literature will be included in this class, along with advanced reading and grammar review. 3 hrs./wk.

**FL 234**  
**CONVERSATIONAL SPANISH (2 CR)**

*Prerequisite: FL 131 or two years of high school Spanish*

This course is designed to enhance students' ability to express themselves orally in Spanish through vocabulary building and reiteration of essential grammatical structures. The vocabulary

will stress everyday life situations and current events. 2 hrs./wk.

**FL 240**  
**INTERMEDIATE FRENCH I (3 CR)**

*Prerequisite: FL 141 or two years of high school French*

In this course, students begin a more in-depth study of French grammar and vocabulary as they improve their mastery of the four communicative skills (listening, speaking, reading and writing). Conversation will be more advanced and writing assignments will be more extensive at the intermediate level. 3 hrs./wk.

**FL 241**  
**INTERMEDIATE FRENCH II (3 CR)**

*Prerequisite: FL 240 or three years of high school French*

In this class, students continue their in-depth study of French grammar and improvement of vocabulary. Communicative skills (listening, speaking and reading), as well as assignments, compositions, listening comprehension exercises and class discussion become more complex. 3 hrs./wk.

**FL 243**  
**CONVERSATIONAL FRENCH (2 CR)**

*Prerequisite: FL 141 or two years of high school French*

This course is designed to build spontaneous speaking ability. Everyday situations and current events will be discussed in class. 2 hrs./wk.

**FL 246**  
**CONVERSATIONAL RUSSIAN (2 CR)**

*Prerequisite: FL 151 or two years of high school Russian*

This course is designed to enhance students' ability to express themselves orally in Russian through vocabulary building and reiteration of essential grammatical structures. The vocabulary will stress everyday situations and current events. 2 hrs./wk.

**FL 270**  
**INTERM AMERIC SIGN LANGUAGE I (3 CR)**

*Prerequisite: FL 181 or INTR 121*

This course will focus on the development of intermediate American Sign Language communication skills. Emphasis will be on teaching in context comprehension skills and linguistic features of the language. 3 hrs./wk.

**FL 271**  
**INTERM AMERIC SIGN LANGUAGE II (3 CR)**

*Prerequisite: FL 270 or INTR 122*

The study of intermediate American Sign Language will continue in this course. It is designed to further intermediate communication skills in American Sign Language. Information about the linguistic and cultural features will be included in the context of language learning experiences. 3 hrs./wk.

**FL 298**  
**FRENCH CULTURE & CIVILIZATION (3 CR)**

In this travel-for-credit course, students will visit selected sites in France, where they will compare the French and U.S. languages, values, culture and institutions. Summer.

## Geoscience (GEOS)

**GEOS 130**  
**GENERAL GEOLOGY (5 CR)**

In this introductory course the students will survey the geologic processes that form and shape the earth over geologic time using the models of the rock cycle, the hydrologic cycle and the tectonic cycle. In the laboratory they will conduct hands-on activities designed to enhance and reinforce the geologic concepts they have studied. 4 hrs. lecture, 3 hrs. lab/wk.

**GEOS 140**  
**PHYSICAL GEOGRAPHY (3 CR)**

This course is a survey of the physical and environmental topics of geography, including the methods used to study them. The earth as a system and the subsystems of the atmosphere, hydrosphere, lithosphere and biosphere constitute the major units of study. Students will acquire basic terminology that they will use to explain the earth, the atmosphere and the landscape and the processes that occur on earth to change the landscape. Topics may include mapping with topographic maps and remote sensing; development and structure of the atmosphere; weather; water resources; climate; rock formation; mountain building; chemical and physical weathering; mass movement; soil formation; erosion, transportation and deposition by running water, wind, ice, currents, waves and tides; and the foundation that these processes build for the biosphere on earth. 3 hrs./wk.

**GEOS 141**  
**PHYSICAL GEOGRAPHY LAB (2 CR)**

*Corequisite: GEOS 140 or the equivalent*

Students in this course will practice their knowledge of physical geography through the collection and analysis of atmospheric data and the identification and interpretation of landforms on topographic maps and remotely sensed imagery. 4 hrs. lab/wk.

**GEOS 145**  
**WORLD REGIONAL GEOGRAPHY (3 CR)**

In this introductory course, the student will first review the basic theories of the discipline of geography, the relationship of world population and resources and the factors affecting development. Next, the student will survey the major regions of the world to identify each region's distinguishing geographic characteristics, summarize its past development and explain the key issues affecting the region's future development. 3 hrs. lecture/wk.

## **Grounds and Turf Management (KAGB)**

**KAGB 106**  
**LANDSCAPE DESIGN & MAINTENANCE (3 CR)**

This course examines the principles of planning, producing, setting out and maintaining trees, vines, groundcovers, perennials, turf and annuals. 3 hrs. lecture, 2 hrs. lab/wk.

**KAGB 115**  
**SOIL FERTILITY AND FERTILIZERS (3 CR)**

In this course, students will study different types of fertilizers for soils and crops. The components, formulation and application of fertilizers will be examined. 3 hrs./wk.

**KAGB 145**  
**IRRIGATION AND INSTALLATION (3 CR)**

In this course, students will study the design, operation and maintenance of modern golf courses and landscape facilities, including water requirements, supply and distribution. 3 hrs./wk.

**KAGB 153**  
**SPEC TOPICS/HORTICULTURE III (3 CR)**

A description is not available for this course.

**KAGB 200**  
**OCCUPATIONAL INTERNSHIP (3 CR)**

In this course, students will get on-the-job training in grounds and turf management. 15 hrs./wk.

**KAGB 206**  
**ADV LANDSCAPE DESIGN/MAINTEN (3 CR)**

*Prerequisite: KAGB 106*

In this course, students will explore planning and landscape design and the installation and maintenance of various plants. The commercial process of bidding and contracting will also be examined. 3 hrs. lecture, 2 hrs. lab/wk,

## Health Care (HC)

**HC 101**  
**INTRO TO HEALTH CARE DELIVERY (3 CR)**

This course is an introduction to the health care delivery system with an overview of health careers and the roles and responsibilities of members of the health care team. Emphasis will be on how to work within a health care team, effective communication skills, professional safety and workplace skills, and legal and ethical rights and responsibilities of patients and health care workers. 3 hrs. lecture/wk.

## Health Information Technology (KMRT)

**KMRT 110**  
**PHARMACOLOGY (1.5 CR)**

A description is not available for this course.

**KMRT 111**  
**INTRO MED.INS.OFFICE PROCEDURE (1.5 CR)**

A description is not available for this course.

**KMRT 151**  
**MEDICAL TERMINOLOGY/MEDI RDS I (3 CR)**

This course is a study of the professional language of medicine. Medical terms will be analyzed by learning word roots and combining forms. Disease processes and diagnostic and operative procedures will be studied as they apply to each system of the body. Selected medical specialties also will be presented. 3 hrs./wk.



**KMRT 160**  
**INTRO/MEDICAL RECORDS (2 CR)**

*Prerequisite: Admission to the health information technology program*

This course will offer an orientation to the medical records profession and the supporting professional organization. The history and evolution of health care delivery, health care facilities and practitioners will be examined. Supervisory functions of the medical records department also will be presented. 2 hrs./wk.

**KMRT 161**  
**HEALT REC SYS/ANALYSIS&CONTROL (3.5 CR)**

This course will be an in-depth study of the content, storage, retrieval, control and retention of medical records with special emphasis on hospital records. Forms design and control, microfilming and computer applications for medical records departments also will be included. 4.5 hrs./wk.

**KMRT 162**  
**HEALTH CARE STATISTICS (3 CR)**

*Prerequisite: KMRT 161 or approval of PVCC*

This course will cover vital and health statistics, their uses and values. Abstraction and analysis of data from medical records and collection from other sources will be studied as will the methods of presenting the data. 3.5 hrs./wk.

**KMRT 163**  
**CLASS SYS/NOMENCAL/INDEX/REGIS (4 CR)**

*Prerequisites: KMRT 200*

This course is a study of nomenclatures and classification systems used for coding and indexing diagnoses and procedures with emphasis on ICD-9-CM. 5.5 hrs./wk.

**KMRT 164**  
**QUALITY MANAGEMENT (3 CR)**

*Prerequisite: KMRT 169 or approval of the program coordinator*

Quality assurance requirements of regulatory agencies will be emphasized as will methodology in assessing quality of care. 3.5 hrs./wk.

**KMRT 166**  
**DIRECTED PRACTICE I (2.5 CR)**

*Prerequisites: KMRT 161 and BIOL 144*

This course will offer a supervised learning experience in a medical records department. A one-hour seminar will be included for the supervised discussion of directed practices experiences. 5 hrs./wk.

**KMRT 167**  
**DIRECTED PRACTICE II (2 CR)**

*Prerequisite: KMRT 166*

This course will offer a supervised learning experience in a medical records department. Students will gain experience in a variety of procedures including coding and abstracting health information, medical transcription and release of information. A one-hour seminar will be included for the supervised discussion of directed practices experiences. 5 hrs. lab/wk.

**KMRT 168**  
**DIRECTED PRACTICE III (2 CR)**

*Prerequisite: KMRT 167*

This course will provide supervised learning experiences in the medical records department of a specialized health care facility. A one-hour seminar will be included for the supervised discussion

of directed practices experiences. 4 hrs./wk.

### **KMRT 169**

#### **LEGAL ASPECTS/MEDICAL RECORDS (2 CR)**

*Prerequisite: KMRT 161 or approval of the program coordinator*

This course is a study of the principles of the legal system applied to the field of health care. Confidentiality of the medical record, informed consent, the medical record as a legal document, release of clinical information, response to subpoena and testimony will be studied. 2 hrs./wk.

### **KMRT 170**

#### **INTRO/MED INSURANCE/OFFICE PRO (1.5 CR)**

*Prerequisite: KMRT 151*

This course is an overview of medical office systems and administrative procedures, with emphasis on medical billing, compliance with regulatory agencies and technology tools, including medical transcription. 2 hrs./wk.

### **KMRT 171**

#### **PHARMACOLOGY (1.5 CR)**

*Prerequisites: KMRT 151 and BIOL 144*

This course is an introduction to basic pharmacology, with a body systems approach to disease. 2 hrs./wk.

### **KMRT 175**

#### **SPECIALIZED HEALTH RECORD SYST (2 CR)**

*Prerequisite: KMRT 164 or program coordinator approval*

This course will offer an overview of specialized health care systems with an emphasis on record maintenance, requirements of accrediting and regulating agencies, and specialized health information registers. 2 hrs./wk.

### **KMRT 180**

#### **CLASS SYST/NOMEN/INDEX/REG II (3 CR)**

*Prerequisite: KMRT 163 or approval of the instructor*

This course covers nomenclatures and classification systems for coding and indexing diagnoses and procedures. Coding systems for specialized health care facilities are also covered. 4 hrs./wk.

### **KMRT 200**

#### **INTRO/CLASSIFICATIONS SYSTEMS (1 CR)**

*Prerequisites: BIOL 144 and KMRT 151*

This course examines classification systems used to classification system will be introduced. 1 hr./wk.

### **KMRT 210**

#### **CLASS SYS &NOMEN CLTRS AMBULT (3 CR)**

*Prerequisites: KMRT 200 and BIOL 108/PVCC with a minimum grade of "C" or better or concurrent enrollment in BIOL 108/PVCC*

This course examines outpatient coding, classification and payment systems and the assignment of CPT-4 codes to procedures and services. Also included is an examination of the role of the health information technologist in ambulatory coding and billing. 4 hrs./wk.

## **Health Occupations (AVHO)**

### **AVHO 102**

#### **CERTIFIED NURSE AIDE**

This course provides classroom and clinical instruction for the primary care of clients in long-term and acute- care facilities. Students learn skills for daily hygiene, bedside care, vital sign measurement, positioning and safe transfer of clients. The class prepares and schedules the student to take the Kansas CNA examination. 96 contact hrs.

### **AVHO 103 CNA REFRESHER COURSE**

*Prerequisite: CNA Certification*

This 10-hour CNA refresher course provides both classroom and laboratory experience to update the inactive CNA. The student will discuss the responsibility of nurse's aide in current health care system and the importance of resident's rights. The student will demonstrate safety measures, infection control procedures, personal care skills, measurement of vital signs and transfers, positioning and turning. 10 contact hrs.

### **AVHO 104 CERTIFIED MEDICATION AIDE**

*Prerequisite: Proof of Kansas CNA certification*

This course includes the development of knowledge related to many commonly prescribed medications. Students will learn the classification, side effects and techniques of administration, including preparation and accurate distribution of medications. Safe administration of oral medications is discussed and demonstrated. Students will be scheduled to take the Kansas CMA examination. 80 contact hrs.

### **AVHO 106 HOME HEALTH AIDE**

*Prerequisite: Proof of Kansas CNA certification*

This course provides the student with information necessary for nutritional meal planning, task modification, emotional support and personal service to clients and families needing health care assistance at home. Students will be scheduled to take the Kansas HHA certification examination. 21 contact hrs.

### **AVHO 108 CERT MEDICATION AIDE UPDATE**

*Prerequisite: Proof of Kansas CMA certification*

This course meets the continuing education requirements for licensed certified medication aides. The course includes review of commonly used drugs and their interactions with foods and other drugs. Also included are discussions of legal implications and regulations related to administration and record keeping, biological effects of medications on the elderly and a review of basic safety principles. 10 contact hrs.

### **AVHO 110 CPR FOR HEALTH CARE PROVIDERS**

This course includes discussion of the cardiac and respiratory systems. The student will demonstrate CPR skills and airway obstruction techniques. With successful completion of this course, the student will receive basic rescuer level (health care provider) affirmation. 8 contact hrs.

### **AVHO 112 REHABILITATIVE AIDE**

*Prerequisite: Proof of Kansas CNA certification*

This course includes both classroom and laboratory instruction for the aging process as well as the role of the rehabilitative aide as a member of the health care team. Students learn the skills required to enhance the mobility of elderly residents in long-term care as well as the skills required to care for residents with special needs. A certificate from the college will be issued. 32 contact hrs.

## **AVHO 115 IV THERAPY**

*Prerequisite: Proof of LPN licensure*

This course provides review of basic physiology of the circulatory system and instruction in principles of site selection for veins appropriate for IV therapy. This course meets the Kansas requirements for LPNs seeking certification in IV therapy. 48 contact hrs.

# **Heating, Vent., Air Conditioning (HVAC)**

## **HVAC 121 BASIC PRINCIPLES OF HVAC (4 CR)**

*Prerequisite or corequisite: HVAC 123*

This is a beginning course in heating, ventilation and air conditioning technology that is appropriate for HVAC majors and other interested students. Upon successful completion of this course, the student should be able to identify the function of the basic components of an air-conditioning system. Topics will include heat laws, refrigerants, oils and refrigeration cycles of residential and light commercial systems. In the lab, students will design, assemble and operate a working refrigeration system. Competencies will include brazing, wiring, evacuating and charging a system. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

## **HVAC 123 ELECTROMECHANICAL SYSTEMS (4 CR)**

This is a beginning course in electrical theory that is required for HVAC, electrical and power plant technology, but is appropriate for all interested students. Common components found in the HVAC industry are used to develop these skills. Upon successful completion of this course, the student should be able to identify electrical components and their relationships to the various repair and troubleshooting techniques. The materials in this course will prove useful to service technicians whose background in electricity is limited. The course includes material from basic electrical theory to troubleshooting complex electrical circuits. This course will provide practice in application of electrical theory as well as in the interconnection of components of heating and cooling systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

## **HVAC 124 EQUIP SELECTION & DUCT DESIGN (4 CR)**

*Prerequisites: HVAC 121 and HVAC 123*

Upon successful completion of this course, the student should be able to identify techniques and procedures used in the residential construction industry to determine proper sizing of HVAC equipment and ducts to meet the requirements for a high-quality, comfortable climate in terms of heating, cooling, humidifying, dehumidifying, ventilation and air cleaning or filtering. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

## **HVAC 125 ENERGY ALTERNATIVES (2 CR)**

Upon successful completion of this course, the student should be able to identify diverse methods of alternate energy production. Some of the technologies that will be discussed are wind energy, photoelectric energy, nuclear energy, hydroelectric energy, biomass and alternate fuel vehicles. Students will understand the advantages of using various alternate energy technologies, the effects or by-products of each and the problems that might be encountered. Some student research will be included in the context of the course. Emphasis will be on the most promising or effective alternate energy technologies available. 2 hrs. lecture/wk.

## **HVAC 127 RESIDENTIAL SYSTEMS: HEATING (4 CR)**

*Prerequisites: HVAC 121 and HVAC 123*

Upon successful completion of this course, the student should be able to identify all the components and accessories and their relation to the functions of residential heating systems. Topics covered will be natural gas, propane, oil, forced air and hydronic-types of equipment. Emphasis will be on the electrical diagrams and mechanical principles of operation of these systems. Practical instruction in service diagnosis procedures and techniques for efficient operation, maintenance, troubleshooting and repair of these systems make up the lab portion of the course. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

### **HVAC 137 RESIDENTIAL SYS:AIR CONDITION (4 CR)**

*Prerequisite: HVAC 121 and HVAC 123*

Upon successful completion of this course, the student should be able to identify all the components and accessories and their relation to the functions of residential air conditioning systems. Topics covered will include electric and natural gas air conditioner condensing units, metering devices, evaporation coils, and refrigerants. Electrical diagrams, psychrometric charts and techniques for efficient operation, maintenance, troubleshooting and repair of these systems make up the laboratory portion of the course. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

### **HVAC 143 READING BLUEPRINT/LADDER DIAG (2 CR)**

Upon successful completion of this course, the student should be able to identify all types of industrial plant blueprints. Included will be a discussion of machine parts and drawings as well as hydraulic, pneumatic, piping and plumbing, electrical, air conditioning and refrigeration drawings. Sketching used in industrial plants will be covered. A portion of the course will cover the types and use of ladder logic and various components such as input, output and diagrams. The structure, symbols and terminology of ladder logic diagrams will be introduced. Logic and decision-making functions are presented, along with practice in creating ladder logic diagrams. 2 hrs. lecture/wk.

### **HVAC 146 PLUMBING SYSTEMS APPLICATIONS (3 CR)**

Upon successful completion of this course, the student should be able to demonstrate familiarity with many aspects of fuel gas piping, gas appliance venting, water heater installations, combustion air requirements and proper piping techniques. Classroom lectures center on methods for proper sizing of both fuel gas piping and vent sizing with emphasis on interpretation of both the Uniform Plumbing Code and the National Fuel Gas Code. There will be an emphasis on combustion air requirements. Laboratory competencies will include identification of materials and proper installation methods of fuel gas lines, vent piping systems and copper water line connections. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

### **HVAC 148 HVAC INSTALL & START-UP PROCED (3 CR)**

*Prerequisites: HVAC 121 and HVAC 123*

Upon successful completion of this course, the student should be able to identify techniques and procedures to install new systems, retrofit systems and do an initial start-up, check-out furnaces and air conditioners. Topics will include electrical requirements, flue appliance location, permit and inspections, combustion air, sheet metal ducts, and mechanical standards. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

### **HVAC 150 REFRIGERANT MANAGT/CERTIFICAT (1 CR)**

Upon successful completion of this course, the student should have knowledge and confidence

necessary to pass the EPA Refrigerant Certification exam and properly, efficiently and responsibly handle refrigerants as set forth in the Clean Air Act of 1990. 1 hr. lecture/wk.

### **HVAC 155 WORKPLACE SKILLS (1 CR)**

Upon successful completion of this course, the student should be able to identify the job skills necessary to have a successful career in the field of their choice. Topics included listening skills, oral communication, human relations, decision making/problem solving, how to work as a team, time and resource management, work ethics, career planning and resume building. 1 hr. lecture/wk.

### **HVAC 167 SHEET METAL LAYOUT/FABRICATION (3 CR)**

Upon successful completion of this course, the student should be able to identify the components, equipment and operation for sheet metal layout and fabrication. Practice problems are included at the end of each unit in order to provide the student with an opportunity to apply the methods attained by sheet metal layout. Shop facilities are available. The patterns will be fabricated and joined into a line of fittings. This gives the most complete test of pattern accuracy and also provides the experience needed by a competent layout person. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

### **HVAC 221 COMMERCIAL SYSTEMS/AIR/COND (4 CR)**

*Prerequisites: HVAC 121 and HVAC 123*

Upon successful completion of this course, the student should be able to identify cooling systems used in commercial, institutional and industrial applications. Types of equipment include reciprocating and centrifugal chillers, absorption systems, cooling towers, fans and air handlers. Topics also include psychometrics, pressure-enthalpy diagrams and commercial load calculations, evacuation and charging. 3 hrs. lecture, 3 hrs lab/wk.

### **HVAC 223 COMMERCIAL SYSTEMS:HEATING (4 CR)**

*Prerequisite: HVAC 123*

Upon successful completion of this course, the student should be able to identify large heating systems used in commercial, institutional and industrial applications. Types of equipment include hot water, low-pressure and high-pressure steam boilers; auxiliary, safety and flame safeguard controls; steam traps; condensate return; and water treatment systems. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools. 3 hrs. lecture, 3 hrs. lab/wk.

### **HVAC 229 ADVANCED CONTROLS SYSTEMS (4 CR)**

*Prerequisite: HVAC 123 and HVAC 121*

Upon successful completion of this course, the student should be able to identify the components and theory in electronic, pneumatic and direct digital control systems as they apply to HVAC systems. This course will reinforce and build on those competencies learned in HVAC 123 and HVAC 121. Classroom lectures will center on components, wiring diagrams, calibration and sequences of operation, system components, theory of operation, wiring diagrams and installation methods. Laboratory competencies include identification, calibration, maintenance and problem diagnosis of pneumatic, electronic and DDC systems, thermostat controllers and their related sensors/transmitters. Students will program a complete building energy management system. Interactive instructional media will be used in this course. 3 hrs. lecture, 3 hrs. lab/wk

### **HVAC 231 HVAC ROOFTOP UNITS (3 CR)**

*Prerequisites: HVAC 121 and HVAC 123*

Topics will include electrical controls and economizers of various rooftop units, roof curbs, installation, service, diagnosis, evacuation and charging of typical light commercial rooftop units. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 2 hrs. lecture, 3 hrs. lab/wk.

### **HVAC 235 RESIDENTIAL HEAT PUMP SYSTEMS (4 CR)**

*Prerequisites: HVAC 121 and HVAC 123*

Upon successful completion of this course, the student should be able to identify the function of all components and accessories of all electric and dual heat pump systems. Topics will include electric heat and heat pump fundamentals, principles and applications; refrigerant flow controls; defrost cycle controls; heat pump thermostats; indoor air distribution; dual fuel controls; and change-over stats. Emphasis will be on the electrical diagrams and mechanical principles of operation. These systems, as well as practical instruction in service and diagram procedures and techniques for the efficient operation, maintenance, troubleshooting and repair of these systems, will make up the lab portion of the course. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 3 hrs. lecture, 3 hrs. lab/wk.

### **HVAC 271 HVAC INTERNSHIP (3 CR)**

*Prerequisite: Approval of the division administrator*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students with on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hr. lecture, minimum 15 hrs. on-the-job training/wk.

## **History (HIST)**

### **HIST 120 LOCAL AND KANSAS HISTORY (3 CR)**

This course introduces students to the history of Kansas from the beginning of the Late Ceramic Period (1500) to the present. Emphasis will be on the examination of the living patterns of the various peoples who have inhabited the region during this time frame. This course will also analyze the social and economic factors and political objectives that transformed the central plains from the domain of the bison-hunting Plains Indian to a society based in a market-agricultural economy. 3 hrs./wk.

### **HIST 125 WEST CIV: RDGS/DISCUSSIONS I (3 CR)**

The course explores the major developments, ideas and personalities that have shaped Western civilization. Organized around a readings and discussion format, students engage some of the world's most provocative and influential literature. Western Civilization I begins with the ancient cultures of the Middle East, Greece and Rome and follows the development of Western thought from the medieval period to the Renaissance and Reformation. 3 hrs./wk.

### **HIST 126 WEST CIV: RDGS/DISCUSSIONS II (3 CR)**

The course explores the major developments, ideas and personalities that, for the past 500 years, have shaped Western civilization. Organized around a readings and discussion format, the course allows students to engage some of the world's most provocative and influential literature. Western Civilization II begins with the three revolutions that define modernity -- Scientific, French and

Industrial. The course also highlights the new ideologies of the 19th century and more recent themes of modernization and the cultural crisis of the 20th century. 3 hrs./wk.

**HIST 130**  
**EUROPEAN HISTORY FROM 1750 (3 CR)**

This course covers the major political, intellectual, and economic and social developments in Europe from the end of the 18th century to the present, including modern political ideologies, major wars, the growth of strong governments, the effect of modern science on social and political thought, the Industrial Revolution, the creation of large middle classes, and the effect of modern technology. 3 hrs./wk.

**HIST 132**  
**HISTORY OF AFRICA (3 CR)**

This course introduces students to the history of Africa until the present. It emphasizes the fundamental characteristics and long-term developments in the evolution of African political and socioeconomic institutions. 3 hrs./wk.

**HIST 135**  
**EASTERN CIVILIZATION (3 CR)**

This course is an introduction to the societies and cultures of Asia. Through lectures, readings and discussions, the course will focus on aspects of the history, politics, art, literature and economics of China, Japan and India. The major traditional themes and concepts of these civilizations will be stressed. 3 hrs. /wk.

**HIST 137**  
**AFRICAN AMERICAN STUDIES (3 CR)**

This course surveys the major themes and developments in African-American culture and history from the colonial period to the present. The course is divided into three 5-week segments. Each segment relates to a historical period - slave, post-emancipation and contemporary -- and each segment also permits a flexible, interdisciplinary approach that will include literature, arts and social sciences. 3 hrs. lecture/wk.

**HIST 140**  
**U.S. HISTORY TO 1877 (3 CR)**

This survey course in U.S. history will emphasize developments and trends in American society from the early period of discovery and settlement through Reconstruction. Topics will include the Colonial era, the Revolutionary period, the Federalist era, expansion of the Republic during the mid-19th century and Civil War and Reconstruction. The emphasis will be on analysis and interpretation of these developments. 3 hrs./wk.

**HIST 141**  
**U.S. HISTORY SINCE 1877 (3 CR)**

This survey course will emphasize developments and trends in American society from the 1870s to the late 20th century. Topics will include the Reconstruction era, industrialization, immigration, reform movements, World Wars I and II, social and cultural trends, and foreign policy. Emphasis will be on analysis and interpretation of these developments. 3 hrs./wk.

**HIST 151**  
**WORLD HISTORY I: TRAD WORLD (3 CR)**



This course provides students an introduction to the history of the major world civilizations up to approximately 1500. Upon successful completion of the course, students will be able to identify the major political, social, economic and technical developments in the histories of Egypt, Mesopotamia, other Near Eastern civilizations, Rome, Greece, India, China, sub-Saharan Africa, pre-Columbian America and medieval Europe. Students will be able to define the concept of a traditional, as opposed to a modern, society. They will be able to compare these societies with each another and with the modern society of the contemporary United States. 3 hrs. lecture/wk.

**HIST 152**  
**WORLD HISTORY II: MODERN WORLD (3 CR)**

This course provides students an introduction to the history of the world since approximately 1500. Upon successful completion, students will be able to describe and analyze the development of modernism, which occurred first in the West, including the scientific revolution, secularism, industrialism and the rise of new political ideologies. They will be able to trace the expansion of modernization in both the Western and non-Western worlds and the response to modernism in non-Western countries. 3 hrs. lecture/wk.

**HIST 160**  
**MODERN RUSSIAN HISTORY (3 CR)**

This course will survey the history, culture, foreign policy, politics and socioeconomic events in Russia from the time of Peter the Great to the present. 3 hrs./ wk.

**HIST 162**  
**MODERN LATIN AMERICA (3 CR)**

This course is an examination of the economic, social, political and cultural history of Latin America since independence. Regional identities, such as Central America, and independent national states, such as Cuba and Mexico, are explored. Literary and intellectual trends together with contemporary popular culture are featured in the course. 3 hrs./wk.

**HIST 164**  
**JAPAN: CHANGING TRADITION (3 CR)**

This self-paced course explores Japanese history, politics and economics from the early days of the Tokugawa regime from 1500 to the present. The thrust of the course is geared to exploring the themes that permeate the Japanese experience over the past two centuries.

## **Home Economics (HMEC)**

**HMEC 151**  
**NUTRITION AND MEAL PLANNING (3 CR)**

This course covers the basic food groups, their use in meal planning, their functions and their nutritional values. In addition to the current trends in eating, this course covers diets and exercise, as well as fad diets, life-cycle nutritional needs, and the effects of nutrient intake on growth and development. This is a required course for the food and beverage program and the chef apprenticeship program. 3 hrs./wk.

## **Honors Program (HON)**

**HON 250**  
**HONORS:IN SEARCH OF SOLUTIONS (3 CR)**

This course will focus on two topics during the semester and how those topics affect the local, national and global communities. The course complements other courses in the curriculum by applying the dual emphase of specific content and skill development to the areas of interaction, analysis, synthesis and conflict resolution. Students will study each issue in a historical and contemporary context, develop a greater understanding of the issues, and take a position on the issues. This position will be subjected to further challenge and dialogue. In this course, the process of reflecting, researching, analyzing and evaluating are as important as content. As points of view concerning the issue are developed, the students must articulate and defend these viewpoints as they are challenged by others and make judgments among alternative options. The first topic is selected by the faculty members, then midway through the semester, the students will select the second topic. This course will require students to use many forms of research, including the Internet and electronic databases. In addition, students will be expected to use e-mail for sharing information with classmates and instructors.

## **Horticulture (HORT)**

### **HORT 115 HOME HORTICULTURE (2 CR)**

This course provides basic knowledge for the design and management of home lawns, flower and vegetable gardens, and landscape trees and shrubs. Students will learn basic plant anatomy and physiology concepts; how to recognize some common plant deficiency symptoms; the use of fertilizers and pesticides; identification of some common trees, shrubs and garden plants; and the major considerations of good landscape design. 1 hr. lecture, 2 hrs. lab/wk.

### **HORT 120 INTRO TO URBAN AGRIBUSINESS (3 CR)**

This is a general survey course for students who wish to learn more about the broad field of agribusiness. Particular emphasis is on the many facets of landscape and grounds management. Career areas that will be covered are interior landscaping, greenhouse management, the position of pesticide applicators' and

### **HORT 130 LANDSCAPE DESIGN/MAINTENANCE (3 CR)**

This course is designed to familiarize students with aspects of landscape design, plant selection and maintenance. Upon completion, the student will be able analyze both the site and the preferences of the person requesting the design. The student will be introduced to the concepts and principles of landscape design as well as the walls and ceilings of the outdoor room or landscape. The course will cover form, texture and color in both plant selection and embellishments. The student will learn how to complete and apply a landscape design and make a hand drawing as well as be introduced to the concept, application and procedures of computer-aided design. 3 hrs. lecture/wk.

### **HORT 140 TURF MANAGEMENT I (3 CR)**

This course is designed to familiarize students with all the major cool- and warm-season turfgrasses as well as with the adaptation and tolerances, cultural management, and major disease and insect pests of each major category of turfgrass. Upon successful completion of this course, students should demonstrate the ability to properly identify the major categories of turfgrass and to establish a turfgrass based on their knowledge of seeding, sodding, sprigging, plugging and past establishment procedures. Students should also be able to develop a pest and disease control program for each major category of turfgrass. 3 hrs./wk.

### **HORT 150 FRUITS,VEGETABLES & HERB CROPS (2 CR)**

This course is designed to familiarize garden center employees with the plant materials and production of crops many homeowners use and grow. This course will help the employee answer many homeowner questions about production, varieties and potential crop problems. Home hobbyists may also wish to enroll in this course. 1 hr. lecture, 2 hrs. lab/wk.

**HORT 160**  
**GARDEN CENTER OPERATIONS (3 CR)**

This course is designed for garden center employees and provides background on the elements necessary for success in a competitive retail environment. The business organization is emphasized, including environmental monitoring, selling, inventory issues, merchandising, advertising, cost effectiveness, labor/team relationships and customer service. In addition, safety and legal issues are examined. 3 hrs. lecture/wk.

**HORT 201**  
**INTRODUC/HORTICULTURAL SCIENCE (4 CR)**

*Prerequisite: High school biology/botany or concurrent enrollment in BIOL 125*

This is an introduction to the principles and practices of horticultural plant systems. Plant structure and function will be discussed, along with the effects of environmental factors on plant growth. General cultural practices will be described, including pest control, mineral nutrition and plant propagation. 3 hrs. lecture, 2 hrs. lab/wk.

**HORT 205**  
**PLANT PROPAGATION (3 CR)**

*Prerequisite: HORT 201*

This course provides basic knowledge of the art and science of sexual and asexual methods of propagating plants. Students study the processes of seed development, seed dormancy, germination, root initiation and grafting. Students will learn basic seed sowing, cutting and grafting skills. The students will be able to demonstrate the selection of appropriate propagation methods and choose the proper environmental conditions necessary to achieve successful propagation of seeds or cuttings. 2 hrs. lecture, 2 hrs. lab/wk.

**HORT 210**  
**CONCEPTS OF FLORAL DESIGN (3 CR)**

This is an introductory course for students to learn the design basics of flower arranging. The course will help the students develop an eye for color combinations, flow of lines, balance, geometric shapes and textures in materials used, mechanics of design, customer perspectives and the post-harvest care of floral materials. 2 hrs. lecture, 3 hrs. lab/wk.

**HORT 214**  
**WOODY PLANTS I, DECIDUOUS (3 CR)**

This course will assist the grounds maintenance employee, landscaper, garden center employee and home hobbyist in identifying plant materials used in the landscape. This class places emphasis on deciduous trees sold in garden centers and used in climatic zones 5 and 6. Plant uses, specific characteristics, cultivation, seasonal effects and influences that affect plant choices will be taught. 2 hrs. lecture, 3 hrs. lab/wk.

**HORT 215**  
**WOODY PLANT II, EVERGREENS (3 CR)**

This course will assist the grounds maintenance employee, landscaper, garden center employee and home hobbyist in identifying evergreen trees and shrubs and flowering shrubs sold in garden centers used in climatic zones 5 and 6. The plant uses, specific characteristics, plant cultivation, seasonal effects, influences that affect plant choices and customer services attributes will be taught. 2 hrs. lecture, 3 hrs. lab/wk.

**HORT 220**  
**HERBACEOUS PLANTS (3 CR)**

This course will focus on the identification and uses of perennials, annuals, bulbs, ground covers and vines. The course will assist the grounds maintenance employee, landscaper, garden center employee and home hobbyist in identifying and selecting herbaceous plant materials used in the landscape. Culture and care will be covered, with additional emphasis on uses and maintenance. The student will also cover the more creative aspects of landscape enhancement and uses of herbaceous plants in garden design. 2 hrs. lecture, 3 hrs. lab/wk.

**HORT 225**  
**PLANT PROBLEMS (3 CR)**

*Prerequisites: HORT 214 and HORT 220*

This course is a broad-spectrum overview of plant insects diseases and nutrition. Students will look at plants to identify the common characteristics found when diagnosing plant problems. Identification, treatment and treatment alternatives will be considered to help customers make diagnostic decisions for the use of chemicals and integrated pest management techniques (IPM). 2 hrs. lecture, 3 hrs. lab/wk.

**HORT 230**  
**LANDSCAPE MAINT/TECHNIQUES (4 CR)**

*Prerequisite and/or corequisite: HORT 225*

This course prepares garden center and lawn care professionals for the total care of the landscape. Mowing, edging, pruning techniques, fertilization, watering, spray schedules and weed control will be covered. Mulches, construction materials and equipment used in maintaining landscapes and seasonal enhancements are examined as they pertain to the landscape. Irrigation systems repair and maintenance for residential and commercial landscapes will be discussed. In addition, the student will learn to design preventive strategies and identify and examine disease and insect damage as well as maintain good customer relations. 3 hrs. lecture, 3 hrs. lab/wk.

**HORT 240**  
**TURFGRASS MANAGEMENT II (3 CR)**

*Prerequisite: HORT 140*

More specific information is provided on turfgrass management. Topics include green construction, top dressing, sprayer calibration, management programs (e.g., setting up a lawn care program) and the influence environment has on turfgrass growth. 3 hrs. lecture/wk.

**HORT 255**  
**LANDSCAPE PEST CONTROL (3 CR)**

This course will explore the general concepts of turf and ornamental maintenance and pest control in the local area. The student will become familiar with federal and state regulations pertaining to horticulture chemical application. Upon completion of this course, the student should be prepared to take the Kansas or Missouri licensing examination to become a certified applicator of restricted horticultural pesticides and herbicides. 3 hrs. lecture/wk.

## **Hospitality Management (HMGT)**

**HMGT 120**  
**FOOD SERVICE SANITATION (1 CR)**

This course covers the basic principles of providing and serving safe food. It also provides the student with safe food-handling procedures necessary to manage a sanitary and safe food service operation in compliance with the National Food code and the National Restaurant Association. 1 hr. lecture/wk.

**HMGT 121**  
**HOSPITALITY MGT FUNDAMENTALS (3 CR)**

Upon successful completion of this course, the student should be able to understand and describe the organization of the food service and public lodging industries. The student should also be able to describe the departmental functions, positions of the industries in the American economic system, and functions and limitations of these types of establishments. 3 hrs./wk.

**HMGT 123**  
**BASIC FOOD PREPARATION (3 CR)**

The student should be able to demonstrate skills in grilling, frying, broiling, sauteing, recipe conversion, salad preparation and the production of the five basic sauces. Also, the student should be able to operate the food service equipment used in commercial kitchens in a safe manner. 3 hrs./wk.

**HMGT 126**  
**FOOD MANAGEMENT (4 CR)**

*Prerequisites: HMGT 123, HMGT 145, HGMT 230, HMGT 277 and admission to the hospitality management program*

This course offers an overview of restaurant management practices used in the hospitality industry. Emphasis will be on demonstrating the components of menu planning and the styles of food service used for various occasions -- buffet service and French, Russian and American service. The student will participate in the operation of the campus restaurant, including food preparation, service, sales promotion, purchasing and costing. 7 hrs./wk.

**HMGT 128**  
**SUPERVISORY MANAGEMENT (3 CR)**

Upon successful completion of this course, the student should be able to analyze and explain basic supervisory management skills, management styles, motivation with emphasis on human relations, delegation, training, evaluation and communication. In addition, the hiring and firing functions within FLSA guidelines will be covered. 3 hrs./wk.

**HMGT 130**  
**HOSPITALITY LAW (3 CR)**

This course offers an overview of product and dram shop liability as well as of the various areas of federal and state legislation that regulate the hospitality industry. Emphasis will be on familiarizing the hospitality manager with ways to avoid costly and time-consuming lawsuits. A manager's or owner's legal rights and responsibilities also will be discussed. Upon successful completion of this course, the student should be able to recognize potential legal problems. 3 hrs./wk.

**HMGT 132**  
**SEMINAR:HOUSEKEEPING OPERATION (3 CR)**

This course presents a systematic approach to managing housekeeping operations in the hospitality industry. The course will also include related health department and OSHA regulations. While enrolled in this class, a student must work a minimum of 15 hours a week in a lodging operation. The work experience is concurrent but does not necessarily concentrate on the subject being taught in the course. 2 hrs./wk.

**HMGT 145**  
**FOOD PRODUCTION SPECIALITIES (3 CR)**

*Prerequisite: HMGT 123*

This course covers the fundamentals of convenience baking, hors d'oeuvre and cold kitchen preparation. It provides knowledge of and basic skills in the pastry kitchen, where the student can

handle convenience products from the frozen or dried state and produce finished pies, cakes and dessert items. It provides further knowledge of and skill in the garde-manger kitchen, specifically making salads, cocktail hors d'oeuvres and cocktail sandwiches, as well as making economic purchases for gourmet food items. In addition, the student will learn how to make intermezzo ices, identify different types of cheese, and design and make a general plan for a buffet. 1 1/2 hrs. lecture, 2 hrs. lab/wk.

**HMG 203**  
**HOTEL SALES AND MARKETING (3 CR)**

*Prerequisites: HMG 121 and admission to the hospitality management program*

This course will focus on practical sales and marketing techniques for the hotel industry. It will cover a marketing plan and advertising campaign for a hotel, including identifying target markets, prospecting for sales leads and using sales techniques. 3 hrs. lecture/wk.

**HMG 221**  
**DESIGN TECHNIQUES (3 CR)**

*Prerequisites: HMG 123 and HMG 271*

This course includes detailed information about food service design that covers layout, design and equipment specifications. In addition, facilities operations will be discussed regarding electrical, water and transportation systems, refrigeration, waste disposal, energy management, and HVAC. Preventive maintenance will be emphasized. 3 hrs./wk.

**HMG 223**  
**FUNDAMENTALS OF BAKING (3 CR)**

*Prerequisite: HMG 145*

Upon successful completion of this course, the student should be able to demonstrate an understanding of bakeshop production as it relates to the basic principles of ingredients, measurements, mixing, proofing, baking and final presentation. In addition, the student will be able to identify the various types of baking equipment used in the preparation of bakeshop products. The class includes lecture and participation. 1 hr. lecture, 2.5 hrs. lab/wk.

**HMG 226**  
**GARDE-MANGER (3 CR)**

*Prerequisite: HMG 123 and HMG 145*

This course is designed for the student to learn cold food production and charcuterie. The course will allow the student to develop fundamental principles of the cold kitchen and modernize traditional methods of salad preparation. 1 hr. lecture, 2.5 hrs. lab/wk.

**HMG 228**  
**ADVANCED HOSPITALITY MANAGEMENT (3 CR)**

*Prerequisite: Hospitality management program approval*

This course includes detailed information about various components of menu planning, food service, supervision, design and beverage control. In addition, an understanding of the external factors affecting the hotel-restaurant industry will be discussed. Skills necessary to secure a position in management within the hospitality industry will be emphasized, and case studies and computer simulation (HOTS) will be used for critical thinking analysis. Business plans will be developed as part of the course project. 3 hrs./wk.

**HMG 230**  
**INTERMEDIATE FOOD PREPARATION (3 CR)**

*Prerequisite: HMG 123*

This course is designed to help the student's transition from basic to intermediate food skills. Upon successful completion of this course, the student should be able to demonstrate the skills necessary to prepare standard menu items as well as a range of American regional cuisines. This course consists of lecture, demonstration and participation in food preparation. 1 hr. lecture, 2.5 hrs. lab/wk.

**HMGT 231**  
**ADVANCED FOOD PREPARATION (4 CR)**

*Prerequisites: HMGT 145 and HMGT 230*

This course is designed to develop a student's advanced culinary skills in preparation of international cuisine commonly served in today's operations in Latin America, Europe, Asia, the Middle East, the Far East and the Pacific area. 4 hrs. lecture/wk.

**HMGT 240**  
**ADVANCED BAKING (4 CR)**

*Prerequisites: HMGT 123 and HMGT 223*

This course covers the principles needed to enter the baking and pastry industry. The course provides knowledge of specialty ingredients and techniques needed to make tortes, finished desserts and a wedding cake. The student will be instructed in the making of these items through lecture and will prepare a variety of such items in lab. 4 hrs. lecture, lab/wk.

**HMGT 248**  
**CONFECTIONERY ARTS (3 CR)**

This course covers the design and production of artistic centerpieces made from confections. It provides knowledge of and basic skills in making decorative dining table centerpieces using food products such as cooled and pulled sugar syrup, isomalt, pastillage, marzipan and chocolate. The student will be instructed in the preparation of these ingredients and will construct center and showpieces after viewing demonstrations. 4.5 hrs. lecture, lab/wk.

**HMGT 250**  
**INTRODUCTION TO CATERING (3 CR)**

This course includes detailed information about the different types of catered events within the hospitality industry. Topics covered include the importance of marketing, contract writing, food production, room arrangements and required personnel relative to specific catered events. 3 hrs. lecture/wk.

**HMGT 265**  
**FRONT OFFICE MANAGEMENT (3 CR)**

This course provides a full understanding of the flow of business, from the front office, beginning with the reservations process to checkout and settlement. It also includes the night audit and statistical analysis of rates and revenue management. 3 hrs./wk.

**HMGT 268**  
**HOTEL ACCOUNTING (3 CR)**

*Prerequisites: MATH 120, HMGT 121 and HMGT 273*

This course introduces the student to basic hotel managerial accounting. This includes accounting concepts, processing data and the flow of financial information within a hotel. The course provides a working knowledge of an income statement, balance, statement of owner's equity and cash flows. 3 hrs. lecture/wk.

**HMGT 271**  
**SEMINAR HMGT MGT: PURCHASING (3 CR)**

This course offers an overview of purchasing techniques and specification writing for commodities used in the hospitality industry. Emphasis will be on decision-making skills in the areas of quality, quantity, specifications and general value analysis. Two hours in class and a minimum of 15 hours a week are required in a supervised work situation in an approved area of the hospitality industry. Work experience is concurrent but does not necessarily concentrate on the subject being taught in the course.

**HMGT 273****SEMINAR HMGT MGT: ACCOUNTING (3 CR)**

*Prerequisites: MATH 120 or higher and HMGT 121*

This course includes detailed information on how to prepare operation statements for a food service operator, including inventory and control systems. Areas of concentration will be food cost controls, labor cost controls, purchasing controls and profit production. The practice set will be used to reinforce control systems. 2 hrs./wk.

**HMGT 275****SEM HOSPITALITY MGT INTERNSHIP (3 CR)**

*Prerequisite: Admission to the Hospitality Management program*

This course provides industry experience for students in cooperating businesses, agencies and organizations. While enrolled in this course, a student must work a minimum of 320 hours in an approved position in the hospitality industry. By arrangement.

**HMGT 277****SEM MENU PLANNING SALES PROMO (3 CR)**

*Prerequisite: HMGT 123*

This course covers the components of menu planning for every type of service and facility. This course also covers menu layout, selection development, price structures and the theory of menu design. A minimum of 15 hours a week is required in a supervised work situation in an approved area of the hospitality industry. Work experience is concurrent but does not necessarily concentrate on the subject being taught in this course. 2 hrs./wk.

**HMGT 279****BEVERAGE CONTROL (3 CR)**

This course covers the history of wines and their use and storage procedures. The students should gain an understand of beverage control and how it is used in all types of operations. The course will also cover in-depth study of spirits, internal control systems and local/state alcoholic beverage control laws. 3 hrs./wk.

**HMGT 281****CULINARY ARTS PRACTICUM I (2 CR)**

*Prerequisite: Acceptance into the American Culinary Federation Chef Apprenticeship training program and approval of hospitality management academic director*

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation.

**HMGT 282****CULINARY ARTS PRACTICUM II (2 CR)**

*Prerequisite: HMGT 281*

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum I.

**HMGT 285****CULINARY ARTS PRACTICUM III (2 CR)**

*Prerequisite: HMGT 282*

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum II.



**HMG 286**  
**CULINARY ARTS PRACTICUM IV (2 CR)**

*Prerequisite: HMG 285*

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum III.

**HMG 287**  
**CULINARY ARTS PRACTICUM V (2 CR)**

*Prerequisite: HMG 286*

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum IV.

**HMG 288**  
**CULINARY ARTS PRACTICUM VI (2 CR)**

*Prerequisite: HMG 287 and approval of hospitality management assistant dean*

A qualified chef who is a member of the American Culinary Federation will supervise this on-the-job apprentice training. Upon successful completion of this course, the student should be able to apply food preparation and presentation techniques and gain experience in all phases of food service operation. This course is a continuation of Culinary Arts Practicum V.

## Humanities (HUM)

**HUM 122**  
**INTRODUCTION TO HUMANITIES (3 CR)**

This interdisciplinary study begins with a look at artistic and technical elements of several art forms, including painting, sculpture, architecture, music, theater, film, dance and literature. Major themes expressed in the works and their reflection of the values of their culture are also examined.

**HUM 137**  
**INTRO TO RUSSIAN CULTURE (3 CR)**

This course is a survey of the cultural history of Russia from the ninth century to the present. The approach will be interdisciplinary, examining representative examples of Russian art, architecture, music, theater, dance, literature and philosophy in their historical context. In addition to developing the students' appreciation of Russia's contribution to world culture, the course aims to enhance students' understanding of the contemporary world. 3 hrs. lecture/wk.

**HUM 138**  
**INTRO/RUSSIAN CULTURE/FIELDSTY (1 CR)**

*Prerequisite: HUM 137 or approval of instructor*

This course is the field study portion of the HUM 137, Introduction to Russia, course. Students study, on site, selected works of art, architecture, music, literature, theater and film for the various historical periods from the perspective of Russian experts in these fields. In addition, students enhance their knowledge of Russian history by visiting the sites of many of the major events that have shaped the development of Russia's culture. 2 hrs. lab/wk.

**HUM 145**  
**INTRO TO WORLD HUMANITIES I (3 CR)**

This course will acquaint students with the arts and ideas of the world's major civilizations, from

antiquity through the late Middle Ages (pre-Renaissance). The approach will be interdisciplinary, covering the artistic values embodied in painting, sculpture, architecture, literature, theater, music and dance as they have emerged out of their historical contexts. In addition to providing the fundamental principles, methodologies and theories used in the study of the humanities, the course aims to enhance students' understanding of the contemporary world. 3 hrs. lecture/wk.

### **HUM 146** **INTRO TO WORLD HUMANITIES II (3 CR)**

This course will acquaint students with the arts and ideas of the world's major civilizations, from the Renaissance to the present. The approach will be both interdisciplinary and chronological, covering the artistic values embodied in painting, sculpture, architecture, literature, theater, music and dance as they have emerged from their historical contexts. In addition to providing the fundamental principles, methodologies and theories used in the study of the humanities, the course aims to enhance students' understanding of the contemporary world. 3 hrs. lecture/wk.

### **HUM 155** **CLASSICAL MYTHOLOGY (3 CR)**

This course provides a systematic study of the myths and epic cycles of the Greeks and Romans in both literature and art and investigates their survival and metamorphosis in the literature and visual arts of Western Europe. In addition, this course provides several methodological frameworks with which to analyze several types of tales and their relation to history, religion, rituals and art.

### **HUM 164** **CIVILIZATION (3 CR)**

This course covers the major ideas and events of Western civilization communicated through the arts. The course begins after the fall of the Roman Empire and includes material to the 20th century.

## **Industrial Technology (INDT)**

### **INDT 125** **INDUSTRIAL SAFETY (3 CR)**

Upon successful completion of this course, the student should be able to identify various industrial safety and health considerations, list basic safety rules and regulations, identify the proper personal protective equipment needed for common industrial tasks and recognize the need for an ongoing safety program. 3 hr. lecture/wk.

### **INDT 140** **QUALITY IMPROVEMENT USING SPC (2 CR)**

Upon successful completion of this course, the student should be able to describe and apply basic concepts of quality improvement. This course will examine the application of the "Transformation of America" concept to American businesses. Statistical process control will be introduced as a tool to improve quality. W. Edwards Deming's 14 points and the management changes required to implement quality improvement also will be covered. 2 hrs. lecture/wk.

### **INDT 155** **WORKPLACE SKILLS (1 CR)**

Upon successful completion of this course, the student should be able to identify the job skills necessary to have a successful career in the field of his or her choosing. Topics include listening

skills, oral communication, human relations, decision making/problem solving, how to work as a team, time and resource management, work ethics and career planning. 1 hr. lecture/wk.

## Information Technology (IT)

### **IT 200** **NETWORKING TECHNOLOGIES (3 CR)**

This course is designed to provide students with the fundamentals of networking technology. Concepts covered include network terminology and protocols, network standards, LANs and WANs, the layers of the OSI reference model, cabling practices, network topologies, and IP addressing. This course is offered in an online format with no labs. 3hrs./wk.

### **IT 205** **IMPLEMENTING WINDOWS CLIENT (3 CR)**

The focus of this course is the use of Microsoft Windows as an operating system in a business environment. Planning a simple network system, installation and configuration of the software and hardware, resource management, connectivity, running application software under Windows, monitoring and optimizing system hardware, and troubleshooting all lead the student to a deeper understanding of local area network use and administration. 2 hrs. lecture, 3 hrs. lab/wk.

### **IT 210** **NETWARE ADMINISTRATION (3 CR)**

*Prerequisites: IT 200 and ELEC 124 and either IT 205 or IT 220*

This course is designed to provide students with the necessary knowledge and skills to perform competently in the role of a NetWare network administrator. Students completing this course will be able to accomplish basic network management tasks. Topics covered include managing user accounts; planning and managing the network file system; managing NetWare Directory Services (NDS); implementing login, file system and NDS security; and implementing network printing. 2 hrs. lecture, 3 hrs. lab/wk.

### **IT 221** **WINDOWS SERVER (3 CR)**

*Prerequisites: IT 200 and ELEC 124 and either IT 205 or IT 220*

This course is designed to provide students with the knowledge and skills to perform competently in the role of a network administrator using the Windows Network Operating System. Students completing this course will be able to accomplish basic fundamental network management tasks, including planning server roles and subsequent requirements, planning the network file system, implementing user accounts and file system security, implementing network printing, and managing the network servers. 2 hrs. lecture. 3 hrs. lab/wk.

### **IT 225** **WINDOWS ACTIVE DIRECTORY SERVI (3 CR)**

*Prerequisite: IT 221*

The focus of this course is using Microsoft Windows 2000 Server or Advanced Server software to install, configure and troubleshoot Active Directory components, Domain Name Space (DNS) for Active Directory and Active Directory security solutions. The course also emphasizes the skills required to manage, monitor and optimize the desktop environment using Group Policy. 2 hrs. lecture 3 hrs. lab/wk.

### **IT 227** **SQL SERVER ADMINISTRATION (3 CR)**

*Prerequisite: IT 221*

Upon successful completion of this course, the student should be able to administer an SQL server installation. Topics covered include installing, upgrading and configuring SQL servers using

SQL utilities; working with databases and users; backing up and restoring databases and log files; automating maintenance tasks; managing, copying and moving data; replicating; tuning; and troubleshooting. 2 hrs. lecture, 3 hrs. lab/wk.

**IT 228**  
**EXCHANGE SERVER (3 CR)**

*Prerequisite: IT 225*

This course is designed to provide network administrators with information that enhances their ability to manage an Exchange server network. Included are topics related to server and client mail management and server performance, e-mail concepts and advanced Internet networking. 3 hrs. lecture, 2 hrs. lab/wk.

**IT 230**  
**UNIX ADMIN AND NETWORKING (3 CR)**

*Prerequisites: IT 200 and ELEC 124 and either IT 205 or IT 220*

This course is designed to provide students with a fundamental understanding of the UNIX operating system environment. Students successfully completing this course will be able to plan server rolls and subsequent requirements, execute common Unix commands and utilities, and accomplish basic system tasks such as navigating the file system, applying file system security, managing user accounts, installing and configuring user software, using the printing environment, and managing the resources of a basic Unix system. 2 hrs. lecture, 3 hrs. lab/wk.

**IT 231**  
**UNIX ADMINSTRAT IN ENTERPRISE (3 CR)**

*Prerequisite: IT 230*

This course is designed to provide students with the necessary knowledge and skills to perform competently as a Unix system administrator. Students successfully completing this course should be able to perform basic system administration tasks including installing, configuring and troubleshooting a basic Unix system, managing devices, implementing the printing environment, creating and maintaining file systems, installing packages, and configuring the graphica user interface. 2 hrs. lecture, 3 hrs. lab/wk.

**IT 245**  
**NETWORK INFRASTRUCTURE (3 CR)**

*Prerequisite: IT 221*

This course is designed to provide an in-depth understanding of the ability to install, manage, monitor, configure and troubleshoot DNS, DHCP, Remote Access, Network Protocols, IP Routing and WINS in a Windows 2000 network infrastructure. In addition, it will provide an in-depth understanding of the ability to manage, monitor and troubleshoot Network Address Translation and Certificate Services. Laboratory exercises will accompany the lectures. 2 hrs. lecture, 3 hrs. lab/wk.

**IT 246**  
**INTRODUCTION TO ROUTERS (3 CR)**

*Prerequisite: IT 200*

This course is designed to provide students a fundamental understanding of network routing and the operation of routers. Topics include installing and configuring routers, OPSF and Link State routing protocols, working with metrics and route selection, and TCP/IP configuration. Programming and setup using Cisco routers will be conducted. Laboratory exercises will accompany lectures. 2 hrs. lecture, 3 hrs. lab/wk.

**IT 247**  
**INTRO TO WIDE-AREA NETWORKS (3 CR)**

*Prerequisite: IT 246*

This course is designed to provide students a fundamental understanding of internetworking. Topics include local area network segmentation using switches and routers. Wide area network physical technologies will be studied. Configuring WAN protocols using PPP, ISDN and Frame Relay will be presented. Securing the network with standard and extended access lists will be

performed. IP and IPX routing will be covered. Programming and configuration will be conducted using Cisco routers and switches. Laboratory exercises will accompany lectures. 2 hrs. lecture, 3 hrs. lab/wk.

**IT 249**  
**ADVANCED ROUTING (3 CR)**

*Prerequisite: IT 247*

This course provides advanced instruction of Cisco routers found in medium to large networks. It is intended for students preparing for advanced Cisco certification. Upon completion of this course, the student will be able to select and implement the appropriate Cisco services required to build a scalable router network. Topics covered include extending IP addressing, implementing OSPF for a single area and multiple areas, configuring EIGRP, and implementing BGP. This course will follow semester five in the Cisco Networking Academy curriculum.

**IT 250**  
**NETWORKING SEMINAR (3 CR)**

*Prerequisite: IT 240 or ELEC 185 and either IT 211 or IT 222*

This course is designed to teach advanced concepts in information technology. Topics covered are section specific and include e-mail servers, Web servers, database servers, routing, switching and advanced LAN design concepts. Prerequisites are posted for each section. Students may use this course as a capstone for applying concepts and procedures developed in previous courses using realistic business scenarios. 2 hrs. lecture, 3 hrs. lab/wk.

**IT 271**  
**INFORMATION TECH INTERNSHIP I (3 CR)**

*Prerequisites: IT 210 or IT 221 or IT 230 and approval of division administrator*

This course affords the student the opportunity to apply classroom knowledge to an actual work environment. It will provide advanced information technology students with appropriate on-the-job experience with area employers, under instructional oversight, which will promote the student's career goals. Student will work a total of 225 hours a semester at an approved job site.

**IT 272**  
**INFORMATION TECH INTERNSHIP II (3 CR)**

*Prerequisites: IT 271 and approval of the division administrator*

This course is a continuation of IT 271, Internship I. It provides the student additional opportunity to apply classroom knowledge to an actual work environment. Students will work 15 hours a week for a total of 225 hours of approved work experience.

## **Interactive Media (CIM)**

**CIM 130**  
**INTERACTIVE MEDIA CONCEPTS (2 CR)**

This is a survey course, that introduces students to the interactive media field. Topics to be covered include the definition of interactive media, the basic stages of interactive media creation and project management fundamentals. Current and future trends in interactive media will also be covered. 2 hrs. lecture/wk.

**CIM 133**  
**SCREEN DESIGN (4 CR)**

*Prerequisites: CDTP 135 and CDTP 131 or CDTP 140 or BOT 260*

This course will cover fundamental visual principles and the creation of graphic elements, as well as the layout of those visual elements, for the computer screen. Visual perception, composition, color and typographic principles will be covered as applicable to presentation graphics, Web graphics, CD-ROM and kiosk graphics. Cross platform issues will be addressed. This course is intended to provide nondesigners with fundamental visual literacy. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 135**  
**DIGITAL IMAGING AND VIDEO (3 CR)**

*Prerequisite: CDTP 135 Recommended: PHOT 121*

This course provides an introduction to electronically mediated photography, including digital video. The course covers basic concepts of photographic communication and design. The course covers basic techniques of electronic photography, including operation of input devices, two-dimensional and time-based computer imaging and digital video production software programs and output devices. Recommended prior courses are Fundamentals of Photography and Introduction to Photoshop. 6 hrs. integrated lecture, lab/wk.

**CIM 140**  
**INTERACTIVE MEDIA ASSETS (4 CR)**

*Prerequisites: CDTP 135 and CDTP 145 and CWEB 105 and CWEB 130 Prerequisite or Corequisite: CIM 130*

This course explores the creation, acquisition and management of assets for use in the development of interactive media. Assets to be covered include digital graphics, digital sound, digital video and computer-based animation. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 152**  
**INTERACTIVE AUTHOR I:AUTHORWAR (4 CR)**

*Prerequisite: CIM 130 Prerequisite or corequisite: CIM 140*

This course will focus on the icon-based scripting approach to interactive media authoring/programming. The course will introduce concepts about the way interactive media works and the development strategies used, which will orient students to the peculiarities of the CD-ROM and intranet delivery of computer-based training, interactive marketing and catalogs. Students will examine specifications for each project, carefully analyze individual applications and, as a class, establish a set of criteria that define what works, what doesn't work, and why. Upon completion of this course, the student should be able to produce an Authorware interactive media presentation, which includes text, graphics, sound, movies and animation. The student will have the skills needed to create both a linear presentation and an interactive presentation. Navigational strategies for CD-ROM and Internet will be discussed. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 154**  
**INTERACTIVE AUTHOR I:DIRECTOR (4 CR)**

*Prerequisite: CIM 130 Prerequisite or corequisite: CIM 140*

This course will provide a hands-on approach to authoring/programming. Upon completion of this course, the student should be able to produce a Director interactive media or Internet presentation, that includes text, graphics, sound, movies and animation. The student should have the skills needed to create both a linear presentation and an interactive presentation. Navigational strategies for CD-ROM and Internet will be discussed. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 156**  
**INTERACT AUTHORIZING I: WEB (4 CR)**

*Prerequisite: CIM 130 Prerequisite or corequisite: CIM 140*

This course will focus on the front-end aspects of Web design, HTML, authoring, graphics production and media development. The course will introduce concepts about the way the World Wide Web works, which will orient students to the peculiarities of the Web and introduce them to new technologies that are destined to have an important effect on the Web's future but are currently in various stages of development. Students will examine specifications for each project, carefully analyze individual sites and, as a class, establish a set of criteria that define what works, what doesn't and why. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 200**  
**INTERACTIVE COMMUNICATION FORM (3 CR)**

*Prerequisites or corequisites: CIM 130 and CIM 140*

This course will focus on concepts and forms of human communication historically, currently and in the future of our culture. Immediated and mediated forms of communication, such as lecture, telephony, television, print and computer interaction, will be explored. Particular attention will be given to how communication forms affect content. Emphasis will be on the integration of

communication forms as demonstrated by interactive media applications. 3 hrs. lecture/wk.

**CIM 230**  
**INTERACTIVE MEDIA DEVELOPMENT (4 CR)**

*Prerequisite: CIM 152 or CIM 154 or CIM 156 Prerequisite or Corequisite: CIM 200 Corequisite: CIM 250*

The course will provide a conceptual as well as a hands-on exploration of the development process for interactive media. Information design, interaction design and presentation design will be equally emphasized. Students produce a series of projects starting with the use of text and graphics and building toward more complex projects employing animation and video. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 235**  
**ADVANCED DIGITAL VIDEO (3 CR)**

*Prerequisite: CIM 135*

This course provides advanced instruction in the production and applications of digital video. The course covers advanced concepts and techniques in video design and production, from the initial preproduction scripts and storyboards through actual shooting to nonlinear editing, mastering and output. The emphasis is on in-depth, advanced, practical experience in producing professional-level video products for a variety of applications, including education, corporate, documentary and entertainment. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 250**  
**INTERFACE DESIGN (4 CR)**

*Prerequisite: CIM 152 or CIM 154 or CIM 156 Prerequisite or Corequisite: CIM 200 Corequisite: CIM 230*

This course will specifically focus on the issues and complexity of interface design for interactive media applications. Students are provided an in-depth the use of the building blocks of interface design: backgrounds, windows and panels, buttons and controls, text, images, sound, video and animation. Through readings, critiques, exercises and discussions, students will explore what makes the interface of an interactive media application successful. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 252**  
**INTERACTIVE AUTH II:AUTHORWARE (4 CR)**

*Prerequisite: CIM 152*

This course will build upon the basic skills covered in the first Authorware course. Many of these topics relate to the use of functions, variables and UCDs in Authorware. Projects will include creating a user login system with individual user bookmarks, creating an Internet browser window within an Authorware application, creating an application that reads student records information from a text file and writes student records information to a text file. Students will learn to create intelligent authoring wizards, which can dynamically create and modify Authorware icons and logic. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 254**  
**INTERACT AUTHORIZING II:DIRECTOR (4 CR)**

*Prerequisite: CIM 154*

At completion of this course, the student should be able to create Director applications using Director's scripting language and the Internet capabilities of Macromedia Director. The primary emphasis of the course is hands-on experience with the Lingo, Behaviors, Shockwave and scripts of Director. During the course, students will be involved in learning advanced Lingo. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 270**  
**INTERACTIVE MEDIA PROJECT (4 CR)**

*Prerequisites or corequisites: CIM 200 and CIM 230 and CIM 250*

This project-oriented course will require students to actively participate in a group interactive media project, which will require each student to analyze the problem; write a project proposal; design, produce and gather assets for the project; prototype and create a project; and test and test

and evaluate the final project. 3 hrs. lecture, 2 hrs. lab/wk.

**CIM 271**  
**CAREER PREPARATION (2 CR)**

*Prerequisite: CIM 230 and CIM 250 Prerequisite or Corequisite: CIM 270*

This course will provide interactive media majors instruction in the presentation of his or her work in a digital portfolio format of professional quality. A printed and written resume will be produced. Self-promotion, networking, job searches and interview skills will also be covered. 2 hrs. lecture/wk.

**CIM 272**  
**INTERACTIVE MEDIA INTERNSHIP (1 CR)**

*Prerequisite: Facilitator approval required*

Students will work in an approved training situation under instructional supervision. The internship is designed to give the student the opportunity to use the skills learned in the advanced computer interactive vocational certificate program. Student interns will be required to complete a minimum of 180 hours of on-the-job training.

## **Interior Design (ITMD)**

**ITMD 121**  
**INTERIOR DESIGN I (3 CR)**

This course provides basic, introductory knowledge about interior design. Upon successful completion of this course, the student should understand the significance of interior design, complete projects using the elements and principles of design and color theory in interior spaces, use space planning skills to arrange furniture on a floor plan, and present the floor plan and its decorative scheme. This course is required in the interior design, interior merchandising and interior entrepreneurship associate of applied science degrees; the interior products sales representative certificate; and the interior design retail sales/manufacturers representative certificate programs. 3 hrs./wk.

**ITMD 122**  
**INTERIOR DESIGN II (3 CR)**

*Prerequisites: ITMD 121 and DRAF 261*

This is an advanced course focusing on residential design. Upon successful completion of this course, the student should be able to demonstrate an advanced level of furniture arrangement on a floor plan; develop color schemes that will solve specific assigned decorating problems; demonstrate the ability to coordinate fabrics, colors, textures, patterns and finishes in a complete floor plan for a residential unit; and produce floor plans enhanced by color and shadow. This is a required course in the interior design, interior merchandising and interior entrepreneurship associate of applied science degree programs. 3 hrs./wk.

**ITMD 125**  
**INTERIOR TEXTILES (3 CR)**

This course is a comprehensive study of textiles used in interior design. Upon successful completion of this course, the student should be able to differentiate fibers and textiles according to their specific characteristics and to select fibers and interior textiles for specific applications. Specific course content includes properties and characteristics of natural and man-made fibers; construction methods; and various finishing processes, such as weaving, knitting, felting, printing and dyeing. The course will concentrate on textiles designed for interior applications. This is a required course for the interior design, interior merchandising and interior entrepreneurship associate of applied science degrees; the interior products sales representative certificate; and the interior design retail sales/manufacturers representative certificate. 2 hrs. lecture, 2 hrs. lab/wk

**ITMD 127**



## **ELEMENTS OF FLORAL DESIGN (1 CR)**

This course provides in-depth knowledge and hands-on application of floral design. Upon successful completion of this course, the student should be able to use the principles of floral design, develop a proficiency in the techniques of line and mass arrangements, possess a greater appreciation for flowers and other plant material, apply the mechanics and design considerations involved in working with silk and dried materials, and design and create silk and dried floral arrangements. This is an elective course in the interior design, interior merchandising, interior entrepreneurship associate of applied science degrees and interior design retail sales/manufacturers representative certificates. 1.5 hrs. integrated lecture, lab/wk.

## **ITMD 132 INTERIOR PRODUCTS (3 CR)**

This course provides in-depth knowledge about products used in interior spaces. Upon successful completion of this course, the student should be able to evaluate the quality of interior products; demonstrate the ability to use catalogs and other product information resources; identify manufacturing and/or construction techniques used in products; use correct terminology to describe the various types of interior products; and compare the design, use, durability and cost of products. This course is a required course in the interior design, interior merchandising and interior entrepreneurship associate of applied science degrees; the interior products sales representative certificate; and the interior design retail sales/manufacturers representative certificate programs. 3 hrs./wk.

## **ITMD 133 FURN-ORNA/ANTIQUITY-RENAISSANC (3 CR)**

This course provides in-depth knowledge in the study of Western furniture and ornament. Upon successful completion of this course, the student should be able to analyze and compare the furniture, ornamentation, design motifs and textiles of historical periods from antiquity to the Renaissance. Additionally, the student should be able to define the religious, political and social influences on the ornamentation and furnishings of each period. The student should also be able to identify the craftsmanship and materials used in the furniture of each historical period and correctly use vocabulary related to each era. This is a required course in the interior design, interior merchandising and interior entrepreneurship associate of applied science degree programs. 3hrs./wk.

## **ITMD 140 DRAPERIES/TREATMENTS/CONSTRUCT (1 CR)**

*Prerequisites: ITMD 121 and ITMD 125 Corequisite: ITMD 275*

This course provides comprehensive knowledge about draperies and window treatments and their construction. Upon successful completion of this course, the student should demonstrate the use of correct vocabulary relating to drapery and window treatments, explain the equipment used in the drapery industry, distinguish appropriate textiles and hardware for specific window treatments, measure for window treatments, and describe and select the proper suspension system for specific window treatments. The student will measure, select and present the proper style, fabric and suspension system for a specific window treatment. This is a required course in the interior design program and an elective in the interior merchandising and interior entrepreneurship associate of applied science degrees. It is also an elective in the interior design retail sales/manufacturers representative certificates. 1 hr./wk.

## **ITMD 145 UPHOLSTERY CONSTRUCTION (1 CR)**

*Prerequisites: ITMD 121 and ITMD 125 Corequisite: ITMD 275*

This course provides comprehensive knowledge about upholstery construction. Upon successful completion of this course, the student should be able to demonstrate the use of correct vocabulary relating to upholstery construction, explain the equipment used in the upholstery industry, identify appropriate textiles and materials for upholstery use, and describe the various suspension systems used in bench-constructed and mass-produced furniture. This is a required course in the interior design program and an elective in the interior merchandising and interior entrepreneurship associate of applied science degrees. It is also an elective in the interior design retail

sales/manufacturers representative certificate programs. 1 hr./wk.

**ITMD 147**  
**LIGHTING DESIGN AND PLANNING (1 CR)**

*Prerequisite: I: ITMD 121 or FASH 147*

This course provides in-depth knowledge about lighting design and planning. Upon successful completion of this course, the student should be able to define and use vocabulary relating to lighting design and planning. The student should be able to recognize and explain lighting application and technology used in the lighting industry. Additionally, the student should be able to identify and describe proper fixtures and equipment for lighting applications and demonstrate skills in selecting proper lighting designs for specific applications. This course is a required course in the interior design and an elective in the interior merchandising and interior entrepreneurship associate of applied science degrees. Also an elective in the interior design retail sales/manufacturers representative certificate. 1 hr./wk.

**ITMD 148**  
**HIST ASIAN FURNITURE/DESIGN (2 CR)**

This course provides in-depth knowledge in the study of Asian furniture and ornament. Upon successful completion of this course, the student will be able to analyze and compare furniture, ornamentation, design motifs and textiles of the Near East and Far East during historical periods from antiquity to modern times. The student should be able to identify the religious, political and social influences on the ornamentation and furnishings of each period. In addition, the student should be able to identify the craftsmanship and materials used in the furniture of each historical period and to demonstrate the use of correct vocabulary related to each era. This is a required course in the interior design associate of applied science degree program and an elective in the interior merchandising and interior entrepreneurship associate of applied science degree programs. 2 hrs./wk.

**ITMD 150**  
**ASIAN RUGS AND CARPETS (1 CR)**

This course provides in-depth knowledge in the study of Asian carpets and rugs. Upon successful completion of this course, the students will be able to analyze and compare materials, ornamentation, design motifs and textiles of the Near East and Far East during historical periods from antiquity to modern times. The student should be able to identify the religious, political and social influences on the ornamentation and furnishings of each period. In addition, the student should be able to demonstrate the use of correct vocabulary. This is a required course in the interior design associate of applied science degree program and an elective in the interior merchandising and interior entrepreneurship associate of applied science degree programs. 1 hr/wk.

**ITMD 175**  
**ADVANCED FLORAL DESIGN (1 CR)**

*Prerequisite: ITMD 127*

This course is a continuation of Elements of Floral Design and provides the student with a more comprehensive application of floral design for home interiors. Upon successful completion of this course, the student will be able to determine the appropriate floral design for an existing home, design a variety of florals for specific placement, work with other students on a specific project and learn how to buy and price interior floral designs. This is an elective course for the interior design associate of applied science degree program. 1 hr. lecture, 1.5 hrs. lab/wk.

**ITMD 180**  
**LEADERSHIP IN DESIGN (1 CR)**

Upon successful completion of this course, the student should be able to identify leadership skills necessary to have successful involvement in the field of interior design and professional organizations. Topics include group communication methods, time management, team-building skills, and organizing and facilitating meetings. Students desiring leadership opportunities in the ASID or other organizations are encouraged to enroll. This course is an elective in the interior

design, interior merchandising and interior entrepreneurship associate of applied science degree programs. 1 hr. lecture/wk.

**ITMD 223**  
**CONTRACT DESIGN (3 CR)**

*Prerequisites: ITMD 122 and DRAF 264*

This is an advanced course focusing on contract design. Upon successful completion of this course, the student will be able to define and use vocabulary related to contract design, identify and use proper architectural symbols common to contract floor plans and elevations, and explain the differences between residential and contract design. Additionally, the student should be able to demonstrate the skills necessary to convert, redesign and create contract design space; explain the concept of open office planning; and compare and analyze the costs and benefits of open planning versus closed planning. This is a required course in the interior design associate of applied science degree program and an elective in the interior merchandising and interior entrepreneurship associate of applied science degree programs. 1 hr. lecture, 3 hrs. lab/wk.

**ITMD 231**  
**FURN-ORNA/RENAISSANCE-20TH CEN (3 CR)**

This course provides in-depth knowledge in the study of Western furniture and ornament. Upon successful completion of this course, the student should be able to analyze and compare furniture, ornamentation, design motifs and textiles of historical periods from the Renaissance to the 20th century. Additionally, the student should be able to define the social, religious and political influences on the ornamentation and furnishings of each period. The student should also be able to identify the craftsmanship and materials used in the furniture of each historical period and correctly use vocabulary related to each era. This is a required course in the interior design, interior merchandising and interior entrepreneurship associate of applied science degrees and an elective in the interior design retail sales/manufacturers representative certificate program. 3 hrs./wk.

**ITMD 234**  
**KITCHEN-BATH/PLANNING-DESIGN (3 CR)**

*Prerequisites: ITMD 122 and DRAF 264*

This is a comprehensive course in kitchen and bath design and planning. Upon successful completion of this course, the student should be able to define and use proper vocabulary related to kitchen and bath design and construction, identify and use proper architectural symbols common to kitchen and bath plans and elevations, state the space relationships required for proper kitchen and bath usage, convert to metric measurements, and draw a kitchen and bath floor plan and elevation. This is a required course in the interior design associate of applied science degree program and an elective in the interior merchandising and interior entrepreneurship associate of applied science degree programs. 2 hrs. lecture, 1 hr. lab/wk.

**ITMD 239**  
**CAPSTONE:PORTFOLIO/PRESENTATIO (2 CR)**

*Prerequisites: Approval of program facilitator*

This course is designed as a capstone for the interior design program. It should be taken in conjunction with or after completion of the final interiors studio course or in the graduating semester. Upon successful completion of this course, the student should be able to select and rework portfolio materials for maximum visual potential and appeal. In addition, the student will prepare a resume, conduct a job search, and present written and oral presentations based on resource and product files from other classes. This is a required course in the interior design, interior merchandising and interior entrepreneurship associate of applied science degree programs. 2 hrs. lecture/wk.

**ITMD 250**  
**20TH CENTURY DESIGNERS (1 CR)**

This course provides in-depth knowledge in the study of the 20th-century designers. Upon successful completion of course, the student should be able to analyze and compare furniture, ornamentation, design motifs and textiles of various 20th-century designers. Recognition of

periods and individual styles is stressed. The student will have an opportunity to study a specific designer in depth. This is an elective course in the associate of applied science degrees in interior design, interior merchandising and interior entrepreneurship. 1 hr lecture /wk.

**ITMD 273**  
**SEMINAR:PRACTICES/PROCEDURES (2 CR)**

*Prerequisite: ITMD 121*

Upon successful completion of this course, the student should be able to demonstrate the use of proper interior design industry terminology, appropriate business forms and contracts, define the types of business legal structure, and solve business organizational and ethical problems through use of case studies. This course is required in the associate of applied science degree in interior design, interior merchandising or interior entrepreneurship and is an elective in the interior design retail sales/manufactures representative certificate program. 2 hrs./wk.

**ITMD 275**  
**SEMINAR:BUDGET/ESTIMATING (2 CR)**

*Prerequisite: ITMD 121*

Upon successful completion of this course, the student should be able to describe methods of pricing interior design/merchandising materials and services, measure accurately for materials, demonstrate the use of business math in interior design/merchandising applications, and compute cost in cases. This course is required in the associate of applied science degrees in interior design, interior merchandising and interior entrepreneurship and in the interior design retail sales/manufacturers representative certificates. 2 hrs./wk.

**ITMD 282**  
**INTERIORS INTERNSHIP I (1 CR)**

*Prerequisite: ITMD 121*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course consists of supervised work experience in an approved training situation. It is designed to provide practical experience in the interiors industry. A minimum of 15 hours each week on-the-job training is required. This course is required in the associate of applied science degrees in interior design, interior merchandising and interior entrepreneurship and in the interior product sales and interior design retail sales/manufacturers representative certificates.

**ITMD 284**  
**INTERIORS INTERNSHIP II (1 CR)**

*Prerequisite: ITMD 121*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course consists of supervised work experience in an approved training situation. It is designed to provide practical experience in the interiors industry. A minimum of 15 hours each week on-the-job training is required. This course is required in the associate of applied science degrees in interior design, interior merchandising and interior entrepreneurship and in the interior product sales and interior design retail sales/manufacturers representative certificates.

**ITMD 295**  
**FLD STUDY:DESIGN/MERCHANDISING (3 CR)**

*Prerequisite:ITMD 121 and approval of the program facilitator*

This travel-for-credit course consists of visits to manufacturing plants, a market showroom and a merchandise mart in a major market city. This is an elective course for the interior design, interior merchandising and entrepreneurship associate of applied science degree programs.

**ITMD 296**  
**INTERIOR DESIGN:THE ORIENT (3 CR)**

Upon successful completion of this course, the student should be able to recognize and identify Asian furniture pieces and accessories from different countries; define and use vocabulary

common to the art periods; and compare and contrast furniture and accessory pieces observed in museums, temples, homes and antique stores. This course will include five 3-hour pre-departure seminars followed by a three-week field trip to Japan, Hong Kong and Thailand. This is an elective course for the interior design, interior merchandising, and interior entrepreneurship associate of applied science degree programs.

## **Interpreter Training (INTR)**

### **INTR 120 ELEM AMERICAN SIGN LANGUAGE I (3 CR)**

This course will focus on the development of beginning American Sign Language communication skills. Comprehension skills and linguistic features of the language taught in context will be emphasized. 3 hrs./wk.

### **INTR 121 ELEM AMERICAN SIGN LANGUAGE II (3 CR)**

*Prerequisite: INTR 120 or FL 180*

This course will focus on continued development of elementary American Sign Language skills beyond those taught in Elementary ASL I. Students will work on developing communication competencies, concentrating on comprehension and production skills. Information about the linguistic and cultural features will be included in the context of language learning experiences. 3 hrs./wk.

### **INTR 122 INTERMEDIATE AMER SIGN LANG I (3 CR)**

*Prerequisite: INTR 121 or FL 181*

This course will focus on the development of intermediate American Sign Language communication skills. Emphasis will be on teaching in context comprehension skills and linguistic features of the language. 3 hrs./wk.

### **INTR 123 INTERMED AMER SIGN LANGUAGE II (3 CR)**

*Prerequisite: INTR 122 or FL 270*

The study of intermediate American Sign Language will continue in this course. It is designed to further intermediate communication skills in American Sign Language. Information about the linguistic and cultural features will be included in the context of language learning experiences. 3 hrs./wk.

### **INTR 125 AMERICAN SIGN LANG I (ASL) (5 CR)**

*Prerequisite: Admission to the interpreter training program*

This class will focus on the development of beginning communication skills. Comprehension skills and linguistic features of the language taught in context will be emphasized. 1 hr. lecture, 9 hrs. lab/wk.

### **INTR 130 ORIENTATION TO INTERPRETING (3 CR)**

*Prerequisite: INTR 120 and FL 180 or admission to the interpreter training program*

This course provides an introduction to interpreting as an occupation. Students will come to understand interpersonal skills, professional ethics, parameters of responsibilities, community resources and legal ramifications as they relate to the interpreter. 3 hrs./wk.

### **INTR 132 AMERICAN SIGN LANG II (ASL) (5 CR)**

*Prerequisite: INTR 121 or INTR 125 and admission to the Interpreter Training Program*

This class will focus on the development of intermediate communication skills. Comprehension skills and linguistic features of the language taught in context will be emphasized. 1 hr. lecture, 9 hrs. lab/ wk.

**INTR 135**  
**THEORY OF AMERICAN SIGN LANG (3 CR)**

*Prerequisite: INTR 121 or INTR 125 or FL 181 and admission to the Interpreter Training Program*

The structural and grammatical principles of ASL are provided in this introduction to linguistic problems of equivalency in English and ASL. 3 hrs./wk.

**INTR 140**  
**AMERICAN SIGN LANGUAGE III (5 CR)**

*Prerequisite: INTR 123 or INTR 132 and admission to the Interpreter Training Program*

This course is a continuation of ASL II. Students will continue to develop intermediate ASL skills. Emphasis will be on signing comprehension and production skills. Linguistic and cultural features will be presented in the context of language learning experience. 1 hr. lecture, 9 hrs. lab/wk.

**INTR 142**  
**FINGERSPELLING I (3 CR)**

*Prerequisites: INTR 121 and INTR 125 or FL 181*

Students will work on developing beginning expressive and receptive finger spelling skills based on word recognition principles. 2 hrs. lecture, 3 hrs. lab/wk.

**INTR 145**  
**DEAF CULTURE (3 CR)**

*Prerequisite or Corequisite: INTR 120 or INTR 125*

Students will compare middle-class American values, beliefs and institutions with those of the deaf community in the United States. 3 hrs./wk.

**INTR 181**  
**INTERPRETING PRACTICUM I (1 CR)**

*Prerequisite: INTR 130 and admission to the Interpreter Training Program*

Students will observe skilled interpreters in various interpreting situations in a variety of settings during the semester. 2 hrs. lab, field work/wk.

**INTR 225**  
**PHYS/PSYCH ASPECTS/INTRPRETING (2 CR)**

*Corequisites: INTR 181 and INTR 250 and admission to the Interpreter Training Program*

This course provides knowledge of stress management as applied to both the physical demands and mental conditions of sign language interpreting. The course also identifies and describes critical components of self-esteem development and maintenance. Additionally, the course provides knowledge of career development theory, career decision making and the job-search process. The course is intended for second-year interpreter training students. 2 hrs./wk.

**INTR 230**  
**AMERICAN SIGN LANGUAGE IV (4 CR)**

*Prerequisite: INTR 140 and admission to the Interpreter Training Program*

This course is a continuation of ASL III, including culturally significant topics related to the deaf community, more complex ASL grammatical features and conversational skill development. ASL vocabulary development, comprehension and production skills will be emphasized. Students will be given opportunities to expand their vocabulary related to common experiences in both formal and informal setting. Students will then use what they learned about advanced ASL, in class activities, dialogues, short stories, general conversations and class discussions. 1 hr. lecture, 7 hrs. lab/wk.

**INTR 242**  
**FINGERSPELLING II (2 CR)**

*Prerequisite: INTR 142*

This course focuses on continued development of expressive and receptive fingerspelling skills based on word and phrase recognition and expression. 1 hr. lecture, 2 hrs. lab/wk.

**INTR 250**  
**INTERPRETING I (6 CR)**

*Prerequisite: INTR 130 Corequisite: INTR 140 and admission to the Interpreter Training Program*

In this introduction to interpreting principles, emphasis will be on English-to-ASL and ASL-to-English skills. Students will participate in sequential drills and apply these skills in class. 2 hrs. lecture, 8 hrs. lab/wk.

**INTR 255**  
**INTERPRETING II (6 CR)**

*Prerequisite: INTR 250 and admission to the Interpreter Training Program*

This is an advanced course concentrating on continued development of English-to-ASL, ASL-to-English and transliteration skills. Students will have the opportunity to use these skills as they role-play employment situations. 2 hrs. lecture, 8 hrs. lab/wk.

**INTR 281**  
**INTERPRETING PRACTICUM II (3 CR)**

*Prerequisite: INTR 181 Corequisite: INTR 255*

Students will observe and interpret at assigned places as well as discuss current literature in the field. The field work totals 96 hours a semester. 6 hrs. lab, field work/wk.

## **Journalism/Media Communication (JOUR)**

**JOUR 120**  
**MASS MEDIA AND SOCIETY (3 CR)**

Via books, newspapers, magazines, recordings, movies, radio, television, new technologies and the related areas of advertising and public relations, each of us is exposed to and affected by the mass media on a daily basis. This course will increase student awareness of the various media and help them understand the influence of the media on their daily activities, beliefs, decisions and goals. As a result, the student will become a more astute critic of the messages delivered by the mass media. 3 hrs./wk.

**JOUR 122**  
**REPORTING FOR THE MEDIA (3 CR)**

Reporting for the Media is structured for students interested in the basics of writing and reporting. Writing for print broadcast, and online media are included. Information gathering and story writing are conducted under strict deadlines to prepare students for a professional position. Basic newswriting and style principles will be gained by writing stories for JCCC student media, including the student newspaper, The Campus Ledger. 3 hrs./wk.

**JOUR 125**  
**FUNDAMENTALS OF ADVERTISING (3 CR)**

Fundamentals of Advertising introduces the student to the contemporary advertising process. Research, planning, creativity, production, media placement and sales are discussed, along with individual mediums and their forms, functions and roles in society. Major emphasis is placed on the areas of advertising/marketing research, planning and creativity, including integrated marketing communications. 3 hrs./wk.

**JOUR 127**  
**INTRODUCTION TO BROADCASTING (3 CR)**

This course serves as a general introduction to students interested in pursuing knowledge of or a career in radio and television broadcasting. The course includes a study of the industry's development, its form and function, job responsibilities, basic production techniques, audience measurement, FCC regulations and ethics. Class time will include discussion of current trends and issues in the field, with students developing an understanding of broadcast media. Productions in the college's audio booth and TV facilities offer an opportunity to experience the field of broadcasting. These experiences will allow students to evaluate broadcasting as a possible career choice. 3 hrs./wk.

**JOUR 130**  
**PRINCIPLES OF PUBLIC RELATIONS (3 CR)**

This course is intended to provide the student with an overview of the history, principles and real-life functions of public relations. Public relations is a rapidly growing field. The ability to work with the public is essential in business, education, health care and numerous other fields. This course is designed to give students the background to develop their PR skills, both verbally and in writing. 3 hrs./wk.

**JOUR 202**  
**BROADCAST PERFORMANCE (3 CR)**

Students will learn how to improve their speaking voices and body language as well as the techniques necessary to effectively communicate messages through basic announcing skills. Interviewing, radio and television news, and commercial announcing are some of the topics covered in this course, which will allow students to polish their skills through performances in the college's television studio and audio booth. 3 hrs./wk.

**JOUR 222**  
**ADVANCED REPORTING (3 CR)**

*Prerequisite: JOUR 122*

This is an advanced news gathering and reporting course designed to sharpen the discernment, critical thinking and writing skills of student journalists. Specific English language rules and principles plus AP newswriting style will be emphasized in the production of incisive, well-defined news stories, features, profiles, editorials and personal columns. Professional writings in various media will be examined and critiqued, and class members will have the opportunity to participate in hands-on editing and layout. Students will gain additional experience by preparing for and participating in news conferences and events, as well as interacting with area media writers. 3 hrs./wk.

**JOUR 225**  
**PROMOTIONAL WRITING (3 CR)**

*Prerequisite: JOUR 125 or JOUR 130*

Students will study the elements of layout and copywriting for promotional purposes, with emphasis on advertising, direct mail and public relations writing. 3 hrs./wk.

**JOUR 227**  
**BASIC TV PRODUCTION (3 CR)**

*Prerequisite: JOUR 127*

This course provides students with the fundamentals of television production. The goal is to teach students basic video techniques. Topics covered include technology, lighting, camera operations, audio and editing. Students will gain hands-on experience in the college's Television Services studio. 3 hrs. lecture/wk.

**JOUR 271**



## **JOURNALISM INTERNSHIP (3 CR)**

*Prerequisite: By permission; completion of six credit hours in journalism/media communications at JCCC or another college with a minimum grade of C in those 6 hours.*

A journalism/media internship allows students to gain work experience at an approved training center under staff supervision. Emphasis is on learning new skills related to a particular program or department at a media facility. Students may learn the application of writing techniques needed to produce and broadcast news, and produce advertising or public relations promotional copy. On-the-job training involves approximately 15-20 hrs./wk. by arrangement.

## **Leadership (LEAD)**

### **LEAD 120 LEADERSHIP DEVELOPMENT SEMINAR (3 CR)**

This seminar course is designed for individuals who are interested in exploring the concepts of leadership using discussion, film, exercises and works of classic literature. The course will lead to the development of a personal leadership philosophy. 3 hrs./wk.

## **Learning Strategies (LS)**

### **LS 174 LEARNING STRATEGIES FOR MATH (1 CR)**

*Corequisite: Concurrent enrollment in a math course*

This course teaches thinking and study skills specifically geared toward the learning of math. Students practice these skills on their math textbooks and homework assignments as well as in their math class discussions and lectures. This course also addresses feelings and attitudes that may block math learning and offers strategies and techniques designed to overcome these feelings. 1 hr./wk.

### **LS 176 STRATEGIC LEARNING SYSTEM (1 CR)**

*Corequisite: Concurrent enrollment in a college lecture course*

In this course, students will learn a series of strategies for processing information from textbooks and lectures and strategies for studying for and taking tests. As the strategies are introduced, students apply will them to the content of the courses in which they are concurrently enrolled. Upon successful completion of the course, students will have developed a system for learning that can be adapted for use in any learning situation. 1 hr./wk.

### **LS 178 MEMORY STRATEGIES (1 CR)**

*Corequisite: Concurrent enrollment in another college course*

In this course, students learn a series of techniques to help them improve their retention and recall of information needed for success in college courses. These techniques provide a systematic approach to learning and remembering. Students immediately use the techniques to learn information from their other college courses. 1 hr./wk.

### **LS 186 EXAM STRATEGIES (1 CR)**

*Corequisite: Concurrent enrollment in at least one other college course in which exams are taken*

This course offers students an opportunity to explore their own learning styles and to develop appropriate strategies for improving test performance through improved learning procedures. Emphasis will be on practical application of the learned strategies to the courses in which the students are concurrently enrolled. 1 hr./wk.

**LS 200**  
**COLLEGE LEARNING METHODS (3 CR)**

*Corequisite: Concurrent enrollment in at least one academic college course*

This course provides students with opportunities to develop skills and habits that will help them establish and maintain effective learning systems. Students first learn and practice the learning methods in class. They then apply these methods to appropriate situations in their other college course work. The methods, which are based on valid learning and thinking principles, will help students meet the higher-level demands of the subjects encountered in college courses. 3 hrs./wk.

## **Legal Studies (LAW)**

**LAW 121**  
**INTRODUCTION TO LAW (3 CR)**

Upon successful completion of this course, the student should be able to explain the major substantive and procedural aspects of law. This course provides an overview of the legal system and knowledge of specific legal topics, including torts, criminal law, contracts, family law, business law, real estate and probate. This course is a requirement for applying to the paralegal program and for completion of the legal nurse consultant program. 3 hrs. lecture/wk.

**LAW 123**  
**PARALEGAL PROFESSIONAL STUDIES (1 CR)**

Upon successful completion of this course, the student should be able to explain the legal assistant profession. Topics will include paralegal licensing, certification, education, employment and professional ethics. The course is required for students seeking admission to the paralegal program. 1 hr. lecture/wk.

**LAW 131**  
**LEGAL RESEARCH (3 CR)**

*Prerequisite or corequisite: Legal nurse consultant students- LAW 225 and LAW 121 or BUS 122. Paralegal program students - admission to the program or division administrator approval*

This course will familiarize the student with library organization and the types of informational resources used for performing legal research. The student will become acquainted with the major characteristics of these resources and usage techniques and will learn a systematic method for researching legal issues. Numerous opportunities will be provided for skill development in the use of these resources. 3 hrs. lecture/wk.

**LAW 132**  
**CIVIL LITIGATION (3 CR)**

*Prerequisite: Admission to the paralegal program or division administrator approval. Legal nurse consultant students - LAW 225 and LAW 121*

This course will acquaint the student with the major characteristics of the civil litigation process. Students will become familiar with the various types of procedural rules regulating the civil litigation process and their application. Emphasis will be on the role of the legal assistant in a civil litigation practice and will include the drafting of pleadings. 3 hrs. lecture/wk.

**LAW 140**  
**ALTERNATIVE DISPUTE RESOLUTION (3 CR)**

*Prerequisites: Legal nurse consultant students - and LAW 132 paralegal program students*

This course examines the various methods used by our legal system for dispute resolution and the role of the legal assistant in those methods. Upon successful completion of this course, the students should be able to explore the nature of conflict and the principles of negotiation and review the traditional litigation system. The course will concentrate on the major alternatives to litigation, including mediation and arbitration. 3 hrs. lecture/wk.

**LAW 142**  
**TORTS (3 CR)**

*Prerequisites: Legal nurse consultant students - and Paralegal program students - LAW 132*

Upon successful completion of this course, the student should be able to explain the major principles of tort law and personal injury litigation. The student should be able to discuss and compare the elements of negligence torts, intentional torts and strict liability torts, as well as the types of damages available and defenses to each of these torts. 3 hrs. lecture/wk.

**LAW 148**  
**CRIMINAL LITIGATION (3 CR)**

*Prerequisites: Legal nurse consultant students - and Paralegal program students - LAW 132*

Upon successful completion of this course, the student should be able to explain the objectives, substantive principles and procedural rules of the criminal process. The student will be able to explain the role of the paralegal in criminal litigation practice and draft documents used in the criminal litigation process. 3 hrs. lecture/wk.

**LAW 152**  
**REAL ESTATE LAW (3 CR)**

*Prerequisite: Paralegal program students - Admission to the paralegal program or division administrator approval. Legal nurse consultant students - LAW 225 and LAW 121*

Upon successful completion of this course, the student should be able to describe common types of real estate transactions and conveyances. The preparation of legal instruments, namely deeds, contracts, leases and mortgages, will be studied. 3 hrs. lecture/wk.

**LAW 162**  
**FAMILY LAW (3 CR)**

*Prerequisite: Paralegal program students - admission to paralegal program or division administrator approval. Legal nurse consultant students -- LAW 225 and LAW 121*

Upon successful completion of this course, the student should be able to describe the substantive and procedural principles of family law, including issues related to adoption, divorce, custody, support and visitation. The student will also be able to draft pleadings including petition for divorce, petition for adoption, decrees, settlement agreements and motions for modification. 3 hrs. lecture/wk.

**LAW 171**  
**LAW OFFICE MANAGEMENT (3 CR)**

*Prerequisite: Paralegal program students -- admission to the paralegal program or division administrator approval. Legal nurse consultant students -- LAW 225 and LAW 121*

This course will acquaint the student with the general principles of law office management and will emphasize the unique characteristics of organizing and managing the law office or legal department. Projects will provide students with opportunities for practical application of law office management concepts. 3 hrs. lecture/wk.

**LAW 173**  
**JUDICIAL ACADEMY (1 CR)**

*Prerequisite: Admission to the paralegal program. Legal nurse consultant students -- LAW 225 and LAW 121*

Upon successful completion of this course, the students should possess an in-depth understanding of the trial courts of Kansas. In order to achieve this goal, students will learn the main components of the Johnson County District Court, including discussion of the court structure, judicial qualifications, jury service, the criminal justice system, the juvenile court system and family matters. 1 hr. lecture/wk.

**LAW 205**  
**LEGAL WRITING (3 CR)**

*Paralegal prerequisite: LAW 131 or division administrator approval*

Upon successful completion of this course, the student should be able to research complex legal

problems, communicate the results of this research and other law-related information clearly and effectively and analyze legal problems using the skills of logic and reasoning. 3 hrs. lecture/wk.

**LAW 212**  
**BUSINESS ORGANIZATIONS (3 CR)**

*Prerequisite: Paralegal program students -- admission to the paralegal program or division administrator approval. Legal nurse consultant students -- LAW 225 and LAW 121*

Upon successful completion of this course, the student should be able to describe the various forms of business ownership, including corporations, partnerships and sole proprietorships. The emphasis in the course is on the role of the legal assistant in a business law practice and on the preparation of related documents. 3 hrs. lecture/wk.

**LAW 220**  
**COMPUTER-ASSIST LEGAL RESEARCH (2 CR)**

*Prerequisites: Legal nurse consultant students -- LAW 131. Paralegal program students -- LAW 131*

Upon successful completion of this course, the student should be able to access general and legal resources on the Internet and conduct electronic legal research using online and CD-ROM databases.

**LAW 223**  
**COMPUTER APPLICA/LAW OFFICE (3 CR)**

*Prerequisites: Paralegal program students -- admission to the paralegal program and either CIS 124 or CPCA 128 or three hours of CPCA 108 and CPCA 110 and CPCA 114*

Upon successful completion of this course, the student should be able to evaluate and use legal software to perform customary law office procedures including computer litigation support, drafting and editing of specific legal documents, document and file management, time-keeping and billing, docket control, and forms generation. 3 hrs. lecture/wk.

**LAW 225**  
**LEGAL NURSE CONSULT PROFESSION (1 CR)**

*Prerequisite: Admission to the legal nurse consultant program or division administrator approval*

In this course, students will examine the functions of legal nurse consultants and available career opportunities, including relevant issues regarding employment and independent contracting. 1 hr. lecture/wk.

**LAW 241**  
**WILLS, TRUSTS/PROBATE ADM (3 CR)**

*Prerequisite: Paralegal program students -- admission to the paralegal program or division administrator approval. Legal nurse consultant students -- LAW 225 and LAW 121*

Upon successful completion of this course, the student should be able to draft a will with testamentary powers. The use of trusts, probate procedures, techniques for fact gathering and mastery of estate tax principles are emphasized in this course. 3 hrs. lecture/wk.

**LAW 245**  
**ELDER LAW (3 CR)**

*Prerequisite: Paralegal program students -- admission to the paralegal program or division administrator approval. Legal nurse consultant students -- LAW 225 and LAW 121*

Upon successful completion of this course, the student should be able to explain the legal aspects of aging. Topics include financial and estate planning, health care, personal planning and protection, taxation, housing and other legal matters affecting the elderly and people with special legal needs. 3 hrs. lecture/wk.

**LAW 250**  
**MEDICOLEGAL RESEARCH/WRITING (3 CR)**

*Prerequisites: Admission to the legal nurse consultant program and LAW 131*

This course emphasizes the role of the legal nurse consultant in the preparation of, and contribution to, various documents used in the context of a medicolegal-related law practice. Topics include the use of medical and science-related information resources and the preparation of such documents as legal memoranda; legal-related correspondence; summaries of medical/science literature; summaries of health-care records; and summaries of health-care expenses and settlement brochures, particularly in the context of intentional torts, negligence, product liability, strict liability, and medical-malpractice litigation. 3 hrs. lecture/wk.

**LAW 260**  
**PERSONAL INJURY LAW (3 CR)**

*Prerequisites: Admission to the legal nurse consultant program and LAW 131*

Upon successful completion of the course, the student should be able to explain and apply substantive and procedural principles of personal injury claims. The course will concentrate on the role of a legal nurse consultant in analyzing and applying legal theories and defenses relevant to intentional torts, negligence, product liability, strict liability and medical malpractice. 3 hrs. lecture/wk.

**LAW 266**  
**EMPLOYMENT LAW (3 CR)**

*Prerequisite: Paralegal program students -- admission to the paralegal program or division administrator approval. Legal nurse consultant students -- LAW 121 and LAW 225*

This course examines the relationship between employer and employee. Major federal and state employment laws will be examined, including Title VII of the Civil Rights Act of 1964, the Age Discrimination Employment Act and the Americans with Disabilities Act. 3 hrs. lecture/wk.

**LAW 268**  
**BANKRUPTCY (2 CR)**

*Prerequisite: Paralegal program students -- admission to the paralegal program or division administrator approval. Legal nurse consultant students -- LAW 121 and LAW 225*

This course will familiarize the student with the purpose and application of the federal Bankruptcy Code. Topics will include Bankruptcy Court procedures and the preparation of bankruptcy forms and documents. Emphasis will be on the role of the legal assistant in a bankruptcy practice. 2 hrs. lecture/wk.

**LAW 270**  
**ADMINISTRATIVE LAW (3 CR)**

*Prerequisite: Admission to the legal nurse consultant program and LAW 225 and LAW 121 or admission to the paralegal program*

Upon successful completion of the course, the student will be able to explain and apply substantive and procedural principles of administrative agencies. The course will concentrate on the basic principles of workers' compensation law, Social Security law; the Americans with Disabilities Act and the Occupational Safety Health Administration. 3 hrs. lecture/wk.

**LAW 271**  
**LEGAL ETHICS/INTERVIEW/INVESTI (3 CR)**

*Prerequisite: Legal nurse consultant students and Paralegal students - LAW 132 Corequisite: Legal nurse consultant students LAW 250 Paralegal students LAW 205*

Upon successful completion of this course, the student should be able to explain ethical rules and standards governing the legal profession, interview clients and witnesses, and perform factual investigation pursuant to legal proceedings. The emphasis will be on recognition of ethical problems commonly encountered, as well as the development of interviewing and investigating skills. 3 hrs. lecture/wk.

**LAW 275**  
**PARALEGAL INTERNSHIP I (1 CR)**

*Prerequisite: Admission to the paralegal program or division administrator approval*

Upon successful completion of this course, the student should be able to explain how a law office or legal- related office operates from practical on-the-job experience. The student must work 240

hours a semester in law-related activities. By arrangement.

## **LAW 276**

### **PARALEGAL INTERNSHIP II (1 CR)**

*Prerequisite: Admission to the paralegal program or division administrator approval*

Upon successful completion of this course, the student should be able to explain how a law office or legal- related office operates from practical on-the-job experience. The student must work 240 hours a semester in law-related activities. By arrangement.

## **Library (LIBR)**

### **LIBR 125**

#### **INTRO TO LIBRARY RESEARCH (1 CR)**

This course provides an introduction to the methods and technologies of library research. Included will be a study of the various information resources available for research and techniques for retrieving information from both print and electronic sources. The resources of Billington Library will be featured, although the emphasis will be on building information retrieval skills that will be useful in many settings. 1 hr. lecture/wk.

## **Marketing Management (MKT)**

### **MKT 121**

#### **RETAIL MANAGEMENT (3 CR)**

Upon successful completion of this course, the student should be able to describe and analyze retail store organization and operation, including customer markets, store location and design, human resource management, merchandise planning, and control and retail promotion. 3 hrs. lecture/wk.

### **MKT 133**

#### **SALESMANSHIP (3 CR)**

Upon successful completion of this course, the student should be able to define and contrast the three main areas of selling -- direct, wholesale and retail -- and explain the selling process. In addition, the student should be able to define the steps of selling and identify their appropriate application. The student should also be able to demonstrate selling skills through role play and presentations. Students who have received credit for MKT 134 may not receive credit for MKT133. 3hrs. lecture/wk.

### **MKT 134**

#### **CREATIVE RETAIL SELLING (3 CR)**

Upon successful completion of this course, the student should be able to describe the process of successful selling in the retail environment. In addition, the student should be able to define the steps of selling and identify appropriate application. The student should also be able to apply selling principles through role-play. Students who have received credit for MKT 133 may not receive credit for MKT 134. 3 hrs. lecture/wk.

### **MKT 140**

#### **TELESERVICE COMMUNICATION SKIL (3 CR)**

Upon successful completion of this course, the student should be able to describe the process of successful communication in the teleservice field. In addition, the student should be able to define the principles of teleclient service and identify their appropriate application. The student should

also be able to demonstrate effective telecommunication and client services skills through role-playing. 3 hrs. lecture/wk.

**MKT 202**  
**CONSUMER BEHAVIOR (3 CR)**

*Prerequisite: MKT 133 or MKT 134*

Upon successful completion of this course, the student should be able to analyze the elements and influences that affect consumer behavior. In addition, the student should be able to apply the basic principles of consumer behavior and insight to the application of consumer-research findings used in the professional practice of marketing. 3 hrs. lecture/wk.

**MKT 221**  
**SALES MANAGEMENT (3 CR)**

*Prerequisite: MKT 134 or MKT 133*

Upon successful completion of this course, the student should be able to identify skills necessary to manage a sales force and develop a plan for recruitment selection, training, motivation and evaluation. In addition, the student should be able to describe and analyze techniques to forecast and plan sales and audit results. 3 hrs. lecture/wk.

**MKT 234**  
**SERVICES MARKETING (3 CR)**

*Corequisite: BUS 230*

Upon successful completion of this course, the student should be able to describe the functioning of a services economy. In addition, students should be able to describe and define the nature and characteristics of services and the types of marketing required because of their intangible core. Additionally, students should be able to describe service quality, the foundation of services marketing and the success factors in services marketing. 3 hrs. lecture/wk.

**MKT 284**  
**MARKETING/MGT INTERNSHIP I (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in marketing and management. A minimum of 15 hrs./wk. on-the-job training is required.

**MKT 286**  
**MARKETING/MGT INTERNSHIP II (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in marketing and management. A minimum of 15 hrs./wk. on-the-job training is required.

**MKT 288**  
**MARKETING/MGT INTERNSHIP III (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in marketing and management. A minimum of 15 hrs./wk. on-the-job training is required.

**MKT 289**  
**MARKETING/MGT INTERNSHIP IV (1 CR)**

Upon successful completion of this course, the student should be able to apply classroom

knowledge to an actual work situation. This course offers work experience under instructional supervision in an approved training situation designed to provide practical experience in marketing and management. A minimum of 15 hrs./wk. on-the-job training is required.

### **MKT 290**

#### **CAPSTONE:MARKETING/MANAGEMENT (3 CR)**

*Prerequisites: BUS 141, BUS 230, MKT 284, MKT 286 or permission of division administrator*

Upon successful completion of this course, the student should be able to identify problems, develop and describe the situational analysis, formulate alternative solutions, and reach and explain a decision for each issue. In addition, the student should be able to apply the knowledge of marketing and management concepts and techniques in the analysis of cases and actual business situations. 3 hrs. lecture/wk.

## **Mathematics (MATH)**

### **MATH 111**

#### **FUNDAMENTALS OF MATH (3 CR)**

*Prerequisite: Appropriate score on the math assessment test*

Fundamentals of Mathematics is designed for the student who needs to improve or review basic math skills and concepts. This course includes computation using integers, fractions, decimals, proportions and percents along with an overview of percents, measurement, geometry, statistics and linear equations. Fundamentals of Math provides the mathematical foundation upon which subsequent studies in mathematics and other areas depend. 3 or 5 hrs. lecture / wk. This course does not fulfill degree requirements.

### **MATH 115**

#### **INTRODUCTION TO ALGEBRA (3 CR)**

*Prerequisite: MATH 111 with a minimum grade of "C" or appropriate score on the math assessment test*

This is a beginning course in algebra, designed to help students acquire a solid foundation in the basic skills of algebra. Students will learn to simplify arithmetic and algebraic expressions, including exponential expressions, polynomials, rational expressions and radical expressions; solve equations and inequalities, including linear equations and quadratic equations; graph linear equations; and analyze linear equations. 3 or 5 hrs. lecture/wk. This course does not fulfill degree requirements.

### **MATH 116**

#### **INTERMEDIATE ALGEBRA (3 CR)**

*Prerequisite: MATH 115 with a minimum grade of "C" or appropriate score on the math assessment test*

This course focuses on arithmetic and algebraic manipulation, equations and inequalities, graphs, and analysis of equations and graphs. Students will simplify arithmetic and algebraic expressions, including those containing rational expressions, rational exponents, radicals and complex numbers; solve equations and inequalities including linear, quadratic, quadratic in form, as well as those containing rational expressions, radicals or absolute value; graph linear inequalities and basic conics; and analyze functions and nonfunctions. 3 or 5 hrs.lecture/wk.

### **MATH 118**

#### **GEOMETRY (3 CR)**

*Prerequisite: MATH 115 with a minimum grade of "C" or appropriate score on the math assessment test*

This course is an informal approach to geometry. Topics will include lines, polygons, area, volume, circles, similarity, congruence and coordinate geometry. 3 hrs. lecture/wk.

### **MATH 120**

#### **BUSINESS MATH (3 CR)**

*Prerequisite: MATH 111 with a minimum grade of "C" or appropriate score on the math*



### *assessment test*

This is a course for the student who needs specific skills in mathematics to address business problems and business applications. Students will learn the mathematics involved in retailing, payroll, financial analysis, interest, and money management. Students will use a calculator and computer to solve a variety of applications. 3 hrs./wk.

## **MATH 122** **MATHEMATICS IN OUR CULTURE (3 CR)**

*Prerequisite: MATH 111 with a minimum grade of "C" or appropriate score on the math assessment test*

This is a course about the extent, power and history of many interesting areas of mathematics. Topics will include mathematical reasoning and recreation, calculator activities, computer literacy, mathematics in art and music, probability, statistics and topology. 3 hrs./wk.

## **MATH 133** **TECHNICAL MATHEMATICS I (4 CR)**

*Prerequisite: MATH 111 with a minimum grade of "C" or appropriate score on the math assessment test*

This course is the first of a two-semester sequence that will introduce the mathematical skills and concepts necessary in technical work. It will focus on the basics of algebra, geometry and trigonometry and their applications. Topics will include operations with polynomials, linear equations, systems of equations, right triangle trigonometry and basic statistical concepts. 4 hrs./wk.

## **MATH 134** **TECHNICAL MATHEMATICS II (5 CR)**

*Prerequisite: MATH 133 or an equivalent course with a minimum grade of "C"*

This course is the second of a two-semester sequence on technical applications of algebra and trigonometry. Topics will include factoring, algebraic fractions, quadratic equations, exponents, radicals, an introduction to coordinate geometry, logarithmic and exponential functions, trigonometric graphs and identities. 5 hrs. /wk.

## **MATH 150** **DESCRIPTIVE STATS USING SPSS (3 CR)**

*Prerequisite: MATH 120 or higher or an equivalent course with a minimum grade of "C"*

This is a beginning course in statistical analysis that makes extensive use of the computer software package SPSS. This course is intended for students who have an interest in data mining. This course covers the basics of using SPSS to analyze statistical data which include inputting data, manipulating data, constructing cross-tabulation tables and pivot tables, and constructing various types of charts. The statistical analyses in the course will include measures of central tendency, measures of dispersion, measures of correlation, and an introduction to multiple response variables. The course also includes the basic components of good survey design. Finally, the course covers techniques for constructing simple statistical models for making predictions with existing data. 3 hrs./wk.

## **MATH 165** **FINITE MATH (3 CR)**

*Prerequisite: MATH 116 with a minimum grade of "C" or MATH 099 with a grade of "C" or better or IDSP 127 with a grade of "C" or better or appropriate score on the math assessment test*

This course will emphasize the beauty, scope, practical applications and relevance of mathematics. It is designed to involve the students with concepts as well as quantitative skills. Topics include inductive and deductive reasoning, mathematical patterns, sets, introduction to trigonometry, Euclidean geometry, probability, statistics and matrices. The common themes throughout the course are innovation in computers, related mathematical and cultural history, and reasoning ability. 3 hrs./wk.

## **MATH 171** **COLLEGE ALGEBRA (3 CR)**

*Prerequisite: MATH 116 with a minimum grade of "C" or MATH 134 with a minimum grade of "C" or appropriate score on the math assessment test Note: Not available to students with credit in MATH 173*

This course focuses on the study of functions and their graphs, techniques of solving equations and the recognition and creation of patterns. Students will analyze and graph functions, including constant, linear, absolute value, square root, polynomial, rational, exponential and logarithmic functions and non-functions; solve equations and inequalities, including polynomial equations, exponential equations, logarithmic equations, systems of linear equations and systems of linear inequalities; and analyze and create algebraic and numerical patterns. 3 or 5 hrs./wk.

## **MATH 172** **TRIGONOMETRY (3 CR)**

*Prerequisite: MATH 171 with a minimum grade of "C" or appropriate score on the math assessment test Note: Not available to students with credit in MATH 173*

This is a course in trigonometric functions and graphs. Emphasis will be on understanding function notation, definitions, algebraic relations, real-world applications, graphing in the real and complex plane, inverse functions, polar functions and vectors. Students who take Math 172 and Math 173 will receive at most five hours of credit toward graduation. 3 hrs./wk.

## **MATH 173** **PRECALCULUS (5 CR)**

*Prerequisite: MATH 116 with a minimum grade of "C" or appropriate score on the math assessment test Note: Not available for credit for students with credit in MATH 171 and/or MATH 172*

This course focuses on the study of functions and their graphs, trigonometry, techniques of solving equations and the recognition and creation of patterns. Students will analyze and graph functions, including constant, linear, absolute value, square root, polynomial, rational, exponential, logarithmic and trigonometric functions and nonfunctions; solve equations and inequalities, including polynomial equations, exponential equations, logarithmic equations, trigonometric equations, systems of linear and nonlinear equations and systems of linear and nonlinear inequalities; and analyze and create algebraic and numerical patterns. 5 hrs./wk. MATH 173 is an accelerated course recommended for students with a strong high school math background (three to four years) who plan to take calculus.

## **MATH 175** **DISCRETE MATH (3 CR)**

*Prerequisite: MATH 171 or MATH 173 with a minimum grade of "C" or appropriate score on the math assessment test*

This course is designed to present the beauty, scope, practical applications and relevance of mathematics. It will focus on applications of general interest drawn primarily from the social and biological sciences and business. Topics will be placed in a historical context, and mathematical reasoning will be stressed. Many of the applications will be computer-oriented. 3 hrs./wk.

## **MATH 181** **STATISTICS (3 CR)**

*Prerequisite: MATH 171 or MATH 173 or an equivalent course with a minimum grade of "C" or appropriate score on the math assessment test*

This is a beginning course in statistical analysis, the skill of making sense of raw data - constructing graphical representations of data, developing models for making predictions, performing tests to determine significant change and finding intervals for population values. Students will learn the basics of descriptive statistics, probability, sampling, confidence intervals, distributions, hypothesis testing, regression and correlation. Computer applications will be incorporated into course topics. 3 hrs./wk.

## **MATH 225** **MATH AS A DECISION MAKING TOOL (3 CR)**

*Prerequisite: MATH 171 or MATH 173 with a minimum grade of "C" or appropriate score on the math assessment test*

The focus of this course is to develop the quantitative skills and reasoning ability necessary to help students read critically and make decisions in our technical information society. A project tying this

course to the student's own interest is a course requirement. Major topics include collecting and describing data, inferential statistics and probability, geometric similarity, geometric growth, symmetry and patterns. 3 hrs. lecture/wk.

**MATH 231**  
**BUSINESS & APPLIED CALCULUS I (3 CR)**

*Prerequisite: MATH 171 or MATH 173 with a minimum grade of "C" or appropriate score on the math assessment test*

This is the first course in calculus as it applies to business, psychology and the physical sciences. Concepts include measuring the slope of a curve, writing equations of tangent lines, finding maximum and minimum points, determining the rate of change of a function, and measuring the area under a curve. Algebraic skills and application problems are stressed. Specific calculus topics include finding limits, differentiation of algebraic, exponential and logarithmic functions, and integration of algebraic and exponential functions. Trigonometry (MATH 172) can be taken concurrently with MATH 231 for those students planning to enroll in MATH 232 in subsequent semesters. 3 hrs./wk.

**MATH 232**  
**BUSINESS & APPLIED CALCULUS II (3 CR)**

*Prerequisites: MATH 231 and either MATH 172 or MATH 173 or an equivalent course, with a minimum grade of "C"*

This is the second course in a two-semester series on calculus that covers five techniques of integration, differentiation and integration of trigonometric functions, differential equations, and functions of several variables as applied to business, statistics, biology and the social sciences. 3 hrs./wk.

**MATH 237**  
**CALCULUS FOR BIOLOGY/MEDICINE (5 CR)**

*Prerequisite: MATH 172 or MATH 173 or an equivalent course with a minimum grade of "C"*

This course focuses on the study and mathematical modeling of biological systems. Through a host of biological and medical applications, the rudiments of calculus are developed. Concepts include measuring the slope of a curve, writing equations of tangent lines, maximizing and minimizing a function, determining the rate of change of a function, and measuring the area under a curve. Solution techniques, both analytic and numeric, for difference and differential equations are used. Modeling activities are heavily emphasized. Qualitative analysis of solutions of differential equations is incorporated in modeling activities. Application areas include mathematical physiology, pharmacology, cell biology and populations biology. 5 hrs. lecture/wk.

**MATH 241**  
**CALCULUS I (5 CR)**

*Prerequisite: MATH 172 or MATH 173 or an equivalent course with a minimum grade of "C"*

This is the first of a three-semester sequence on calculus designed for engineering, physics and math majors. Rates of change, areas and volumes will be studied. To accomplish this, the students will study and apply limits and continuity. Differentiation and integration of algebraic, trigonometric and transcendental functions will also be a major focus of this course. 5 hrs./wk.

**MATH 242**  
**CALCULUS II (5 CR)**

*Prerequisite: MATH 237 or MATH 241 or an equivalent course with a minimum grade of "C"*

This is the second course of a three-semester sequence on calculus. The emphasis will be an analytic, numerical and graphical approach to techniques of integration, infinite series and vectors in the plane including scientific applications. 5 hrs./wk.

**MATH 243**  
**CALCULUS III (5 CR)**

*Prerequisite: MATH 242 or an equivalent course with a minimum grade of "C"*

This is the third course in a three-semester sequence on analytic geometry and calculus. Topics include vector-valued functions, functions of several variables, multiple integration, vector analysis

and linear algebra. 5 hrs./wk.

**MATH 244**  
**DIFFERENTIAL EQUATIONS (3 CR)**

*Prerequisite: MATH 243 or an equivalent course with a minimum grade of "C"*

This course will cover standard types of equations that involve rates of change. In particular, this is an introductory course in equations that involve ordinary derivatives. Both qualitative and quantitative approaches will be used. Standard types and methods will be covered, including Laplace transforms and numerical methods. 3 hrs./wk.

**MATH 246**  
**ELEMENTARY LINEAR ALGEBRA (3 CR)**

*Prerequisite: MATH 232 or MATH 242 or an equivalent course with a minimum grade of "C"*

This sophomore-level introduction to linear algebra uses a matrix-oriented approach, with an emphasis on problem solving and applications. The course focus is on matrix arithmetic, systems of linear equations, properties of Euclidean n-space, eigenvalues and eigenvectors, orthogonality and vector spaces. The use of technology is a major feature of the course. 3 hrs. lecture/wk.

**MATH 250**  
**ADV ENGINEERING MATHEMATICS (5 CR)**

*Prerequisite: MATH 242 or an equivalent course with a minimum grade of "C"*

The focus of the course will be the study and mathematical modeling of engineering systems, both mechanical and electrical. Solution techniques, both analytic and numeric, for a single ordinary differential equation and for systems of first-order ordinary differential equations are used. Also, Laplace transforms and their applications are used as they apply to engineering systems. Linear algebraic systems of equations and the concepts of vector spaces, basis, dimension and subspaces are encountered as well. 5 hrs. lecture/wk.

**MATH 281**  
**HONORS PROJECT IN MATH (2 CR)**

A description is not available for this course.

**MATH 285**  
**STATISTICS FOR BUSINESS (4 CR)**

*Prerequisite: MATH 232 or MATH 242 or an equivalent course with a minimum grade of "C" Note: Students transferring MATH 285 to the University of Kansas must have CIS 124 or CIS 134 as a co-requisite. or corequisite CIS 124 or CIS 134*

This is a beginning course in calculus-based statistical analysis, the skill of making sense of raw data -- constructing graphical representations of data, developing models for making predictions, performing tests to determine significant change and finding intervals for population values. Students must have an understanding of calculus concepts in order to successfully complete this course. Students will learn the basics of descriptive statistics, probability, sampling, confidence intervals, hypothesis testing and linear regression. The course will stress the applications to business with emphasis on quality control. 4 hrs./wk.

## **Metal Fabrication and Welding (MFAB)**

**MFAB 121**  
**INTRODUCTION TO WELDING (4 CR)**

Upon successful completion of this course, the student should be able to perform oxy-fuel cutting (OFC), oxy-fuel welding (OFW) and brazing, shielded metal arc welding (SMAW) and gas metal arc welding (GMAW) equipment. The SMAW portion of the course will cover positions but will be limited to fillet welds. All welds will be tested according to industry standards. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand

tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk.

### **MFAB 125** **ADVANCED GAS AND ARC WELDING (4 CR)**

*Prerequisite: MFAB 121*

This course is a continuation of Introduction to Welding. The course will cover more advanced projects in oxyacetylene welding, cutting, brazing, shielded metal arc welding (SMAW) and carbon arc cutting with air (CAC-A). The SMAW process will be used to weld v-groove butt joints in the flat, horizontal, vertical up and overhead positions, with root and face U-bend test being performed on the welds made in the vertical position. The student will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk.

### **MFAB 127** **WELDING PROCESSES (2 CR)**

Upon successful completion of this course, the student should be able to identify various welding processes used by industries. Standard shop and maintenance welding processes will be taught and demonstrated. Welds will be tested and inspected according to industry standards. This course can be used by an individual company to train or upgrade train employees and can be customized to fit individual needs. 1 hr. lecture, 1.5 hrs. lab/wk.

### **MFAB 130** **GAS METAL ARC WELDING I (4 CR)**

Upon successful completion of this course, the student should be able to identify the theory of gas metal arc welding (GMAW) and flux-cored arc welding (FCAW). The welding of mild steel plate will occur in all positions on both fillet and groove welds with the GMAW process. The FCAW process will be used to weld some fillet and groove welds on mild steel in selected weld positions. The Plasma Arc Cutting (PAC) metal cutting process will be used to conserve material use and plant preparation. A root and face guide U-bend test will be performed on vertical up GMAW weld test coupons. The student will be required to provide ANSI Z87 safety glasses, and may be expected to provide other basic hand tools and/or equipment. 1 hr. lecture, 6 hrs. lab/wk.

### **MFAB 140** **MAINTENANCE REPAIR WELDING (3 CR)**

*Prerequisites: MFAB 121 or MFAB 130*

Upon successful completion of this course, the student should be able to perform oxyfuel cutting (OFC), shielded metal arc welding (SMAW), gas metal arc welding (GMAW) and plasma arc cutting (PAC). Basic blueprint and welding symbols will be introduced, and selected welds and assignments will be tested according to industry standards. The student will be required to provide ANSI Z-97.1 approved safety glasses and may be expected to provide other basic hand tools and/or equipment as required by employers. This course is designed for individuals who have welding experience or who are employed by a company that requires welding skills. This course can be customized for advanced training. 1 hr. lecture, 2 hrs. lab/wk.

### **MFAB 152** **MANUFACTURING MATERIALS/PROCES (3 CR)**

This is a beginning course in metal fabrication technology that is appropriate for the metal fabrication major and other interested students. Upon successful completion of this course, the student should be able to identify various manufacturing materials and processes currently used in industry. The capabilities and applications of machine tool, general fabrication, welding processes, robotics, cut-off equipment and other manufacturing processes and equipment will be studied. Lectures will be supplemented by demonstrations of various processes and equipment. Students are required to wear safety glasses during demonstrations. 3 hrs. lecture-demonstrations/wk.

**MFAB 160**  
**GAS TUNGSTEN ARC WELDING (4 CR)**

*Prerequisite: MFAB 121*

This course will cover the basic theory of gas tungsten arc welding (GTAW). The student will weld on mild steel, stainless steel and aluminum in a variety of positions on both fillet and groove welds using the GTAW process, with guided U-bend test being performed on mild steel. Students will also use the plasma arc cutting system (PAC) on selected assignments. The students will be required to provide ANSI Z87 safety glasses and may be expected to provide other basic hand tools and/or equipment. 1 hrs. lecture, 6 hrs. lab/wk.

**MFAB 170**  
**BASIC MACHINE TOOL PROCESSES (4 CR)**

Upon successful completion of this course, the student should be able to practice the basic principles of machining as well as the setup and operation of machines. Lab will include the use of lathes, mills, drills, cut-off and other types of equipment. 2 hrs. lecture, 4 hrs. lab/wk.

**MFAB 180**  
**BLUEPRINT & SYMBOLS FOR WELDER (2 CR)**

Upon successful completion of this course, the student should be able to identify basic welding positions and explain, list, sketch, draw, use or describe current American Welding Society (AWS) welding symbols and weld joint configurations. The student will be introduced to several methods of producing welding blue prints, object representations, and specific meanings of selected lines, surface features, sectional views and basic math formulas used in the welding industry. The student will be able to identify the symbols used for fillet welds and groove welds made with and without backing. Topics such as pipe welding representations, pipe welding connections, pipe welding classifications, welder certification, metallurgical effects of heat on metals and the importance of weld quality will be studied. 4 hrs. lecture/wk.

**MFAB 230**  
**GAS METAL ARC WELDING II (4 CR)**

*Prerequisite: MFAB 130*

Upon successful completion of this course, the student should be able to identify the theory of gas metal arc welding (GMAW) and flux-cored arc welding (FCAW). The student will weld with the GMAW and FCAW processes in the flat, horizontal, vertical up and overhead positions on both fillet and groove welds. The GMAW welds will be made on aluminum, and the FCAW welds will be on 1-inch mild steel with side bend test being made on the overhead and horizontal weldments. 1 hr. lecture, 6 hrs. lab/wk.

**MFAB 240**  
**METALLURGY (2 CR)**

Metallurgy is the study of the science and technology of metals. This course covers the extractive, mechanical and physical phases of metallurgy. Topics include the identification of metals, types and classification of metals, heat treatment procedures and common steel manufacturing processes. 2 hrs. lecture-demonstration/wk.

**MFAB 271**  
**METAL FABRICATION INTERNSHIP (3 CR)**

*Prerequisite: Approval of the division administrator*

Upon successful completion of this course, the student should be able to apply classroom knowledge to an actual work situation. The internship will provide advanced students with on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employers, college staff and each student to provide a variety of actual job experiences directly related to the student's career goals. 1 hrs. lecture, 15 hrs. minimum on-the-job training/wk.

# Music (MUS)

## **MUS 121** **INTRO TO MUSIC LISTENING (3 CR)**

This course is designed to enhance student music listening. Students will learn to identify changes in the elements of music through the different stylistic periods of classical music. Factual and historical information will be presented to broaden the student's cultural and music appreciation. Students will hear recorded examples of music from the Medieval, Renaissance, Baroque, Classical, Romantic and 20th-century eras, as well as popular American forms and music from non-Western cultures. 3 hrs./wk.

## **MUS 123** **INTRO TO MUSIC FUNDAMENTALS (2 CR)**

This course is designed to present the fundamentals of music theory to students who have no previous background or training in that subject. Students will receive detailed instruction in naming notes; building intervals, scales and chords; and correlating these skills to the keyboard. 2 hrs./wk.

## **MUS 125** **INTRO TO JAZZ LISTENING (3 CR)**

This is an entry-level course for the student with little or no prior knowledge of the American art form of jazz music. Through reading and listening, the student will learn the basic structure of the elements of music and how these are organized to create jazz. Topics to be covered will include rhythm, harmony, and form; Dixieland style; swing style; bop; and contemporary jazz. 3 hrs./wk.

## **MUS 131** **SIGHT-SINGING/EAR TRAINING I (2 CR)**

This course is an introduction to sight singing and ear training. Basic methods of reading music are presented and practiced. Students are also trained to recognize aurally and notate the basic elements of music: interval, diatonic melodies, simple rhythms, chord qualities and basic harmonic progressions. The content is designed to complement the Harmony I course, though it is not necessary they be taken in the same semester. 2 hrs./wk.

## **MUS 132** **SIGHT-SINGING/EAR TRAINING II (2 CR)**

*Prerequisite: MUS 131*

This course is a continuation of the class Sight-singing and Ear Training I. The content is designed to complement the Harmony II course though it is not necessary they be taken in the same semester. 2 hrs./wk.

## **MUS 133** **SIGHT-SINGING/EAR TRAINING III (2 CR)**

*Prerequisite: MUS 132*

This course is a continuation of the classes Sight-singing and Ear Training I and II. The content is designed to complement the Harmony III course, though it is not necessary they be taken in the same semester. 2 hrs./wk.

## **MUS 134** **SIGHT-SINGING/EAR TRAINING IV (2 CR)**

*Prerequisite: MUS 133*

This course is a continuation of the first three courses in sight-singing and ear training. Students

are trained to produce and hear the most complex aspects of music theory in the common practice era (1650-1920). The content is designed to complement the Harmony IV course, though it is not necessary they be taken in the same semester. 2 hrs./wk.

### **MUS 141**

#### **MUSIC THEORY: HARMONY I (3 CR)**

*Prerequisite: MUS 121 or passing equivalency test*

This course is a basic study of the harmonic system syted in Western musical composition from approximately 1650 to 1900. Students will gain understanding of this harmonic language through demonstration and practice. Students will write and analyze music in this style. 3 hrs./wk.

### **MUS 142**

#### **MUSIC THEORY: HARMONY II (3 CR)**

*Prerequisite: MUS 141 or passing equivalency test*

Harmony II is a continuation of the study of the harmonic system used in music composed from 1650 to 1900 and still in use in certain areas of music composition. The course covers use of non-harmonic tones, supertonic and dominant sevenths, functions of the submediant and mediant triads, advanced melodic writing and secondary dominate chords. Student will learn to harmonize melodies at the keyboard and play simple chord progressions on the piano. Music of the period will be analyzed. Selected software programs will enhance student skills and understanding. 3 hrs./wk.

### **MUS 143**

#### **MUSIC THEORY: HARMONY III (3 CR)**

*Prerequisite: MUS 142 or passing equivalency test*

This is a continuation of the study of the harmonic system used in music composed from 1650 to 1900 and still in use in certain areas of music composition. Important topics include devices of modulation, binary and ternary musical forms and application of part writing procedures to instrumental music. Particular attention will be paid to the nature and functions of diatonic seventh chords, borrowed chords and augmented sixth chords in both minor and major keys. Keyboard harmony exercises of increasing difficulty will be used by the student. Advanced software programs will aid student skills and harmonic understanding. 3 hrs./wk.

### **MUS 144**

#### **MUSIC THEORY: HARMONY IV (3 CR)**

*Prerequisite: MUS 143 or passing equivalency test*

Harmony IV is a continuation of the study of the harmonic system used in music composed from 1650 to 1900 and still in use in certain areas of music composition. Important topics include the use of secondary leading tone chords; Neapolitan sixth chords and augmented sixth chords; ninth, eleventh and thirteenth chords; and modulation using inharmonic chords. Students will work with keyboard harmony exercises of increasing difficulty that pertain to these topics. An introduction to all-important 20th-century compositional practices will also be included toward the end of the semester. Selected software programs will enhance student skills and understanding. 3 hrs./wk.

### **MUS 151**

#### **MIXED VOCAL ENSEMBLE I (1 CR)**

*Prerequisite: Audition*

Choral ensembles are open to participation by the student body. Choral experience or skill is desired in some ensembles but not in others. The ensemble will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. The literature will be specific to the nature of the group and the skills of the students involved. 3 hrs./wk.

### **MUS 152**

#### **MIXED VOCAL ENSEMBLE II (1 CR)**

*Prerequisite: MUS 151 and placement audition*

Choral ensembles are open to participation by the student body. Choral experience or skill is desired in some ensembles but not in others. The ensemble will learn a varied body of choral



materials from the choral traditions of both past and present, performing at student and community activities. The literature will be specific to the nature of the group and the skills of the students involved. 3 hrs./wk.

**MUS 153**  
**MIXED VOCAL ENSEMBLE III (1 CR)**

*Prerequisite: Placement audition and MUS 152*

Choral ensembles are open to participation by the student body. Choral experience or skill is desired in some ensembles but not in others. The ensemble will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. The literature will be specific to the nature of the group and the skills of the students involved. 3 hrs./wk.

**MUS 154**  
**MIXED VOCAL ENSEMBLE IV (1 CR)**

*Prerequisite: Placement audition and MUS 153*

Choral ensembles are open to participation by the student body. Choral experience or skill is desired in some ensembles but not in others. The ensemble will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. The literature will be specific to the nature of the group and the skills of the students involved. 3 hrs./wk.

**MUS 156**  
**MIDI MUSIC COMPOSITION I (3 CR)**

MIDI Music Composition I is designed to create a technical and conceptual foundation for further studies in electronic music. Students will learn and demonstrate basic compositional techniques, including form, melody, rhythm and harmony. Also, the student will demonstrate the ability to use computers and software to create and perform music. Emphasis will be on developing skills appropriate to the beginning student for the purpose of creative and technical expression. 2 hrs. lecture, 2 hrs. lab/wk.

**MUS 157**  
**MIDI MUSIC COMPOSITION II (3 CR)**

*Prerequisite: MUS 156*

MIDI Music Composition II is designed to put into practical use and to build on skills acquired in MIDI Music Composition I. Students will demonstrate the ability to create, store and utilize new, original sonorities via the graphic editing process. The course emphasizes each student's portfolio, which is a comprehensive example of the student's work to be used either for personal, commercial or academic purposes. 2 hrs. lecture, 2 hrs. lab/wk.

**MUS 161**  
**CHAMBER CHOIR I (1 CR)**

*Prerequisite: Audition*

This auditioned choral ensemble is open to participation by the student body. Prior choral experience or a reasonable level of music reading and vocal technique is necessary. The choir will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. 3 hrs./wk.

**MUS 162**  
**CHAMBER CHOIR II (1 CR)**

*Prerequisite: MUS 161 and audition*

This auditioned choral ensemble is open to participation by the student body. Prior choral experience or a reasonable level of music reading and vocal technique is necessary. The choir will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. 3 hrs./wk.

**MUS 163**  
**CHAMBER CHOIR III (1 CR)**

*Prerequisite: MUS 162 and Audition*

This auditioned choral ensemble is open to participation by the student body. Prior choral experience or a reasonable level of music reading and vocal technique is necessary. The choir will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. 3 hrs./wk.

**MUS 164**  
**CHAMBER CHOIR IV (1 CR)**

*Prerequisite: MUS 163 and Audition*

This auditioned choral ensemble is open to participation by the student body. Prior choral experience or a reasonable level of music reading and vocal technique is necessary. The choir will learn a varied body of choral materials from the choral traditions of both past and present, performing at student and community activities. 3 hrs./wk.

**MUS 165**  
**MUSIC COMPOSITION I (1 CR)**

*Prerequisite: MUS 141 or consent of instructor*

This entrylevel course provides instruction in the craft of musical composition. Traditional compositional techniques and concepts will be studied through demonstration and practice. Students will learn correct notational procedures and compose melodies and short pieces for one or two live performers. 1 hr. lecture/wk.

**MUS 166**  
**MUSIC COMPOSITION II (1 CR)**

*Prerequisite: MUS 165*

This is an intermediate-level course for students seeking instruction in the craft of musical composition. Traditional compositional techniques and concepts will be studied through demonstration and practice. Students will learn to use a computer to notate their compositions, will begin to work with tonal harmony, will write music for a trio and/or quartet, and will have a piece performed during a music department recital. 1 hr. lecture/wk.

**MUS 167**  
**MUSIC COMPOSITION III (1 CR)**

*Prerequisite: MUS 166*

This class is an intermediate-level course for the student seeking instruction in the craft of musical composition. Traditional compositional techniques and concepts will be studied through demonstration and practice. Students will enhance their ability to use a computer to notate their compositions, will begin to work with nonfunctional tonal harmony, will write music for SATB choir or for vocal soloist, and will have a piece performed during a music department recital. 1 hr. lecture/wk.

**MUS 168**  
**MUSIC COMPOSITION IV (1 CR)**

*Prerequisite: MUS 167*

This course is an advanced-level class for students seeking further instruction in the craft of musical composition. Traditional compositional techniques and concepts will be studied through demonstration and practice. Students will refine their ability to use a computer to notate their compositions, will continue to work with nonfunctional tonal harmony, will write music for larger ensembles, will have a piece performed in a music department recital, and will compile a portfolio of their work. 1 hr. lecture/wk.

**MUS 171**  
**VOICE CLASS I (1 CR)**

This course is designed to introduce the student to beginning vocal technique, vocal vocabulary,

performance experience and solo vocal repertoire. 1 hr./wk.

**MUS 172**  
**VOICE CLASS II (1 CR)**

*Prerequisite: MUS 171*

This course is designed to continue instruction in proper vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

**MUS 173**  
**VOICE CLASS III (1 CR)**

*Prerequisite: MUS 172*

This course is designed to continue instruction in proper vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

**MUS 174**  
**VOICE CLASS IV (1 CR)**

*Prerequisite: MUS 173*

This course is designed to continue instruction in proper vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

**MUS 176**  
**JAZZ BAND I (1 CR)**

*Prerequisite: Audition*

This is an entry-level course in the jazz band performing format for the student with little or no experience in this course of study. The student will learn, through rehearsal and performance, the basic elements of music and how these are utilized in the jazz band. Topics will include simple rhythms, basic melodic construction and major scale construction. 3 hrs./wk.

**MUS 177**  
**JAZZ BAND II (1 CR)**

*Prerequisite: MUS 176 or audition with instructor*

This is a beginning-level course for the student with at least one semester of prior jazz band experience. Through rehearsal and performance, the student will learn beginning elements of music as applied to the jazz band performing format. Topics covered will include syncopated rhythm, Dorian minor scales and blues form. 3 hrs./wk.

**MUS 178**  
**JAZZ BAND III (1 CR)**

*Prerequisite: MUS 177 or audition with instructor*

This is an intermediate-level course for the student with at least two semesters of prior jazz band experience. Through rehearsal and performance, the intermediate levels of jazz band performance will be learned. Topics covered will include Latin style, Mixolydian scales and the 32-bar song form. 3 hrs./wk.

**MUS 179**  
**JAZZ BAND IV (1 CR)**

*Prerequisite: MUS 178 or audition with instructor*

This is an advanced-level course for the student with at least three semesters of prior jazz band experience. Advanced elements of jazz music will be learned through rehearsal and performance. Topics covered will include Lydian scales and ensemble performance techniques. 3 hrs./wk.

**MUS 187**  
**JAZZ IMPROVISATION I (2 CR)**

*Prerequisite: Audition*

This is an entry-level course for the student with little or no jazz improvisation experience. Through written work and performance on the instrument of choice, the student will learn the basic elements of jazz improvisation. Topics to be covered will include identification and performance of basic intervals, major scales, Dorian modes, Mixolydian modes, major seventh chords, minor seventh chords, dominant seventh chords and the basic blues form. 2 hrs./wk.

**MUS 188**  
**JAZZ IMPROVISATION II (2 CR)**

*Prerequisite: MUS 187 or audition with instructor*

This is an advanced-level course for the student with at least one semester of jazz improvisation. Through performance on the chosen instrument and written studies, the student will learn advanced concepts of jazz improvisation. Topics to be covered include jazz performance style, construction of the improvised solo and 32-bar song form. 2 hrs./wk.

**MUS 191**  
**CONCERT BAND I (1 CR)**

*Prerequisite: Audition*

This is an entry-level course in the concert band format for the student with little or no concert band experience. Students will learn the basic elements of music as related to the concert band through rehearsal and performance. Topics include counting and subdividing motifs into melodies; and differentiating between major and minor tonalities. 3 hrs./wk.

**MUS 192**  
**CONCERT BAND II (1 CR)**

*Prerequisite: MUS 191 or audition with instructor*

This is a beginning-level course in the concert band format for the student with at least one semester of prior concert band experience. Students will learn the beginning-level elements of music as related to the concert band through rehearsal and performance. Topics to be covered include odd meters, minor scales and homophonic texture. 3 hrs./wk.

**MUS 193**  
**CONCERT BAND III (1 CR)**

*Prerequisite: MUS 192 or audition with instructor*

This is an intermediate course for the student with at least two semesters of prior concert band experience. Through rehearsal and performance, the student will learn intermediate levels of the elements of music in the concert band format. Topics will include parade march style, concert march style and concert overture style. 3 hrs./wk.

**MUS 194**  
**CONCERT BAND IV (1 CR)**

*Prerequisite: MUS 193 or audition with instructor*

This is an advanced course for the student with at least three semesters of prior concert band performing experience. Through rehearsal and performance, the student will learn the advanced concepts of concert band performance. Topics will include polyphonic texture, concert suite style and medley style. 3 hrs./wk.

**MUS 195**  
**VOCAL JAZZ ENSEMBLE I (1 CR)**

*Prerequisite: Audition*

This is an entry-level course in the vocal jazz performing format. Through rehearsal and public performance, the student will learn the basic elements of music as applied to vocal jazz. Topics will include 8th note swing, jazz syncopation and 32-bar song form. 3 hrs./wk.

**MUS 196**  
**VOCAL JAZZ ENSEMBLE II (1 CR)**

*Prerequisite: MUS 195 or audition with instructor*

This is a beginning-level course in the vocal jazz performing format. Through rehearsal and public performance, the student will learn the basic elements of music as applied to vocal jazz. Topics will include Dorian minor scales, Mixolydian scales and 12-bar blues form. 3 hrs./wk.

**MUS 197**  
**VOCAL JAZZ ENSEMBLE III (1 CR)**

*Prerequisite: MUS 196 or audition with instructor*

This is an intermediate-level course in the vocal jazz performing format. Through rehearsal and public performance, the student will learn the basic elements of music as applied to vocal jazz. Topics will include beginning improvisation, Latin rhythm and major scales. 3 hrs./wk.

**MUS 198**  
**VOCAL JAZZ ENSEMBLE IV (1 CR)**

*Prerequisite: MUS 197 or audition with instructor*

This is an advanced-level course in the vocal jazz performing format. Through rehearsal and public performance, the student will learn the basic elements of music as applied to vocal jazz. Topics will include scat, improvisation in 32-bar song form, Lydian scales and ballad style. 3 hrs./wk.

**MUS 201**  
**CHAMBER ENSEMBLE I (1 CR)**

*Prerequisite: Audition*

This is an entry-level course for the student with little or no experience in the chamber ensemble performing format. Through written work and performance on the chosen instrument, the student will learn the basic fundamentals of this performing medium. Topics to be covered will include tone quality, intervals and rhythmic patterns. 2 hrs./wk.

**MUS 202**  
**CHAMBER ENSEMBLE II (1 CR)**

*Prerequisite: MUS 201 or placement by instructor*

This is a beginning-level course for the student with at least one semester of experience in the chamber ensemble performing format. Through written work and performance on the chosen instrument the student will learn the basic fundamental of this performing medium. Topics to be covered will include minor scales, chord construction and compound rhythms. 2 hrs./wk.

**MUS 203**  
**CHAMBER ENSEMBLE III (1 CR)**

*Prerequisite: MUS 202 or placement by instructor*

This is an intermediate-level course for the student with at least two semesters of chamber ensemble experience. Through written work and performance on the chosen instrument, the student will learn intermediate-advanced concepts of chamber ensemble performance. Topics to be covered include sight reading, intonation and style. 2 hrs./wk.

**MUS 204**  
**CHAMBER ENSEMBLE IV (1 CR)**

*Prerequisite: MUS 203 or placement by instructor*

This is an advanced-level course for the student with at least three semesters of prior ensemble experience. Through performance on the chosen instrument, the student will learn the advanced concepts of chamber ensemble performance. Topics to be covered will include balance and cooperative expression. 2 hrs./wk.

**MUS 211**  
**ORCHESTRA I (1 CR)**

*Prerequisite: Audition*

This is an entry-level course in the orchestra format for the student with little or no orchestra experience. Students will learn the basic elements of music as related to the orchestra through

rehearsal and performance. Topics include counting and subdividing duple, triple and quadruple rhythm; assembling melodic motifs into melodies; and differentiating between major and minor tonalities. Students will rehearse and perform with the Overland Park Civic Orchestra. 2 hrs. (1 evening)/wk.

**MUS 212**  
**ORCHESTRA II (1 CR)**

*Prerequisite: MUS 211 or audition with instructor*

This is a beginning-level course in the orchestra format for the student with at least one semester of prior orchestra experience. Students will learn the beginning-level elements of music as related to the orchestra through rehearsal and performance. Topics to be covered include odd meters, minor scales and homophonic texture. 2 hrs. (1 evening)/wk.

**MUS 213**  
**ORCHESTRA III (1 CR)**

*Prerequisite: MUS 212 or audition with instructor*

This is an intermediate course for the student with at least two semesters of prior orchestra experience. Through rehearsal and performance, the student will learn intermediate levels of the elements of music in the orchestra format. Topics will include parade march style, concert march style and concert overture style. (1 evening)/wk.

**MUS 214**  
**ORCHESTRA IV (1 CR)**

*Prerequisite: MUS 213 or audition with instructor*

This is an advanced course for the student with at least three semesters of prior orchestra performing experience. Through rehearsal and performance, the student will learn advanced concepts in orchestral performance. Topics will include polyphonic texture, concert suite style and medley style. 2 hrs. (1 evening)/wk.

**MUS 221**  
**PIANO CLASS I (2 CR)**

This course provides a basic knowledge of music and the essential techniques required to play the piano. Students will learn essential musical terminology, including musical notation and symbols, major and minor key signatures, and the harmonization of melodies using tonic and dominant triads. Specific piano-related terminology will include finger exercises, basic keyboard repertoire using major and minor five-finger patterns, major and minor scales, major and minor triads in root position, ensemble playing of two to four parts, and the formation of good practice habits. Group Piano II should follow the successful completion of this course. Private piano lessons are encouraged for students who successfully complete both courses. 2 hrs./wk.

**MUS 222**  
**PIANO CLASS II (2 CR)**

*Prerequisite: MUS 221 or permission of the instructor*

This is a beginning-level course that provides a basic knowledge of keyboard instruments. Students will learn and review musical terminology, musical notation and symbols, and specific piano-related terminology. Topics covered will include major and minor key signatures; exercises and repertoire using major and minor scales; exercises and repertoire using major, minor, diminished and augmented triads in root position and inversions; chord progressions; ensemble playing of two to four parts; and use of the damper pedal. This course is the continuation of MUS 221. Completion of this course should precede Applied Piano I. This course is for beginners able to progress at a fast pace, students with minimal previous experience or students who have completed MUS 221. 2 hrs./wk.

**MUS 223**  
**PIANO CLASS III (2 CR)**

*Prerequisite: MUS 222 or permission of the instructor*

This is an intermediate course that provides a basic knowledge of keyboard instruments. Students

will learn and review musical terminology, musical notation and symbols, and specific piano-related terminology. Topics covered will include major and minor key signatures; exercises and repertoire using major and minor scales and modes; exercises and repertoire using major, minor, diminished and augmented triads in root position and inversions; chord progressions; ensemble playing of two to four parts; and use of the damper pedal. This course is the continuation of MUS 222. Completion of this course should precede Applied Piano I. This course is designed for students who have completed one year of study or who have completed MUS 222. 2 hrs./wk.

**MUS 224**  
**PIANO CLASS IV (2 CR)**

*Prerequisite: MUS 223 or permission of the instructor*

This is an advanced-level course for the student with at least three semesters of prior piano class instruction. Students will learn the advanced concepts of piano playing. Topics to be covered will include basic music notation, major and minor key signatures, tempo indications, major and minor arpeggios, finger patterns, practice method chord progressions, and the use of the damper pedal. 2 hrs./wk.

**MUS 226**  
**APPLIED GUITAR I (CLASS) (1 CR)**

Students will be provided with a foundation in guitar technique upon which to base further study of the instrument. The course consists of an introduction to the use of the guitar as a solo, accompaniment and ensemble instrument. 1 hr./wk.

**MUS 227**  
**APPLIED GUITAR II (CLASS) (1 CR)**

*Prerequisite: MUS 226 or instructor permission*

This continuation of MUS 226 builds a foundation in guitar technique upon which to base further study of the instrument. The course continues to teach techniques that enable students to use the guitar as a solo, accompaniment and ensemble instrument. 1 hr./wk.

**MUS 228**  
**APPLIED GUITAR III (CLASS) (1 CR)**

*Prerequisite: MUS 227 or instructor permission*

This continuation of MUS 227 is designed to move students from the basic skill level to the intermediate skill level. The course continues to teach techniques that enable students to use the guitar as a solo, accompaniment and ensemble instrument. 1 hr./wk.

**MUS 229**  
**APPLIED GUITAR IV (CLASS) (1 CR)**

*Prerequisite: MUS 228 or instructor permission*

This is a continuation of MUS 228 at an intermediate level of guitar playing skills. The course continues to teach techniques that enable students to use the guitar as a solo, accompaniment and ensemble instrument. 1 hr./wk.

**MUS 231**  
**APPLIED VOICE I (PRIVATE) (1 CR)**

This course is designed to introduce the student to beginning vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

**MUS 232**  
**APPLIED VOICE II (PRIVATE) (1 CR)**

*Prerequisite: MUS 231*

This course uses private lessons to continue instruction in beginning vocal technique, vocal

vocabulary, performance experience and solo vocal repertoire.

**MUS 233**  
**APPLIED VOICE III (PRIVATE) (1 CR)**

*Prerequisite: MUS 232*

This course uses private lessons to continue instruction in beginning intermediate vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

**MUS 234**  
**APPLIED VOICE IV (PRIVATE) (1 CR)**

*Prerequisite: MUS 233*

This course uses private lessons to continue instruction in intermediate vocal technique, vocal vocabulary, performance experience and solo vocal repertoire.

**MUS 236**  
**APPLIED PIANO I (PRIVATE) (1 CR)**

This is an entry-level course for the student with little or no prior piano training. This course provides a basic knowledge of keyboard instruments. Students will learn essential musical terminology, musical notation and symbols, and specific piano-related terminology. Topics covered will include major and minor key signatures; exercises and repertoire using major and minor five-finger patterns; and exercises and repertoire using major and minor scales.

**MUS 237**  
**APPLIED PIANO II (PRIVATE) (1 CR)**

*Prerequisite: MUS 236*

This is a beginning-level course for the student with at least one semester of prior applied piano study. Students will learn the intermediate-level concepts of piano performance. Topics to be covered will include major scales and the natural and harmonic forms of the minor scales, rhythmic patterns and subdivisions of duple and triple meter and the basic keyboard literature of the intermediate level.

**MUS 238**  
**APPLIED PIANO III (PRIVATE) (1 CR)**

*Prerequisite: MUS 237*

This is an intermediate-level course for the student with at least two semesters of prior applied piano study. Students will learn the intermediate-level concepts of piano performance. Topics to be covered will include scale, the melodic form of the minor scale, rhythmic patterns and subdivisions of compound meter, and the basic keyboard literature of the intermediate level.

**MUS 239**  
**APPLIED PIANO IV (PRIVATE) (1 CR)**

*Prerequisite: MUS 238*

This is an advanced-level course for the student with at least two semesters of prior applied piano study. Students will learn the intermediate level concepts of piano performance. Topics to be covered will include Dorian and Mixolydian modes, pentatonic scales and performance of a Chopin etude.

**MUS 241**  
**APPLIED GUITAR I (PRIVATE) (1 CR)**

In this private study in basic guitar technique, emphasis will be upon playing position, posture, tone production and basic music reading skills. Students will begin with studies and short pieces.



**MUS 242**  
**APPLIED GUITAR II (PRIVATE) (1 CR)**

*Prerequisite: MUS 241 or instructor approval*

This is a continuation of private study in basic guitar technique. Emphasis will be upon playing position, posture, tone production and basic music-reading skills. Students will begin with studies and short pieces.

**MUS 243**  
**APPLIED GUITAR III (PRIVATE) (1 CR)**

*Prerequisite: MUS 242 or instructor approval*

In this private study in intermediate guitar technique, emphasis will be on playing position, posture, tone production and intermediate music reading skills. Students will progress toward playing literature requiring intermediate skill levels.

**MUS 244**  
**APPLIED GUITAR IV (PRIVATE) (1 CR)**

*Prerequisite: MUS 243 or instructor approval*

In this continuation of private study in intermediate guitar technique, emphasis will be on playing position, posture, tone production and intermediate music reading skills. Students will progress toward playing literature requiring intermediate skill levels.

**MUS 246**  
**APPL CLASSICAL GUITAR I (PRIV) (1 CR)**

Private study in basic classical guitar technique and repertoire. Emphasis will be upon classical left- and right-hand technique, playing position, posture, tone production and standard classical guitar literature. Students will begin with studies and short pieces.

**MUS 247**  
**APPL CLASSICAL GUITAR II (PRIV) (1 CR)**

*Prerequisite: MUS 246 or instructor approval*

This continuation of private study in basic classical guitar technique and repertoire will emphasize classical left- and right-hand-technique, playing position, posture, tone production and standard classical guitar literature. Students will continue with studies and short pieces, then progress toward longer pieces with the intent of performing these in a recital situation.

**MUS 248**  
**APPL CLASSICAL GUITAR III (PRIV) (1 CR)**

*Prerequisite: MUS 247 or instructor approval*

In this private study in intermediate classical guitar technique and repertoire, emphasis will be on classical left- and right-hand technique, playing position, posture, tone production and standard classical guitar literature. Students will progress toward playing and performing more advanced pieces and guitar studies.

**MUS 249**  
**APPL CLASSICAL GUITAR IV (PRIV) (1 CR)**

*Prerequisite: MUS 248 or instructor approval*

This continuation of private study in intermediate classical guitar technique and repertoire will emphasize classical left- and right-hand technique, playing position, posture, tone production and standard classical guitar literature. Students will progress toward playing and performing more advanced pieces and guitar studies.

**MUS 251**  
**APPLIED BRASS I (PRIVATE) (1 CR)**

This is an entry-level course for the student with little or no experience in performing on a brass instrument. Through written exercises and performance on the instrument of choice, the student will learn the basic concepts of brass performance. Topics to be covered include tone production, basic musical intervals and major scales.

**MUS 252**  
**APPLIED BRASS II (PRIVATE) (1 CR)**

*Prerequisite: MUS 251 or placement by instructor*

This is a beginning-level course for the student with at least one semester of prior brass instrument study. Through written exercises and performance on the instrument of choice, the student will learn the beginning concepts of brass performance. Topics to be covered include embouchure development, minor scales and duple and triple rhythmic patterns.

**MUS 253**  
**APPLIED BRASS III (PRIVATE) (1 CR)**

*Prerequisite: MUS 252 or placement by instructor*

This is an intermediate-level course for the student with at least two semesters of prior brass instrument study. Through written exercises and performance on the instrument of choice, the student will learn the intermediate concepts of brass performance. Topics to be covered include the chromatic scale, quadruple rhythmic patterns and chord construction.

**MUS 254**  
**APPLIED BRASS IV (PRIVATE) (1 CR)**

*Prerequisite: MUS 253 or placement by instructor*

This is an advanced-level course for the student with at least three semesters of prior brass instrument study. Through written exercises and performance on the instrument of choice, the student will learn the advanced concepts of brass performance. Topics to be covered include the pentatonic scale, whole tone scale and melodic contours.

**MUS 256**  
**APPLIED PERCUSSION I (PRIVATE) (1 CR)**

This is an entry-level course for the student with little or no training in percussion instruments. The student will learn the beginning concepts of percussion performance. Topics to be covered include basic duple and triple rhythm, snare drum rudiments and basic snare drum performance patterns.

**MUS 257**  
**APPLIED PERCUSSION II (PRIVATE) (1 CR)**

*Prerequisite: MUS 256 or placement by instructor*

This is a beginning-level course for the student with at least one semester of prior instruction in percussion instruments. The student will learn beginning concepts of percussion performance. Topics to be covered include compound rhythm, snare drum rudiments and basic timpani skills.

**MUS 258**  
**APPL PERCUSSION III (PRIVATE) (1 CR)**

*Prerequisite: MUS 257 or placement by instructor*

This is an intermediate-level course for the student with at least two semesters of prior instruction in percussion instruments. The student will learn beginning concepts of percussion performance. Topics to be covered include snare drum rudiments, basic mallet percussion skills and suspended cymbal skills.

**MUS 259**  
**APPL PERCUSSION IV (PRIVATE) (1 CR)**

*Prerequisite: MUS 258 or placement by instructor*

This is an advanced-level course for the student with at least three semesters of prior instruction in

percussion instruments. The student will learn advanced concepts of percussion performance. Topics to be covered include snare drum rudiments, crash cymbal techniques and drum set skills.

**MUS 261**  
**APPLIED WOODWIND I (PRIVATE) (1 CR)**

This is an entry-level course for the student with little or no experience performing on a woodwind instrument. Through written exercises and performance on the instrument of choice, the student will learn the basic elements of woodwind performance. Topics to be covered include tone production, basic intervals and major scales.

**MUS 262**  
**APPLIED WOODWIND II (PRIVATE) (1 CR)**

*Prerequisite: MUS 261 or placement by instructor*

This is a beginning-level course for the student with at least one semester of prior woodwind study. The student will learn beginning concepts of woodwind performance on the chosen instrument through written exercises and performance. Topics to be covered include embouchure development, minor scales and duple and triple meters.

**MUS 263**  
**APPLIED WOODWIND III (PRIVATE) (1 CR)**

*Prerequisite: MUS 262 or placement by instructor*

This is an intermediate-level course for the student with at least two semesters of prior woodwind study. The student will learn the intermediate concepts of woodwind performance through written exercises and performance. Topics to be covered include chromatic scale, quadruple rhythmic patterns and chord construction.

**MUS 264**  
**APPLIED WOODWIND IV (PRIVATE) (1 CR)**

*Prerequisite: MUS 263 or placement by instructor*

This is an advanced-level course for the student with at least three semesters of prior woodwind study. Through written exercises and performance, the student will learn the advanced concepts of woodwind performance. Topics to be covered include pentatonic scale, whole tone scale and melodic contour.

## **Nursing (NURS)**

**NURS 121**  
**FUNDAMENTALS OF NURSING (9 CR)**

*Prerequisites: Admission to the nursing program, MATH 116 or higher and Kansas CNA and CPR certification. CHEM 122 must be completed before enrolling in NURS 121. Prerequisite or corequisites: BIOL 144 and PSYC 130*

This course, the first in a sequence of four nursing courses, introduces the student to care of individuals along the health care continuum. Emphasis is placed on prevention of illness, assessment of health status and maintenance of wellness in individuals of various ages. A critical-thinking approach is used as the course examines the concepts and principles of basic nursing care that provide a foundation for subsequent nursing practice. The clinical component of the course focuses on three elements: 1. prevention, 2. assessment of the healthy adult, and 3. the application of fundamental principles in caring for adults encountering acute alterations in wellness. 4 hrs. lecture, 16 hrs. clinic/wk.

**NURS 122**  
**NURSING ACROSS LIFESPAN - I (9 CR)**

*Prerequisites: NURS 121 and BIOL 144 and PSYC 130 Corequisites: PSYC 218 Communication elective*

This course is the second in a sequence of four nursing courses. It provides an opportunity for

students to explore diverse human responses to predictable events occurring throughout the life span. Students are helped to view clients within a family structure and on a wellness-illness continuum. Nursing role emphasis is on using communication and critical thinking to apply nursing process in preventing illness and promoting wellness. The clinical component of the course focuses on three elements: 1. prevention, 2. assessment of individuals within the family structure, and 3. application of knowledge in the care of a variety of clients across the life span. Students will apply concepts to individuals with acute and/or chronic alterations in the following areas: maternal/newborn, mental health, older adult, infant/child/adolescent. Clinical experiences will include a variety of settings. Each student will encounter all of these clinical areas over the course of two semesters (NURS 122 and NURS 221). 4 hrs. lecture, 16 hrs. clinic/wk.

**NURS 123**  
**LPN-RN TRANSITION COURSE (6 CR)**

*Prerequisites: Licensure as a vocational/practical nurse, admission with advanced standing to the nursing program, MATH 116 or higher and BIOL 140 and PSYC 130 and BIOL 225 and PSYC 218*

This is an orientation to the philosophy of the associate degree nursing program for LPNs entering with advanced standing. Topics will include group process, relationships, the role of the associate's degree graduate, communication skills, and the nursing process. Individual assessment and assistance will be emphasized. 18 hrs./wk. for 6 wks. Summer.

**NURS 221**  
**NURS ACROSS LIFESPAN - II (9 CR)**

*Prerequisites: NURS 122 or NURS 123 and ENGL 121 Prerequisites or corequisites: SOC 122 or SOC 125 and BIOL 230*

This course is the third in a sequence of four nursing courses. It provides an opportunity for students to explore human responses to stressors occurring throughout the life span. Students are asked to view clients within a family structure and on a continuum of adaptation to maladaptation that may result in acute or chronic illnesses. Nursing role emphasis is on organizational skills and use of critical thinking to apply the nursing process to diverse populations. The clinical component of the course focuses on three elements: 1. prevention, 2. assessment of individuals within the family structure, and 3. application of knowledge in the care of a variety of clients across the life span. Students will apply concepts to individual with acute and/or chronic alterations in the following areas: maternal/newborn, mental health, older adult, infant/child/adolescent. Clinical experiences will include a variety of settings. Each student will encounter all of these clinical areas over the course of two semesters (NURS 221 and NURS 222). 4 hrs. lecture, 16 hrs. clinic/wk.

**NURS 222**  
**MANAGING CLIENT CARE (9 CR)**

*Prerequisite: NURS 221*

This course, the last in a sequence of four nursing courses, focuses primarily on adults experiencing common health alterations that require long-term adaptation. Using a critical-thinking approach, principles of client care management in various health care settings are studied. Ethical and legal issues are explored as they relate to nursing practice. The clinical component of the course focuses on three elements: 1. application of knowledge in the care of clients coping with long-term problems and 2. applying management principles in planning, implementing and evaluating care for a group of clients. 2 hrs. lecture, 16 hrs. clinic/wk.

## **Occupational Therapy Assistant (KOT)**

**KOT 100**  
**INTROD TO OCCUPATIONAL THERAPY (2 CR)**

This course is an introduction to the history, philosophy and practice of occupational therapy and the exploration of diversity and the role it plays in health care. 2 hrs./wk.

**KOT 101**  
**PEDIATRICS I (3 CR)**

*Prerequisites: KOT 112, BIOL 145 or BIOL 225 and KOT 100, KOT 104, KOT 103, KOT 106 and KOT 116, each with a minimum grade of "C"*

This course covers the practice of occupational therapy as it relates to individuals from birth to early adolescence as well as the study of normal growth and development. 3 hrs./wk.

**KOT 102**  
**DOCUMENTATION GUIDELINES (2 CR)**

*Prerequisite: Formal admission to the occupational therapy assistant program.*

Guidelines for documentation of occupational therapy services. 2 credits. 2 hours (Lecture 2 hours.)

**KOT 103**  
**CLINICAL CONDITIONS I (2 CR)**

*Prerequisite: Admission to the occupational therapy assistant program*

This course covers etiology, clinical process and the prognosis of common diseases and illnesses. Topics include the effect of disease or illness on an individual's performance and the impact this has on the person, family and society. 2 hrs./wk.

**KOT 104**  
**DOCUMENTATION GUIDELINES (2 CR)**

*Prerequisite: Admission to the occupational therapy assistant program*

This course covers guidelines for documentation of occupational therapy services. 2 hrs./wk.

**KOT 105**  
**GERONTOLOGY (3 CR)**

*Prerequisites: KOT 204 and American Institutions, each with a minimum grade of "C"*

Course emphasis will be on the concepts and process of aging and the role of occupational therapy with the elderly. 3 hrs./wk.

**KOT 106**  
**THERAPEUTIC INTERVENTIONS (4 CR)**

*Prerequisite: Admission to the occupational therapy assistant program*

This course covers the use of techniques and low-tech devices commonly used in occupational therapy practice to assist individuals in improving their performance of daily life tasks, and an introduction to architectural barriers. 5.5 hrs./wk.

**KOT 112**  
**BASIC EMERGENCY CARE (1 CR)**

This course introduces current cardiopulmonary resuscitation skills, including adult, child and infant resuscitation according to American Heart Association standards. Medical and environmental emergencies are reviewed.

**KOT 116**  
**LEVEL I FIELDWORK I (1 CR)**

*Prerequisite: Admission to the occupational therapy assistant program*

This course is an introduction to the role, policies and procedures of fieldwork. It is a directed experience in a specified community setting. 1.5 hrs./wk.

**KOT 117**  
**LEVEL I FIELDWORK II**

*Prerequisites: BIOL 109 or EMPT 102 and KOT 102, KOT 102, KOT 103, KOT 106 and KOT 116, each with a minimum grade of "C," and concurrent enrollment in KOT 101*

This course is a directed experience in a specified community setting. 1 hr./wk.

**KOT 118**  
**ASSISTIVE TECHNOLOGY (2 CR)**

*Prerequisites: BIOL 145 or BIOL 225 and KOT 100, KOT 103, KOT 104, KOT 106, KOT 112 and KOT 116, each with a minimum grade of "C"*

This is hands-on instructions for high-tech assistive technology and augmentative communication. 3 hrs./wk.

**KOT 130**  
**ANALYSIS/PHYSICAL PERFORMANCE (3 CR)**

*Prerequisites: BIOL 145 or BIOL 225 and KOT 100, KOT 103, KOT 104, KOT 106, KOT 112 and KOT 116, each with a minimum grade of "C"*

This course covers analysis and evaluation of the components of physical performance and their relationship to functional activities. 4 hrs./wk.

**KOT 154**  
**APPLIED NEUROLOGY (2 CR)**

*Prerequisites: BIOL 145 or BIOL 225 and KOT 100, KOT 103, KOT 104, KOT 106, KOT 112 and KOT 116, each with minimum grade of "C"*

This course covers foundations of neuroscience necessary for practice as a rehabilitation professional. Topics included are anatomy and function of the nervous system and correlation of clinical problems with pathology of the nervous system. 2 hrs./wk.

**KOT 201**  
**MENTAL HEALTH (2.5 CR)**

*Prerequisites: American Institutions with a minimum grade of "C"*

The focus of this course is occupational therapy assessment and treatment techniques in the mental-health care setting. 3 hrs./wk.

**KOT 202**  
**PHYSICAL DYSFUNCTIONS (3 CR)**

*Prerequisites: American Institutions with a minimum grade of "C"*

The emphasis of this course is occupational therapy assessment and treatment used with physically and cognitively challenged populations. 3 hrs./wk.

**KOT 203**  
**SPLINTING (2 CR)**

*Prerequisites: American Institutions with a minimum grade of "C"*

Principles of splinting and guidelines for fabrication are covered in this course. 3 hrs./wk.

**KOT 211**  
**LEVEL I FIELDWORK III (2 CR)**

*Prerequisites: American Institutions with a minimum grade of "C" and concurrent enrollment in KOT 201 and KOT 202*

This course is a directed experience in specified community settings. 4 hrs./wk.

**KOT 217**  
**FIELDWORK SEMINAR (3 CR)**

*Prerequisites: American Institutions with a minimum grade of "C"*

This course is preparation for full-time clinical practice, the national certification process, state licensure and future employment. 2 hrs./wk.

**KOT 222**  
**LEVEL II FIELDWORK/SEMINAR (12 CR)**

*Prerequisites: KOT 105, KOT 201, KOT 202, KOT 203, KOT 211 and KOT 217, each with a minimum grade of "C"*

This is a directed clinical experience in different practice areas of occupational therapy. 40 hrs./wk.

## **Philosophy (PHIL)**

### **PHIL 121 INTRODUCTION TO PHILOSOPHY (3 CR)**

This course is a study of the basic questions of philosophical inquiry, such as the nature of being, the ways we acquire knowledge and man's moral, social, religious and political values. Emphasis is on the application of the study of traditional problems of philosophy to the study of contemporary society. 3 hrs./wk.

### **PHIL 124 LOGIC AND CRITICAL THINKING (3 CR)**

This course is an inquiry into techniques of persuasion and the standards for interpretation and assessment that are the basis for critical thinking. Argumentative and non-argumentative forms of persuasion are examined, including propaganda, exaggeration, stereotyping, slanted news and common fallacies. In addition, the course offers standards for evidential warrants based on samples, probabilities and causal claims. Relations between categorical propositions and Venn diagrams are examined and, finally, the course suggests strategies for fresh attacks on conceptual problems. 3 hrs./wk.

### **PHIL 138 BUSINESS ETHICS (1 CR)**

This course applies classical and contemporary theories of morality to problems, questions and dilemmas arising in business. Using the major concepts and principles of deontological, consequentialist and perfectionist theories, it examines and analyzes cases involving such areas as employer/employee relations, corporate responsibility, truth telling in business and workplace diversity. Emphasis is on the development of moral reasoning skills that allow for meaningful analysis and evaluation of moral situations. 1 hr./wk.

### **PHIL 143 ETHICS (3 CR)**

This course provides a systematic and critical study of values related to human conduct. It focuses on both traditional standards of ethical conduct and qualities of personal character. What we hold to be right or wrong, the basis for believing so, and what we consider to be virtues or vices are examined with an eye to understanding our current ethical situation. 3 hrs./wk.

### **PHIL 154 HISTORY OF ANCIENT PHILOSOPHY (3 CR)**

This course provides a thorough exploration of ancient Greek and Roman philosophical thought from the original efforts of the Pre-Socratics to understand the fundamental operations of the natural world to concerns about the way a person might live successfully in nature and society. Also explored are the notable Athenians of the classical period, Protagoras, Socrates, Plato and Aristotle, and the later schools of thought such as cynicism, skepticism, hedonism and stoicism. In the process, it provides a comprehensive understanding of the philosophical foundations of the Western world view. 3 hrs./wk.

### **PHIL 161 ELEMENTARY SYMBOLIC LOGIC (3 CR)**

This course is a beginning course in symbolic logic and should be of particular benefit to those students who will pursue more advanced studies in linguistics, philosophy of language, mathematics or computer science. Students will be introduced to modern analytical techniques of formal deductive logic. Students should gain the ability to use a formal language to translate English language arguments and the ability to demonstrate the validity or invalidity of symbolic arguments using the techniques of truth-table analysis and formal proof. Some attention will also be given to the historical development of symbolic logic. 3 hrs./wk.

**PHIL 176**  
**PHILOSOPHY OF RELIGION (3 CR)**

This course is an inquiry into the nature of religion, religious thought and religious language. It addresses philosophical topics such as the nature of religious belief, the apparent need of some people for religion, the arguments offered as proof for and against the existence of God, apparent contradictions between scientific and religious teachings, special problems raised by religious language, and the changes religion and philosophy of religion have made to accommodate a modern world view. 3 hrs./wk.

**PHIL 210**  
**HISTORY OF MODERN PHILOSOPHY (3 CR)**

*Prerequisite: PHIL 121 or PHIL 143 or HIST 125 or HIST 126*

This course takes a historical approach to the development of modern philosophy and covers the period from the Renaissance to the 20th century. The course will cover the epistemological, metaphysical and relevant axiological issues of the major philosophers and philosophical movements of this period. The course will also examine the influence of modern philosophy on contemporary thought. 3 hrs. lecture/wk.

## **Photography (PHOT)**

**PHOT 121**  
**FUNDAMENTALS OF PHOTOGRAPHY (3 CR)**

This course provides an introduction to the tools, procedures, concepts and application of photographic imaging. Students will use cameras, light meters and darkroom equipment for film developing and printing to make images to meet the requirements of a series of assignments designed to develop specific skills, competencies and points of view and to stimulate the students' creative capacities for personal expression, communication and self-understanding. Students must provide their own camera with adjustable focus, shutter speeds and aperture. 6 hrs. lecture, lab/wk.

**PHOT 122**  
**ADVANCED PHOTOGRAPHY (3 CR)**

*Prerequisite: PHOT 121*

This course provides an introduction to advanced techniques, tools, procedures and concepts of photographic imaging, with an emphasis on black-and-white photography as a fine art. Students will use Zone System tests and procedures to produce prints of maximum quality. Students will use advanced techniques, such as split-developers for contrast control, multiple-imaging and archival processing, and print presentation. Several "alternative" printing processes will be discussed and demonstrated. This course also includes a basic introduction to medium format (2 1/4) and large format (4 x 5) camera equipment and technique. Students will apply the above to make images for a series of conceptually advanced, project/series-oriented assignments to stimulate the student's creative capacities for personal expression, communication and self-understanding. 6 hrs. lecture/lab/wk.

**PHOT 123**  
**STUDIO PHOTOGRAPHY (3 CR)**

*Prerequisite: PHOT 121*

This course provides an introduction to advanced techniques, tools, procedures and concepts of



studio and commercial photography. Students will use professional camera and studio equipment, including studio electronic flash and hand-held light/flash meters. This course also includes an introduction to professional medium format (2 1/4) and large format (4"x5") equipment and advanced camera techniques for total image control. Students will use studio lighting for various portraiture styles and for small-product, table-top photography. Applications of digital photography as they apply to studio photographic processes will be introduced. Students will apply the above to make images for a series of advanced studio assignments. 6 hrs. lecture,lab/wk.

**PHOT 125**  
**PHOTOGRAPHY FOR PUBLICATION (3 CR)**

*Prerequisite: PHOT 121*

This course provides an introduction to the concepts and application of photographic imaging for media publication. Students will use cameras, computers, software, scanners and image-output devices to master the issues, concepts and constraints involved in creating images for a broad range of publication needs. They will prepare and format digitized image files for storage, transmission and print-based and Web-based reproduction. This course is designed to meet the photographic imaging needs of journalism students. 6 hr. lecture,lab/wk.

**PHOT 127**  
**COLOR PHOTOGRAPHY (3 CR)**

*Prerequisite: PHOT 121*

This course provides an introduction to the materials, techniques, tools, processes and theories of color photography. Students will use various color film emulsions, chemicals, filters for color-balance corrections, enlargers with integral color-heads with dial filtration, a pro-lab quality processor, color printing papers, and quality controls and manipulations to produce professional-quality color enlargements and transparencies. Students will use the above to make color images to meet the requirements of a series of assignments designed to develop specific skills, competencies and points of view and to stimulate the students' creative capacities. 6 hrs. lecture, lab/wk.

**PHOT 128**  
**DIGITAL PHOTOGRAPHY (3 CR)**

This course is an introduction to the concepts, tools and technology of digital imaging for photographers. Students will develop competence in the use of digital photographic equipment, software, storage devices and printers to produce digital photographic images satisfying the requirements a series of assignments designed to develop specific skills and competencies. Students will "capture," manipulate, correct, transmit, store and output images. They will use digital technology to produce images for commercial and/or artistic applications. Ethics and cultural implications of the technology will be discussed. 6 hrs. lecture, lab/wk.

**PHOT 140**  
**HISTORY OF PHOTOGRAPHY (3 CR)**

This course provides an introduction to the history of photography. Students will examine the aesthetic and technological evolution of photography as an art form, as a visual tool for and influence upon other artistic disciplines, and as a statement of perceived reality. The course will examine the elements that distinguish various aesthetic movements, the styles of major periods and the influences of individual photographers. Attention will be paid to the relationship between photographic imagery and various cultural and historical contexts. Recommended prior course is PHOT 121. 3 hrs. lecture/wk.

## **Physical Ed, Health & Rec (HPER)**

**HPER 100**  
**BASKETBALL (BEGINNING) (1 CR)**

Students will have an opportunity to learn fundamental basketball skills through demonstration and

discussion of strategies for team play. Emphasis is on individual participation. 2 hrs./wk.

**HPER 101  
BASKETBALL (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 100*

Students will have an opportunity to learn intermediate basketball skills through demonstration and discussion of strategies for team play. This course will advance the skills of the student who successfully completed the beginning basketball course. Emphasis is on individual participation and competition team play. 2 hrs./wk

**HPER 103  
TOUCH/FLAG FOOTBALL (1 CR)**

The fundamentals of touch and flag recreational football will be introduced as well as strategies necessary for team play. 2 hrs./wk.

**HPER 105  
BOWLING (BEGINNING) (1 CR)**

The student will have the opportunity to learn and practice the fundamentals of bowling. The student will be introduced to the history of the game, rules, equipment and lane specifications, scoring, handicap calculations, and operation of automatic scoring equipment. 2 hrs./wk.

**HPER 107  
BOWLING (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 105*

Students will demonstrate advanced fundamentals of bowling. The student will acquire advanced knowledge of the history of the game, rules, equipment and lane specifications. Intermediate to advanced bowling competition will be explored. 2 hrs./wk.

**HPER 110  
RACQUETBALL (BEGINNING) (1 CR)**

A brief history of rules and terminology of racquetball will be followed by instruction and actual practice and application of the fundamentals. 2 hrs./wk.

**HPER 112  
RACQUETBALL (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 110*

Students will review the rules and terminology of racquetball, as well as demonstrate the basic skills. The student will demonstrate skills and strategies in a competitive format and use the mental preparation and conditioning aspects of the game of racquetball. The intermediate racquetball student will apply skills in a competitive format. 2 hrs./wk

**HPER 115  
SOCCER (1 CR)**

The fundamentals of soccer will be introduced as well as strategies necessary for team play. 2 hrs./wk.

**HPER 117  
POWER VOLLEYBALL (BEGINNING) (1 CR)**

The basic skills of volleyball taught in this class include the forearm pass, overhead set, serve,

block and spike (attacking). Elementary offense and defense along with volleyball rules, scoring and officiating will be covered. 2 hrs./wk.

**HPER 118  
POWER VOLLEYBALL (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 117*

Students will have the opportunity to build upon the basic fundamentals of the Power Volleyball (Beginning) class. Intermediate skills, strategies, offensive and defensive systems and rules will be covered for six-player, four-player, three-player, and two-player volleyball. 2 hrs./wk.

**HPER 130  
RUNNING AWARENESS & EXERCISE (1 CR)**

The course will introduce the student to aerobic fitness through the activity of running. The training principles for running and competitive racing will be covered, and the individual will complete a personal running and/or racing training program. 2 hrs./wk.

**HPER 134  
WEIGHT TRAINING (BEGINNING) (1 CR)**

In this class, muscular strength and endurance will be developed through weight training activity. A workout program will be implemented for each student. The muscular system, basic terminology of weight training and weight training theory will be discussed. 2 hrs./wk.

**HPER 135  
WEIGHT TRAINING (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 134*

In this class, muscular strength and endurance will be developed. A self-designed and directed resistance workout program will be implemented. The proper use of a training log and personal fitness evaluation techniques will be discussed. 2 hrs./wk.

**HPER 137  
TENNIS (BEGINNING) (1 CR)**

Students will get individualized instruction in this course on the rules, terminology and history of tennis. The student will receive instruction on the basic strokes of tennis, as well as the strategies of singles and doubles play. 2 hrs./wk.

**HPER 138  
TENNIS (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 137*

Students will review the rules, terminology and history of tennis. The student will receive instruction on the strokes of tennis as well as the strategies of singles and doubles play in a competitive format. Emphasis will be on the mental and physical conditioning of the game. 2 hrs./wk.

**HPER 140  
MODERN DANCE (BEGINNING) (1 CR)**

This course emphasizes the movement between positions rather than the picture-perfect poses of ballet and other dance styles. Moving through space off of and onto the floor, breathing and moving improvisationally will be explored. 2 hrs./wk.

**HPER 142  
MODERN DANCE (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 140*

A continuation of Modern Dance (Beginning), this course presents more difficult and longer movement combinations. Students further explore their creativity through elements of improvisations, choreography and performance while gaining greater muscular flexibility and strength. 2 hrs./wk.

**HPER 150  
AEROBICS (BEGINNING) (1 CR)**

Motor skills, jogging and dance steps are combined in this exercise program to improve muscle tone and cardiovascular fitness. 2 hrs. wk.

**HPER 152  
AEROBICS (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 150*

The motor skills, jogging and dance steps are performed at faster pace for a longer period of time than in Beginning Aerobics. The course will introduce the student to the fitness benefits, from increased duration and intensity of aerobic activities. 2 hrs./wk.

**HPER 155  
BALLET (BEGINNING) (1 CR)**

This progressive ballet system is designed to produce muscular strength and flexibility and a working knowledge of anatomy, plus the aesthetic satisfaction of expressing yourself through a classical art form. Offered to students of all ages and experience, both beginners as well as those who have had some training. 2 hrs./wk.

**HPER 157  
BALLET (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 155*

A continuation of Beginning Ballet, this progressive ballet system explores multilayered ballet movement in simple dance combinations. 2 hrs./wk.

**HPER 158  
JAZZ DANCE (BEGINNING) (1 CR)**

An introduction to the concepts and motor skills involved with jazz dance. Basic body position will be introduced as well as basic terminology, jazz history, various jazz styles and the basic techniques involved, isolations, combinations, choreography and rhythmic influences. 2 hrs./wk.

**HPER 159  
JAZZ DANCE (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER 158 or equivalent*

A continuation of Beginning Jazz Dance, this course will require students to assimilate and execute more difficult isolated dance moves as well as use the basic skills acquired in Beginning Jazz Dance to perform complex dance sequences to a variety of music. 2 hrs./wk.

**HPER 163  
BALLROOM DANCE (BEGINNING) (1 CR)**

This is an introduction to ballroom dance with emphasis on basic patterns and fundamental steps of the waltz, fox trot, swing, polka and cha-cha. Common rules of dance courtesy and a brief overview of ballroom dance history will be included. Music or dance background is not necessary. 2 hrs./wk.

**HPER 165**  
**KARATE I (1 CR)**

The student will receive instruction in the basic fundamentals of karate, including stances, blocks, kicks, strikes and self-defense techniques. 2 hrs./wk.

**HPER 166**  
**KARATE II (1 CR)**

*Prerequisite: HPER 165*

The student will review the skills from the prerequisite course of Karate I. Students will demonstrate techniques that include the moving block, kicks and positions for karate. The course will also cover combination moves as well as the defensive technique.

**HPER 167**  
**KARATE III (1 CR)**

*Prerequisite: HPER 166*

Students will have the opportunity to achieve higher levels of proficiency, routines, kumite (sport/free fighting) and self-defense. 2 hrs./wk.

**HPER 168**  
**KARATE IV (1 CR)**

*Prerequisite: HPER 167, beginning Japanese is a suggested prerequisite*

Students in this course will have the opportunity to achieve the advanced level of karate in the following: taiao (exercise), kata (forms), kumite (sport/free fighting) and self-defense application. 2 hrs./wk.

**HPER 172**  
**TRACK AND FIELD (BEGINNING) (1 CR)**

This course will introduce the student to the sport of track and field. Through activity and discussion the student will improve his or her motor ability to perform track and field events. 2 hrs./wk.

**HPER 174**  
**COACHING/OFFICIATING TRK/FIELD (2 CR)**

Students will have the opportunity to learn the fundamentals of coaching and officiating track and field events. Upon successful completion of the course, students will be prepared for USATF Level 1 certification. 2 hrs./wk.

**HPER 175**  
**FENCING (1 CR)**

Beginning foil fencing will provide the student with the fundamental rules and techniques of foil fencing. The student will utilize these skills in a fencing bout. The student will also be instructed in the rules and procedures of officiating foil fencing. 2 hrs./wk.

**HPER 182**  
**SWIMMING (BEGINNING) (1 CR)**

Students in beginning swimming will learn basic swimming skills and safety information that are fundamental to safe swimming performance. 1 hr./wk.

**HPER 183**  
**SWIMMING (INTERMEDIATE) (1 CR)**

*Prerequisite: HPER: 182 or the equivalent*

Students in intermediate swimming will learn more advanced swimming strokes, skills and safety information along with increasing personal fitness levels through continuous endurance swimming. 1 hr./wk.

**HPER 185**  
**ARCHERY (1 CR)**

Students will receive individualized instruction in the basic skills of archery as a recreational sport lending itself to a lifetime leisure interest. Safety, fundamental care and usage of archery tackle, and beginning archery skills will be taught, along with a survey of the history of archery. 2 hrs./wk.

**HPER 190**  
**GOLF (1 CR)**

The beginning golfer will be given instruction in the rules of and basic swing fundamentals for the game of golf. Proper golf equipment, proper use of this equipment and golf etiquette will be reviewed. 2 hrs./wk.

**HPER 192**  
**WELLNESS FOR LIFE (1 CR)**

This course introduces students to the theory and principles upon which the concepts of lifetime fitness and wellness are based. Students will examine the relationship that exists between wellness and lifestyle behaviors. Individual self-assessments will be used to establish current health and fitness levels. 1 hr./wk.

**HPER 194**  
**SPORTS CONDITIONING (BEGINNING (1 CR)**

Students will have the opportunity to learn the fundamentals of general and sports specific conditioning. All aspects of physical and psychological development are incorporated in this class. Strength, power, speed, acceleration, muscular hypertrophy and endurance, cardiovascular endurance, motor skills and agility drills are taught and practiced. The class will include general physical preparation sport fitness, plyometrics, agility drills and sport-related specific conditioning. The students will learn about the principle of year-round conditioning, including conditioning appropriate to the off-season, preparatory period, pre-competition period and competition period. 2 hrs./wk.

**HPER 197**  
**SPORTS CONDITIONING (INTERMED) (1 CR)**

*Prerequisite: HPER 194*

Students will have the opportunity to build upon principles and practices of general and sports-specific conditioning learned in Beginning Sports Conditioning. All aspects of physical and psychological development are incorporated in this class. Strength, power, speed, acceleration, muscular hypertrophy and endurance, cardiovascular endurance, motor skills and agility drills are taught and practiced. The class will include general physical preparation, sport fitness and conditioning. Students will continue to learn about the principle of year-round conditioning, including conditioning appropriate to the off-season, preparatory period, pre-competition period and competition period. 2 hrs. lecture/wk.

**HPER 200**  
**FIRST AID/CPR (2 CR)**

After completing this course, students should be able to perform the basic skills of first aid. The

course will cover cause, prevention and first aid care of common emergencies. Certification may be earned in first aid and cardiopulmonary resuscitation. 2 hrs./wk.

**HPER 202**  
**PERSONAL COMMUNITY HEALTH (3 CR)**

This course is designed to provide the student with the knowledge and understanding to make positive, healthy lifestyle choices. In addition, students will learn about issues within the community that affect their daily health both directly and indirectly. 3 hrs./wk.

**HPER 204**  
**CARE/PREVENTION OF ATHL INJURY (3 CR)**

This introduction to athletic training techniques is for student athletic trainers and coaches and athletes at all levels. The course will cover prevention of sports injuries, rehabilitation and taping techniques, and proper nutrition. 3 hrs./wk.

**HPER 205**  
**INDIVIDUAL LIFETIME SPORTS (2 CR)**

This course provides a basic knowledge of several individual lifetime sports including badminton, bowling, golf, racquetball and tennis. Students will learn fundamental skills for each sport as well as history, benefits, equipment, rules, etiquette, safety, scoring and strategy. 3 hrs./wk. Fall.

**HPER 208**  
**INTRO/EXERCISE PHYSIOLOGY (3 CR)**

This introduction to exercise physiology will introduce the effects of exercise on the muscular system, the cardiovascular system and the metabolic system. The course will prepare the student in the design of and principles for an individual exercise program. 3 hrs./wk.

**HPER 217**  
**COACHING/OFFICIATING BASKETBALL (2 CR)**

This course introduces students to the theory and principles of coaching basketball and the rules and mechanics of officiating. Students will have the opportunity to learn how to organize, coach and plan daily practice sessions. 2 hrs./wk.

**HPER 220**  
**SPORTS OFFICIATING (3 CR)**

The rules and practical application of officiating will be covered for the following sports: volleyball, football, basketball, baseball and softball. 3 hrs./wk.

**HPER 224**  
**OUTDOOR RECREATION (3 CR)**

This course introduces the student to activities that create interaction between the individual and/or individuals and elements of the outdoor recreational setting. This outdoor recreation class will plan activity projects such as camping, hiking, nature observation, alpine skiing, Nordic skiing and biking. 3 hrs./wk.

**HPER 240**  
**LIFETIME FITNESS I (1 CR)**

This course is designed to provide an effective exercise circuit system to help the student develop overall muscle tone and cardiovascular conditioning. Handouts emphasizing the value of developing a total lifetime fitness attitude and optional lectures are available to enhance the student's knowledge of the benefits of a lifetime fitness program. This course requires an initial orientation/assessment. After the assessment, the class becomes an open-lab format by arrangement. 2 hrs./wk.

**HPER 241**  
**LIFETIME FITNESS II (1 CR)**

*Prerequisite: HPER 240*

This course is a continuation and expansion of Lifetime Fitness I. 2 hrs./wk., open-lab format by arrangement.

**HPER 242**  
**LIFETIME FITNESS III (1 CR)**

*Prerequisite: HPER 241*

This course is a continuation and expansion of Lifetime Fitness II. 2 hrs./wk., open-lab format by arrangement.

**HPER 243**  
**LIFETIME FITNESS IV (1 CR)**

*Prerequisite: HPER 242*

This course is a continuation and expansion of Lifetime Fitness III. 2 hrs./wk., open-lab format by arrangement.

**HPER 245**  
**ELEMENTARY PHYSICAL EDUCATION (3 CR)**

This course is designed to meet the needs of students who wish to teach in the area of elementary physical education and/or elementary education. This course will provide the students with knowledge and background in planning, classroom management techniques, teaching methodology, legal liability, evaluation, wellness, special students, sports, and games related to elementary physical education. The course will include observation and teaching. 3 hrs./wk. Spring

**HPER 255**  
**INTRO TO PHYSICAL EDUCATION (3 CR)**

This course will introduce the student to the field of physical education and sport. This course will discuss the historical, biomechanical, physiological and psychological foundations of physical education and sport. It will examine the role of physical activity as a means to help individuals acquire the skills, fitness levels and knowledge that contribute to the arena of physical development and organized competition. It will also discuss the role physical education and sports play in our society. Each individual will develop a personal philosophy for physical education and sports. 3 hrs./wk. Spring.

## **Physical Science (PSCI)**

**PSCI 120**  
**PHYSICAL SCIENCE (4 CR)**

This course is an introduction to the fundamental concepts and principles of physics, chemistry, geology and astronomy. Topics include energy, electricity, magnetism, modern physics and chemical bonding. It is counted toward laboratory science requirements and is intended for nonscience majors. It includes presentation of material using audiovisual, computer and other multimedia aids. Three hours of class and three hours of work in a scheduled lab are required each week. 3 hrs. lecture, 3 hrs. lab/wk.



# Physical Therapist Assistant (KPT)

## **KPT 102** **BASIC EMERGENCY PATIENT CARE (1 CR)**

This course introduces current cardiopulmonary resuscitation skills, including adult, child and infant resuscitation according to American Heart Association standards. Medical and environmental emergencies are reviewed. (Successful completion of the course qualifies the student for the Basic Life Support Course Certification.) 1 hr. lecture/wk.

## **KPT 151** **INTRO TO PHYSICAL THERAPY (2 CR)**

This course will introduce the basic concepts of the function of a physical therapist and physical therapist assistant as members of the health care team and the interaction of other health disciplines in the care of the patient. Students learn medical terminology related to the specific discipline. 2 hrs. lecture/wk.

## **KPT 152** **PHYSICAL THERAPY FUNDAMENT I (4 CR)**

*Prerequisites: BIOL 140, CHEM 122, LC 130 and KPT 151 with a minimum grade of "C" and acceptance into the program*

This course will present treatment modalities, therapeutic measures and patient handling skills used in the physical treatment of various injuries and diseases. The course also includes field trips to an area hospital to gain exposure to the clinic and its modalities. 2.5 hrs. lecture, 3 hrs. lab./wk.

## **KPT 153** **KINESIOLOGY (4 CR)**

*Prerequisites: BIOL 104, KPT 152 and KPT 160 with a minimum grade of "C" and acceptance into the program*

Students will analyze the anatomy and the functions of the musculoskeletal system and the application of physical therapy assessment procedures related to clinical kinesiology. 2 hrs. lecture, 4 hrs. lab/wk.

## **KPT 154** **APPLIED NEUROLOGY (2 CR)**

*Prerequisites: BIOL 225 and KPT 152 with a minimum grade of "C" and acceptance into the program or BIOL 144, KOT 100, KOT 102, KOT 103, KOT 106 and KOT 116, each with minimum grade of "C"*

This course will present the student with the foundations of neuroscience necessary for practice as a PTA. The student will learn anatomy and function of the nervous system as well as correlation of clinical problems with the pathology of the nervous system. 2 hrs./wk

## **KPT 155** **REHABILITATION (4 CR)**

*Prerequisite: KPT 162 with a minimum grade of "C"*

The student will be introduced to the philosophy underlying rehabilitation theory and principles of treatment involved in normal and abnormal ambulation and mobility. Attention will be given to application of external supports and assistive devices and teaching activities of daily living with attention to description, demonstration and practice. Field trips are required. 3 hrs. lecture, 2 hrs. lab/wk.

## **KPT 158** **THERAPEUTIC EXERCISE (4 CR)**

*Prerequisite: KPT 162 with a minimum grade of "C"*

This course will introduce students to the theory and principles of application of therapeutic exercise, including patient instruction, manual techniques and equipment commonly used by the physical therapist assistant. Field trips are scheduled during the semester so students may learn various specialized techniques. 2 hrs. lecture, 4 hrs. lab/wk.

**KPT 159**  
**ORTHOPEDIC PATHOLOGY (2 CR)**

*Prerequisite: BIOL 225 and KPT 152 with a minimum grade of "C" and acceptance into the program.*

Students will study orthopedic pathologies commonly seen in physical therapy practice, diagnosis, signs and symptoms, physiological factors and treatment. 2 hrs./wk.

**KPT 160**  
**MEDICAL DISEASES (2 CR)**

*Prerequisites: BIOL 140, CHEM 122, LC 130 and KOT 151 with a minimum grade of "C" and acceptance into the program*

The student will be introduced to medical diseases commonly seen in physical therapy practice, with emphasis on diagnosis, signs and symptoms, physiologic factors and treatment. 2 hrs. lecture/wk.

**KPT 161**  
**PHYSICAL THERAPY FUNDAMENTALS II (4 CR)**

*Prerequisites: KPT 152, KPT 160 and BIOL 225 with a minimum grade of "C"*

The student will be introduced to the theory and practical application of electrotherapy, patient documentation, patient care skills and selected modalities, including indications and contraindications for use. 2.5 hrs. lecture, 3 hrs. lab/wk.

**KPT 162**  
**CLINICAL EXPERIENCE I (2 CR)**

*Prerequisites: KPT 153, KPT 154, KPT 159, KPT 161 and KOT 102 with a minimum grade of "C." Completion of preclinical examination with a score of 80 percent or better demonstrated competency in preclinical checkouts*

Students receive supervised clinical experience in the practical application of techniques of physical therapist assistants in the treatment of patients in a variety of clinical settings. Clinical 5.

**KPT 164**  
**PEDIATRICS AND GERONTOLOGY (2 CR)**

*Prerequisite: KPT 162 with a minimum grade of "C"*

The student will be introduced to specialized information related to the treatment of pediatric and older adult populations. 2 hrs. lecture/wk.

**KPT 170**  
**CLINICAL EXPERIENCE II (2 CR)**

*Prerequisites: KPT 162 with a minimum grade of "C"; concurrent enrollment in KPT 155, KPT 158, KPT 164 and KPT 171*

Students receive supervised clinical experience in the practical application of techniques and procedures covered in all previous KPT courses. Students assist physical therapists and physical therapist assistants in the treatment of patients in a variety of clinical settings. Clinical 5

**KPT 171**  
**CLINICAL SEMINAR (2 CR)**

*Prerequisites: KPT 162 with a minimum grade of "C"*

Students will discuss current professional and patient care issues regarding the practice of physical therapy, ethics, departmental organization, reimbursement, safety and research. 2 hrs. lecture/wk.

**KPT 172**  
**CLINICAL EXPERIENCE III (12 CR)**

*Prerequisites: Completion of all other required courses in the KPT program with a minimum grade of "C"*

The student will experience practical application of principles learned in all prior course work. Students will rotate internships in selected hospitals and clinic sites throughout the United States under the guidance of a physical therapist. 40 hrs. lab/wk.

## Physics (PHYS)

**PHYS 125**  
**TECHNICAL PHYSICS I (4 CR)**

*Prerequisite: MATH 133*

In this introductory course, students will learn the fundamentals of classical physics. Included topics involve mathematical approaches to mechanics, wave motion and thermodynamics. This class is an applied study of the concepts of force, work, rate and resistance, and power in mechanical, fluidic, thermal and electrical energy systems. 3 hrs. lecture, 3 hrs. lab/wk.

**PHYS 130**  
**GENERAL PHYSICS I (5 CR)**

*Prerequisite: MATH 171*

In this introductory course for pre-professional and general education, students will learn the fundamentals of selected areas of classical physics. Using the tools of algebra and trigonometry, the course develops the topics of mechanics, heat and thermodynamics, and concludes with waves. The two-semester PHYS 130/131 sequence is designed to meet the requirements of area pre-professional programs. This is a transfer course that meets the college's requirements for associate's degree programs and also meets transfer requirements of area colleges and universities. The course includes an integrated laboratory component the completion of which is a necessary part of the total instructional package. 4 hrs. lecture, 3 hrs. lab/wk.

**PHYS 131**  
**GENERAL PHYSICS II (5 CR)**

*Prerequisite: PHYS 130*

In this introductory course for pre-professional and general education, students will learn the fundamentals of selected areas of classical physics. Using the tools of algebra and trigonometry, the course develops the topics of electricity and magnetism, light and optics and some elements of modern physics, such as relativity and quantum physics. The two-semester PHYS 130/131 sequence is designed to meet the requirements of area pre-professional programs. This is a transfer course that meets the college's requirements for associate's degree programs and also meets transfer requirements of area colleges and universities. The course includes an integrated laboratory component the completion of which is a necessary part of the total instructional package. 4 hrs. lecture, 3 hrs. lab/wk.

**PHYS 133**  
**APPLIED PHYSICS (5 CR)**

*Prerequisite: MATH 133, Technical Math I or higher*

This is a one-semester, comprehensive physics course intended for students enrolled in the biotechnology certificate program or an associate of applied science degree program. The course will cover all areas of applied physics, including mechanics, heat, thermodynamics, waves, electricity, magnetism, light, optics and some elements of modern physics. Emphasis will be placed on concepts and applications to real-life problems. This course includes an integrated laboratory component the completion of which is a necessary part of the total instructional package. 4 hrs. lecture, 3 hrs. lab/wk.

**PHYS 220**  
**ENGINEERING PHYSICS I (5 CR)**

*Prerequisite or corequisite: Math 242*

This is an introduction to physics for engineering and science students. Included will be mathematical approaches to the study of mechanics, wave motion and thermodynamics. 4 hrs. lecture, 3 hrs. lab/wk.

**PHYS 221**  
**ENGINEERING PHYSICS II (5 CR)**

*Prerequisites: PHYS 220 and MATH 242*

This is an introduction to physics for engineering and science students. Included are mathematical approaches to the study of electricity, magnetism, sound, optics and modern physics. 4 hrs. lecture, 3 hrs. lab/wk.

## **Political Science (POLS)**

**POLS 122**  
**POLITICAL SCIENCE (3 CR)**

This course provides students the opportunity to explore the discipline of political science and to discover how political scientists study politics in the contemporary world. 3 hrs. lecture/wk.

**POLS 124**  
**AMERICAN NATIONAL GOVERNMENT (3 CR)**

This course is an examination of the process by which national policy-making is made. Topics of study include American political culture, constitutional principles, basic political and economic concepts, intergovernmental relations, public opinion, political parties, interest groups, media, budget construction and decision-making institutions. 3 hrs./wk.

**POLS 126**  
**STATE AND LOCAL GOVERNMENT (3 CR)**

This course examines the executive, legislative, judicial and service functions of state and local government in the United States in general and in Kansas in particular. The course includes guest lectures by elected officials, government personnel and community activists. 3 hrs./wk.

**POLS 132**  
**INTRO COMPARATIVE GOVERNMENT (3 CR)**

This course compares the different political structures of many of the world's most important countries, including economic development, patterns of government and administration, party structures and policy formation. 3 hrs. wk.

**POLS 135**  
**INTERNATIONAL RELATIONS (3 CR)**

This course analyzes the conflict and cooperation among nation-states. Students will study contemporary problems and how they relate to power, war, terrorism, diplomacy, international organizations and the future of the nation-state system. 3 hrs./wk.

## **Power Plant Technology (PPT)**

**PPT 130**  
**HYDRAULICS,MECHANICS&PNEUMATIC (3 CR)**

This introductory course is designed to give a general overview of hydraulic, mechanic and pneumatic principles. Upon successful completion of this course, the student will be able to describe the concepts involved in industrial maintenance of hydraulic, mechanical and pneumatic equipment and identify the major components and their functions. Topics will include hydraulics, pneumatics, rigging, ladders, scaffolds, lubrication, drive belts, vibrations, mechanical drives, alignments, bearings and electricity. This course is appropriate for power plant technology majors or other interested students. 3 hrs. lecture/wk.

**PPT 140**  
**GENERATING PLANT FUNDAMENTALS (3 CR)**

This is an introductory course designed to give a general overview of power plant operations and functions. Upon successful completion of this course, the student will be able to describe the concepts involved in converting energy to electricity through a steam generation power plant and identify the major components and their functions. Topics will include fossil fuels, boilers, turbines, feedwater heaters, ash removal, condensate, power plant controls, and temperature and pressure relationships. This course is appropriate for power plant technology majors or other interested students. 3 hrs. lecture/wk.

**PPT 230**  
**INTRO/WATER CHEMISTRY/TREATMEN (3 CR)**

This introductory course is designed to give a general overview of water chemistry and water treatment in power plants. Upon successful completion of this course, the student should be able to describe the concepts and solve the problems associated with water treatment in boiler operations. Topics will include hydrology, specific gravity of liquids, acids, bases, measurements, cooling towers, clarification, ion exchange and filtration. This course is appropriate for power plant technology majors and other interested students. 3 hrs. lecture/wk.

**PPT 250**  
**INTRO PP COMBUSTION/EXHAUST (3 CR)**

*Prerequisite: PPT 140*

Upon successful completion of this course, the student should be able to describe the concepts involved in the combustion of fuel for energy generation. Topics will include fuel handling, combustion requirements, combustion control and by-products of combustion. This course is appropriate for power plant technology majors and other interested students, with the permission of the instructor. 3 hrs. lecture/wk.

**PPT 251**  
**INTRO POWER PLANT STEAM CYCLE (3 CR)**

*Prerequisite: PPT 140*

Upon successful completion of this course, the student will be able to describe the steam water cycle in a steam generation plant. Topics will include boilers, turbines, feedwater heaters, condensers, cooling towers and auxiliary equipment. Enrollment in the course is limited to power plant technology majors or by permission of the instructor. 3 hrs. lecture/wk.

**PPT 271**  
**POWER PLANT INTERNSHIP (3 CR)**

*Prerequisite(s): PPT 140, Generating Plant Fundamentals; minimum of 15 credit hours of completed work; minimum of 6 credit hours of completed PPT course work; and approval of the assistant dean*

The internship will provide advanced students with on-the-job experience under the supervision of professionals in the industry. The work will be developed cooperatively with area employees, college staff and each student to provide a variety of actual job experience directly related to the student's career goals. This course is only available to students who have declared a power plant technology major. 20 hrs. on-the-job training/wk., or a minimum of 40 hrs./wk. on the job for summer semester

**PPT 280**  
**POWER PLANT OPER/PROC CONTROLS (3 CR)**

*Prerequisites: PPT 250 and PPT 251*

Upon successful completion of this course, the student should be able to describe the concepts involved in operating a steam generation power plant and identify the major components and their functions. Topics will include cold start-up, warm start-up, shutdown, normal operations, load changes, safety checks, and power plant controls. This course is designed to integrate and build on previous power plant technology course work. This course is appropriate for power plant technology majors and other interested students with the permission of the instructor. 3 hrs. lecture/wk.

## **Practical Nursing (AVPN)**

**AVPN 115**  
**NURSING I**

*Prerequisites: CNA certification and admission to the practical nursing program and BIOL 144 and PSYC 130 and CPCA 105 and MATH 111*

Using the nursing process, the student will promote adaptive responses in the client during health and illness. The student will develop a basic understanding of the role of the practical nurse in the health care system and demonstrate the fundamental skills essential to the nursing care of the client. The nursing process will be applied to the care of clients in long-term care, the medical office and the acute-care settings. Basic concepts of gerontology, professional vocational relationships, pharmacology, medical terminology and nutrition will be used in the care of the clients. 550 contact hrs.

**AVPN 117**  
**NURSING II**

*Prerequisite: AVPN 115*

In Nursing II, the student will continue to explore the practical nurse's role in assisting clients to meet basic and more complex physiological needs using the nursing process in a variety of health care settings, including acute care, long-term care and mental health facilities. The student will apply concepts of leadership and change and demonstrate the roles of charge nurse, medication nurse, treatment nurse and patient-care nurse in long-term care. The student will promote adaptive responses in the child and family during the child's illness, pregnancy, labor and delivery, and post-partum and neonatal phases of reproductive processes. The student will explore the adaptive capacity of individuals with emotional stresses and diagnosed mental disorders across the life span. Basic concepts of gerontology, professional vocational relationships, pharmacology, medical terminology and nutrition will be applied in the care delivered. 550 contact hrs.

## **Psychology (PSYC)**

**PSYC 121**  
**APPLIED PSYCHOLOGY (3 CR)**

The course will focus on learning how to apply psychological principles in order to better understand one's own experience (cognitive, behavioral and emotional) and that of other people. This course is not a substitute for Introduction to Psychology and will not meet the prerequisite requirement for advanced psychology courses. 3 hrs./wk.

**PSYC 130**  
**INTRODUCTION TO PSYCHOLOGY (3 CR)**

This basic introduction to psychology includes the study of biological aspects of behavior, the brain, consciousness, sensation and perception, motivation and emotion, stress, maturation and development, learning and memory, normal and abnormal personality, and social psychology. This course is the prerequisite for all advanced-level psychology courses. 3 hrs./wk.

**PSYC 200**  
**INDUS/ORGANIZATIONAL PSYCH (3 CR)**

*Prerequisite: PSYC 130*

The course will examine human behavior and psychological principles in an industrial/personnel context. It will also focus on how organizational factors contribute to individual behavior and how individuals affect groups and organizational functioning. Topics include recruiting, selecting and training personnel; evaluating job performance, work motivation, job satisfaction and other attitudes; leadership; and organization and job design. 3 hrs/wk.

**PSYC 205**  
**HUMAN SEXUALITY (3 CR)**

*Prerequisite: PSYC 130*

PSYC 205, Human Sexuality, is a balanced and thoughtful account of what is known about sexuality from various perspectives. A broad and representative survey of research is presented in a number of topical areas. Psychobiology, sexual development during childhood and adolescence, sexual interactions, love relationships and behavior, gender issues, sexual orientation, health issues and diseases, and sexual problems and solutions will be studied. Primary emphasis will be placed on the individual and the couple as a unit of analysis. Class discussions of issues relating to human sexuality will be encouraged. 3 hrs. lecture/wk.

**PSYC 210**  
**METHODOLOGY IN SOCIAL SCIENCES (3 CR)**

*Prerequisite: PSYC 130 or SOC 122 or ECON 230*

This course will involve active participation in the application of research strategies to the social and behavioral sciences. A wide range of data-collection methods will be studied. Students will be expected to do an independent research project. 3 hrs./wk.

**PSYC 215**  
**CHILD DEVELOPMENT (3 CR)**

*Prerequisite: PSYC 130*

This course is a comprehensive account of human development from conception through adolescence. The course integrates genetic, biological, physical and anthropological influences with psychological processes and explores determinants of behavior from a genetic and environmental perspective. 3 hrs./wk.

**PSYC 218**  
**HUMAN DEVELOPMENT (3 CR)**

*Prerequisite: PSYC 130*

This course is a comprehensive account of human psychological and physical development from conception through infancy, childhood, adolescence, adulthood and death. The course integrates genetic, biological, physiological and anthropological influences with the psychological process and explores determinants of development from both hereditary and environmental perspectives. 3 hrs./wk.

**PSYC 220**  
**SOCIAL PSYCHOLOGY (3 CR)**

*Prerequisite: PSYC 130*

This course is designed to be an undergraduate-level introduction to the psychology of social behavior. It will provide a systematic attempt to understand how the "thought, feeling and behavior of individuals are influenced by the actual, imagined or implied presence of others." Consideration will be given to such concepts as methodology, attitude and attitude change, aggression, leadership, affiliation and obedience and will introduce conformity. The course is intended to introduce students to critical analysis, application and the mechanical and intellectual challenges of college work. 3 hrs./wk.

**PSYC 225**  
**EDUCATIONAL PSYCHOLOGY (3 CR)**

*Prerequisite: PSYC 130*

This course addresses various issues that apply theories of psychology to the educational environment. Topics included in the study of educational psychology include research methodology, theories of human development, principles of learning, the psychology of motivation, theories of intelligence, testing and assessment techniques, and career development. A 20-hour observation in an educational setting is required. 3 hrs./wk.

**PSYC 230**  
**PERSONALITY THEORY (3 CR)**

*Prerequisite: PSYC 130*

The general viewpoints of paradigms in psychology will be studied, with emphasis on each system's contribution to understanding human personality. The assumptions of each system will be critically analyzed using evidence from research and criticisms from philosophy. Usefulness of theories will be presented, and the systems will be compared and contrasted. General theories covered will include psychoanalysis, trait, biological, humanistic, behavioral/social and cognitive. 3 hrs./wk.

**PSYC 250**  
**HEALTH PSYCHOLOGY (3 CR)**

*Prerequisite: PSYC 130*

This course covers content, methods and theory regarding the interplay between psychological and biological determinants of health and illness and examines how these factors relate to health status. The course focus is on the application of psychological methods, principles of maintenance of health, prevention of disease, treatment of illness, and rehabilitation and recovery from impaired health. It follows an interdisciplinary approach to content and instruction. 3 hrs. lecture/wk.

## **Radiologic Technology (KRAD)**

**KRAD 150**  
**INTRO TO RADIOLOGIC TECHNOLOGY (1 CR)**

This introduction to the profession of radiologic technology includes the duties of the radiologic technologist in the health care environment. 1 hr./wk.

**KRAD 160**  
**SURVEY/RADIOLOGIC TECHNOLOGY (6 CR)**

*Prerequisite: Admission to the program*

Students will receive an orientation to the program and clinical responsibilities, with emphasis on body mechanics of patient transport, methods of radiation protection and types of radiographic equipment. Clinical observation is also included. 15.4 hrs.

**KRAD 162**  
**IMAGE PROCESSING (2 CR)**

*Prerequisites: Admission to the program and KRAD 160 and KRAD 172 and KRAD 173 each with a minimum grade of "C"*

Materials and factors relating to acquisition, processing, viewing and storage of radiographs.

**KRAD 165**  
**PATIENT CARE (2 CR)**

*Prerequisite: KRAD 160 with a minimum grade of "C"*

This is the study of patient care and the skills required for patient care in the procedures of radiology. 2 hrs./wk.

**KRAD 170**  
**RADIOLOGY/BIOLOGY/PROTECTION (3 CR)**



*Prerequisite: KRAD 160 with concurrent enrollment in the corresponding semester of clinical training*

Radiation biology, radiation protection and techniques used to protect the patient and personnel from the effects of exposure to ionizing radiation will be covered. 3 hrs./wk.

**KRAD 171**  
**RADIOGRAPHIC EXPOSURES I (3 CR)**

*Prerequisite: Admission to the program*

Radiographic image formation and the factors affecting or controlling it will be examined. Students will conduct related experiments. 3.5 hrs./wk.

**KRAD 172**  
**RADIOGRAPHIC POSITIONING I (3 CR)**

*Prerequisite: KRAD 160 with a minimum grade of "C" and concurrent enrollment in KRAD 165 and 173*

This is a study of anatomy and positioning for the abdomen, chest, upper and lower extremities, upper and lower gastrointestinal track, gall bladder/biliary track, and kidneys. 3.5 hrs./wk.

**KRAD 173**  
**CLINICAL TRAINING I (3 CR)**

*Prerequisites: KRAD 160 with a minimum grade of "C" and concurrent enrollment in KRAD 165 and KRAD 172*

This class will offer training in basic radiographic procedures and related tasks that correlate with KRAD 172 course content. Training is under the supervision of a radiologic technologist. 16 hrs. clinic/wk.

**KRAD 174**  
**RADIOGRAPHIC EXPOSURES II (3 CR)**

*Prerequisites: KRAD 160, KRAD 171, KRAD 172 and KRAD 173, each with a minimum grade of "C"*

Topics will include analysis and quality control measures used for image-producing equipment including tests and calibration requirements. Computer-assisted image production will be studied in detail including the technology of computer-assisted tomography (C.A.T.) and magnetic resonance imaging (M.R.I.) scanners. 3.5 hrs./wk.

**KRAD 175**  
**CLINICAL TRAINING II (4 CR)**

*Prerequisites: KRAD 165, KRAD 172 and KRAD 173, each with a minimum grade of "C", and concurrent enrollment in KRAD 172*

This training will focus on the upper and lower extremities, cervical, thoracic and lumbar vertebrae, ribs, sternum, skull and mammographic examinations. The student must be able to perform eight additional unassisted examinations by the end of the term. 24 hrs. clinic/wk.

**KRAD 176**  
**RADIOGRAPHIC POSITIONING II (3 CR)**

*Prerequisites: BIOL 140 and KRAD 165, KRAD 172 and KRAD 173, each with a minimum grade of "C," and concurrent enrollment in KRAD 162 and KRAD 175*

This class will cover anatomy and positioning related to the upper and lower extremities, the vertebral column and thorax, and will include mammography. 3.5 hrs./wk.

**KRAD 178**  
**CLINICAL TRAINING III (4 CR)**

*Prerequisites: KRAD 175 and KRAD 176 with a minimum grade of "C"*

Students will perform patient examinations in a clinical setting under the supervision of a radiologic technologist. Average 20 hrs./wk.

**KRAD 278**  
**IMAGING MODALITIES/PATHOLOGY (3 CR)**

*Prerequisites: KRAD 279, KRAD 280 and KRAD 285, each with a minimum grade of "C," and concurrent enrollment in KRAD 282*

This course will study the disease processes of all organ systems, with an emphasis on pathology visualized on radiographs or through other image-producing modalities such as C.A.T. scans or ultrasound exams. 3 hrs./wk.

**KRAD 279**  
**RADIOGRAPHIC POSITIONING III (2 CR)**

*Prerequisites: KRAD 176 and KRAD 178, each with a minimum grade of "C," and concurrent enrollment in KRAD 280, KRAD 281 and KRAD 285*

This course will concentrate on image evaluation for every radiographic examination of the human anatomy. 2 hrs./wk.

**KRAD 280**  
**CLINICAL TRAINING IV (4 CR)**

*Prerequisite: KRAD 162, KRAD 176 and KRAD 178, each with a minimum grade of "C," and concurrent enrollment in KRAD 279, KRAD 281 and KRAD 285*

Training opportunities in portable radiography, emergency room techniques and supervised fluoroscopy will be provided. By the end of the term, students will be expected to perform with limited supervision all the exams they have previously shown competence in as well as new exams. 29 hrs./wk.

**KRAD 281**  
**RADIATION PHYSICS (3 CR)**

*Prerequisites: PVC PHYS 162 and KRAD 171 with a minimum grade of "C"*

Application of fundamental physics principles relating to energy, electricity, and magnetism and their relevance to the study of x-rays and x-ray equipment.

**KRAD 282**  
**CLINICAL TRAINING V (4 CR)**

*Prerequisites: KRAD 279, KRAD 280, KRAD 281 and KRAD 285, each with a minimum grade of "C," and concurrent enrollment in KRAD 278*

Students will perform patient examinations in a clinical setting with the supervision of a radiologic technologist. 36 hrs./wk.

**KRAD 283**  
**FINAL SEMINAR (3 CR)**

*Prerequisites: KRAD 278 and KRAD 282, each with a minimum grade of "C"*

Students will prepare for the National Registry examination by using tests and materials designed to simulate ARRT examinations. Completion of this course and all radiologic technology courses with a minimum grade of "C" is required for qualification for the National Registry exam. 3 hrs./wk.

**KRAD 285**  
**SPECIAL PROCEDURES (2 CR)**

*Prerequisites: KRAD 170, KRAD 171 and KRAD 178, each with a minimum grade of "C," and concurrent enrollment in KRAD 279, KRAD 280 and KRAD 281*

This course will cover anatomy, positioning, equipment and special tasks related to the circulatory, nervous and lymphatic systems. The role of the technologist will be stressed. 2 hrs./wk.

## **Railroad Conductor (RRTC)**

**RRTC 123**  
**INTRODUCTION/CONDUCTOR SERVICE (4 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, conductor option*

This is an introductory course for the conductor service option within the railroad operations program. Upon successful completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety, and the basic responsibilities of conductors. 5 hrs. lecture, demonstration/wk.

**RRTC 175**  
**CONDUCTOR MECHANICAL OPERATION (2 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 123 with a minimum grade of "C".*

This course covers mechanical operations that relate to conductor service. This is the second course in the conductor option of the railroad operations degree program. Upon successful completion of this course, the student should be able to describe the importance and application of freight care mechanical policies and practices to ensure safe railroad operations. 2.5 hrs. lecture/wk.

**RRTC 261**  
**CONDUCTOR SERVICE (2 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 175 with a minimum grade of "C".*

Upon successful completion of this course, the student should be able to describe and apply railroad organization and general operations, policies and practices to ensure railroad safety, and basic responsibilities of conductors. This course includes safety and the general rules with which conductors must comply and teaches the techniques and administrative procedures conductors use on the job to perform safely and effectively. 2.5 hrs. lecture/wk.

**RRTC 263**  
**GENERAL CODE/OPERATING RULES (4 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, conductor option, and successful completion of RRTC 261 with a minimum grade of "C".*

This is the fourth course in the conductor option for the railroad operations degree program. Conductors must maintain a thorough understanding of the General Code of Operating Rules (GCOR). This course provides an in-depth study of the GCOR. Upon completion of this course, the student should be able to demonstrate abilities to apply the General Code of Operating Rules to safe and efficient train movement and operations. 5 hrs. lecture/wk.

**RRTC 265**  
**CONDUCTOR FIELD APPLICATION (9 CR)**

*Prerequisite: Admission to the JCCC railroad program, conductor option, and successful completion of RRTC 263 with a minimum grade of "C"*

Upon successful completion of this course, the student will have observed actual operations and be able to apply skills learned in classroom-based instruction to those operations. The student will observe and perform operations under the supervision of experienced conductor mentors in actual field locations. 1 hr. lecture, minimum 15 hrs. on-the-job training/wk.

## **Railroad Dispatcher (RRTD)**

**RRTD 122**  
**INTRO TO RAILROAD DISPATCHING (2 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, dispatcher option*

Upon successful completion of this course, the student should be able to describe railroad organization and general operations, policies and practices to ensure railroad safety, and basic dispatching functions. 2.5 hrs. lecture/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

**RRTD 271**  
**APPRENTICE RR DISPATCH TRNG I (6 CR)**

*Prerequisite: Admission to the JCCC's railroad operations program, dispatcher option, and successful completion of RRTD 275 with a minimum grade of "C"*

Upon successful completion of this course, the student should demonstrate abilities to apply the General Code of Operating Rules, Maintenance of Way operating rules and the Train Dispatcher's Manual of policies and practices to safe and effective train movement and maintenance operations. This is an intensive course that prepares students to observe actual dispatching operations. 7.5 hrs. lecture/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

**RRTD 272**  
**APPRENTICE RR DISPATCH TRNG II (6 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, dispatcher option, and successful completion of RRTD 271 with a minimum grade of "C"*

Upon successful completion of this course, students should demonstrate their ability to use centralized traffic control equipment, computerized track warrant control equipment, and management information systems that record and report train movement. Students will also identify and resolve traffic conflicts safely and effectively. This is an intensive course in which students observe, practice and demonstrate rail traffic dispatching functions in a laboratory setting. In addition, the student will spend an additional week observing dispatching-related activities in the field in conjunction with this course. 4.5 hrs. lecture, 3 hrs. lab/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

**RRTD 275**  
**RR DISPATCHING FIELD OBSERVAT (3 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, dispatcher option, and RRTD 122 with a minimum grade of "C"*

Upon successful completion of this course, the student will have observed actual dispatching operations and should be able to identify major responsibilities. Students will observe operations under the supervision of experienced dispatcher mentors in actual dispatching offices. 1 hr. lecture, minimum 15 hrs. on-the-job training/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

**RRTD 276**  
**RR DISPATCHING FIELD APPLICAT (5 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, dispatcher option, and RRTD 272 with a minimum grade of "C"*

Railroad Dispatching Field Application is a 10-week period in which students will observe and practice operations under the supervision of experienced dispatcher mentors in actual dispatching offices. Upon successful completion of this course, students will be able to apply skills learned in classroom-based dispatching instruction to those operations. Minimum 15 hrs. on-the-job training/wk. Class currently held at Tarrant County Junior College, Ft. Worth, Texas.

## **Railroad Electronics (RREL)**

**RREL 144**  
**INTRODUCTION TO PLCs (2 CR)**

*Prerequisite: Approval of the railroad training director and the JCCC division administrator*

This course is an introduction to programmable logic controllers using Allen Bradley PLC-5 processors and is designed for electricians and maintenance personnel. Upon successful completion of this course, the student should be able to identify the components of programmable controllers, configure and set up the controllers for specific operations, write and test basic programs, and apply troubleshooting procedures to locate problems. 1 hr. lecture, 1.5 hrs. lab/wk.

**RREL 172**  
**PLC APPLICATIONS (2 CR)**

*Prerequisite: Approval of the railroad training director and the JCCC division administrator*

This course is designed for electricians and maintenance personnel. It is intended as an advanced course for people with basic knowledge in programmable logic controllers operation. Allen Bradley PLC-5 family of processors is used for hands-on-training. Upon successful completion of this course, the student should be able to use advanced PLC instructions such as file, block transfer, stack concepts/operations and sequences, and configure and operate a network of processors. 1 hr. lecture, 1.5 hrs. lab/wk.

**RREL 180**  
**INTRO TO RAILROAD ELECTRONICS (1 CR)**

*Prerequisite: Approval of the railroad training administrator and the JCCC division administrator*

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to state basic safety procedures in electronics, explain basic principles of electronics, perform basic electronic calculations and use basic electronic tools. 2.5 hrs. lecture, 2.5 hrs. lab/wk.

**RREL 181**  
**CIRCUIT ANALYSIS DC/AC (6 CR)**

*Prerequisites: RREL 180 and the approval of the railroad training administrator and the JCCC division administrator*

This course is designed to meet the needs of the railroad electronic maintainers. Upon successful completion of this course, the student should be able to identify and use fundamental DC circuit concepts such as Kirchhoff's laws, power and energy formulas, Ohm's Law, Thevenin's Theorem and Norton's Theorem as they apply to resistive circuits. Also upon successful completion of this course, the student should be able to analyze circuits involving resistors, capacitors and inductors driven by time-variant sources. This analysis will involve both time and frequency responses. 3 hrs. lecture, 2 hrs. lab, 3 hrs. alternate deliver/wk.

**RREL 182**  
**SEMICONDUCTOR DEVICES/CIRCUITS (6 CR)**

*Prerequisites: RREL 181 and the approval of the railroad training administrator and the JCCC division administrator*

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to describe the characteristics of basic semiconductor devices, explain practical circuits using semiconductor devices and analyze these circuits for DC and AC quantities. 3 hrs. lecture, 2 hrs. lab., 3 hrs. alternate delivery/wk.

**RREL 183**  
**DIGITAL TECHNIQUES (6 CR)**

*Prerequisites: RREL 182 and approval of the railroad training administrator and JCCC division administrator*

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to analyze basic digital circuitry consisting of arrangements of gates and flip-flops using TTL and CMOS integrated circuits, as well as relay logic. This analysis will include the application of elementary Boolean algebra, truth tables and timing diagrams. 3 hrs. lecture, 2 hrs. lab., 3 hrs. alternate delivery/wk.

**RREL 284**  
**ELECTRONIC COMMUNICATIONS (6 CR)**

*Prerequisites: RREL 183 and approval of the railroad training director and the JCCC division administrator*

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to state the principles of amplitude, frequency, phase and pulse modulation and describe the technologies of transmitters, receivers, antennas, local area networks, wide-area networks and telephone systems. 3 hrs. lecture, 2 hrs. lab, 3 hrs. activity/wk.

**RREL 285**  
**MICROPROCESSOR TECHNIQUES (6 CR)**

*Prerequisites: RREL 183 and approval of the railroad training director and the JCCC division administrator*

This course is designed to meet the needs of railroad electronic maintainers. Upon successful completion of this course, the student should be able to analyze and troubleshoot 6800 family microprocessor circuitry as well as microprocessor interface circuitry. 3 hrs. lecture, 2 hrs. lab, 3 hrs. activity/wk.

**RREL 286**  
**APPLIED MICROPROCESSORS (2 CR)**

*Prerequisites: RREL 285 and approval of the railroad training director and the JCCC division administrator*

This course is designed to provide an introduction to advanced microcomputer concepts and applications. This course is a continuation of topics introduced in the microprocessor course, with specific applications in general-purpose microcomputers (PCs) and dedicated microprocessor-based control systems. Included are hardware and software training in operating systems, peripherals, monitors, processors, storage media, maintenance, diagnostics and troubleshooting. Analog and digital data acquisition and processing, as well as voice digitization and playback, will be demonstrated. Presentations and labs will include incorporation of these functions into a PC, Harmon HLC and the Servo 9000 hot box detector. 1 hr. lecture, 2 hrs. lab/wk.

## **Railroad Industrial Technology (RRIT)**

**RRIT 122**  
**ELEMENTS OF WELDING (3 CR)**

*Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to cut and weld using oxyacetylene welding (OAW) and oxyfuel (OFC) and shielded metal arc welding (SMAW). The OAW portion will cover puddling with and without filler metal; OFC will cover straight-line cutting, beveling, piercing and gouging. The SMAW portion will cover flat position and will be limited to fillet welds. The student should be able to discuss electrical safety in shielded metal arc welding (SMAW), handle welding cables properly, understand eye hazards, list safe clothing requirements and discuss environmental safety. This knowledge will be evidenced by achieving the specified score on the unit test. 2 hrs. lecture, 3 hrs. lab/wk.

**RRIT 123**  
**BASIC WELDING (3 CR)**

*Prerequisites: RRIT 122 or approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to properly use oxy-fuel cutting (OFC), shielded metal arc welding (SMAW) and air carbon arc cutting (CAC-A) equipment. The SMAW portion of the course will concentrate on 1G and 2F welds with bend tests being performed on selected weldments. 1 hr. lecture, 4 hrs. lab/wk.

**RRIT 127**  
**WELDING PROCESSES (2 CR)**

*Prerequisites: Approval of the BNSF training director and the JCCC division administrator*

Upon successful completion of this course, the student should be able to identify various welding process used by the railroad and other industries. Standard shop and maintenance welding processes will be taught and demonstrated. Welds will be tested and inspected according to industry standards. 1 hr. lecture, 1.5 hrs. lab/wk.

**RRIT 132**  
**THERMITE WELDING (3 CR)**

*Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to produce in a safe manner high-quality, sound Thermite welds on standard rail and mismatched rail. This course is

intended for people who are employed in the railroad industry. This will be specific, in-depth, industrial training. Students will be required to make various rail alignments and grind various new and worn rail. The student should also be able to clean a used crucible, assemble a crucible and temper new and used crucible. 1 hr. lecture, 4 hrs. lab/wk.

### **RRIT 136** **RAIL & SP REPAIR WELDING (3 CR)**

*Prerequisites: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to identify and/or produce in a safe manner high-quality welding repairs and correct welding techniques to railroad track components to include maintenance, grinding, welding and repairs of switches, track rail ends, track wheel burns, battered welds, rail transition ramp building methods, Pandrol weld on shoulders, proper placement of work piece connections, and approved switch point welding procedures, as specified by the Burlington Northern Santa Fe Railway. This course will involve the study of different welding processes, welding safety, proper grounding techniques, rail heater and metallurgy. The effects of heat in relationship to specific rail steel components will be discussed. Students will be required to experience all appropriate methods and processes welding, cutting, grinding, straight edging rail steel and preparing switch points for proper mating surface according to current industry standards. Evaluation will be a classroom and laboratory setting. 1 hr. lecture, 4 hrs. lab/wk.

### **RRIT 137** **STRUCTURAL WELDING SMAW (3 CR)**

*Prerequisites: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be qualified to weld with SMAW according to AWS D1.1.96 code. All welds will be made in the vertical (3G) and overhead (4G) positions. Passing or failing will be determined by the student's ability to successfully produce welds according to prescribed standards in AWS D1.1.96. 1 hr. lecture, 4 hrs. lab/wk.

### **RRIT 138** **STRUCTURAL WELDING FCAW (3 CR)**

*Prerequisites: RRIT 137 and approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be qualified to weld with FCAW according to AWS D1.1.96 code. All welding will be made in the vertical (3G and 3F) and overhead (4G and 4F) positions. Passing or failing will be determined by the student's ability to successfully produce welds according to prescribed standards in AWS D1.1.96. 1 hr. lecture, 4 hrs. lab/wk.

### **RRIT 139** **STRUCTURAL WELDING PIPE (3 CR)**

*Prerequisites: RRIT 137 and approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be qualified to weld on pipe using the SMAW process. All welding will be made in the vertical uphill fixed position (5G). Passing or failing will be determined by the student's ability to successfully produce test welds. 1 hr. lecture, 4 hrs. lab/wk.

### **RRIT 140** **STRUCTURAL QUALITY SMAW (3 CR)**

*Prerequisites: RRIT 127 or approval of BNSF training director and JCCC division administrator*

Upon successful completion of this course, the student should be qualified to weld with shielded metal arc welding (SMAW) according to industrial standards. Test welds will be made in the vertical (3G) and overhead (4G) positions; limited thickness. Passing or failing will be determined by the student's ability to successfully produce welds according to prescribed American Welding Society (AWS) standards. The oxyfuel cutting (OFC) portion will include cutting metal to specific sizes and shapes. 1 hr. lecture, 4 hrs. lab/wk.

**RRIT 141**  
**STRUCTURAL QUALITY GMAW (3 CR)**

*Prerequisites: RRIT 127 or approval of BNSF training director and JCCC division administrator*

Upon successful completion of this course, the student should be able explain the theory of gas metal arc (GMAW) and fluxed-cored arc welding (FCAW), identify materials and use equipment related to the processes. The student will weld on mild steel plate in all positions producing both fillet and groove welds with the GMAW process with a U-bend test being performed in selected positions according to industry standards. The student will also weld in selected positions on mild steel plate with the FCAW process. Selected welding codes and specifications will be used as a reference for this class. The oxy-fuel (OFC) will be used to prepare mild steel for welding. 1 hr. lecture, 4 hrs. lab/wk.

**RRIT 142**  
**STRUCTURAL PILE WELDING (3 CR)**

*Prerequisites: RRIT 137 and RRIT 138 and approval of BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to splice pipe and H-beam piling and install cap plate gussets according to Burlington Northern Santa Fe (BNSF) standard blueprints. This course shall make use of oxy-fuel cutting (OFC), grinding, shielded metal arc welding (SMAW), and flux cored arc welding (FCAW) to prepare, fit and weld piling. Selected welds will have test strips bent to check for soundness of welds. These strips should meet basic American Welding Society (AWS) test standards. Basic metallurgy will be discussed as it applies to the need for preheat and post heat in the building of railroad bridges. 1 hr. lecture and 4 hrs. lab/wk.

**RRIT 143**  
**THERMITE/WELD FOR SUPERVISORS (2 CR)**

*Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to produce in a safe manner high-quality, sound thermite welds on standard rail and mismatched rail. This course is intended for people who are employed in the railroad industry. This will be specific, in-depth, industrial training. Students will be required to make various rail alignments and grind various new and worn rail. The students should also be able to clean a used crucible, assemble a crucible and temper new and used crucible. 1.5 hrs. lecture, 1 hr. lab/wk.

**RRIT 145**  
**FROG WELDING (3 CR)**

*Prerequisite: RRIT 123 and approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to repair by welding a manganese frog casting according to Burlington Northern Santa Fe Railway standards. This course will involve the study of different welding and cutting processes, with emphasis on the FCAW process. Metallurgy and the effects of heat in relationship to austenitic manganese steel will be discussed. Students will be required to cut, grind, straight edge, dye penetrant test, weld and monitor heat input during the repair process on austenitic steel frog casting for evaluation in an actual laboratory setting. 1 hr. lecture, 4 hrs. lab/wk.

**RRIT 155**  
**RAILROAD WELDING REVIEW (2 CR)**

*Prerequisites: Approval of the BNSF manager of engineering and maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to identify currently used rail, frogs, switch points, crossings, Conley's and insulated joint plugs. The student should be able to locate operating procedures in an approved manual and apply them to the appropriate component. In addition, the student should be able to describe the proper application of OFC, OFW, heating, SMAW, FCAW, CAC-A and thermite welding procedures. 1.5 hrs. lecture, 1 hr. lab/wk.



**RRIT 156**  
**RAIL & FROG WELDING REVIEW (3 CR)**

*Prerequisite: Approval of BNSF manager of engineering maintenance training and the JCCC division administrator*

Upon successful completion of this course, the student should be able to identify currently used types and sizes of rail, frogs, switch points and insulated joints. The student should be able to locate operation procedures in an approved manual and apply them to the appropriate component. In addition, the student should be able to describe the proper application of oxygen fuel cutting (OFC), oxy-fuel heating, shielded metal arc welding (SMAW), flux core arch welding (FCAW), carbon arc cutting with air (CAC-A), thermite welding (TW) and grinding procedures. 3 hrs. lecture/wk.

## **Railroad Maintenance of Way (RRMW)**

**RRMW 132**  
**RAILROAD STRUCTURES LAYOUT (3 CR)**

*Prerequisite: Approval of the railroad training*

administrator and the JCCC division administrator This is a beginning course for railroad maintenance-of-way personnel working with bridge and building construction. Students will learn to read construction blueprints used in railroad projects and perform layout work for railroad construction. Also, students will learn how to use basic surveying principles and equipment typically used at railroad construction sites. 2 hrs. lecture, 3 hrs. lab/wk.

**RRMW 135**  
**CONCRETE TECHNOLOGY (2 CR)**

*Prerequisite: Approval of the railroad training administrator and the JCCC division administrator*

This course contains information that will help experienced and inexperienced students understand the principles of quality concrete. The emphasis will be on allowing concrete to reach its highest level of durability through proper mix design, placing and finishing techniques, and curing methods. 1.5 hrs. lecture, 1 hr. lab/wk.

## **Railroad Operations (RRT)**

**RRT 120**  
**HISTORY OF RAILROADING (3 CR)**

This course covers the history and traditions of railroading and the industry's role in North American economic development. Upon successful completion of this course, students will be able to list and explain the significance of major events in North American railroading. 3 hrs. lecture/wk.

**RRT 121**  
**RAILROAD TECHNICAL CAREERS (3 CR)**

This course includes information about technical careers in railroading, enabling students to choose suitable career paths. This course includes field trips that will demonstrate the relationships among technical work groups in day-to-day railroad operations. Upon successful completion of this course, students should be able to describe basic technical job functions, requirements and characteristics. 3 hrs. lecture/wk.

**RRT 150**  
**RAILROAD OPERATIONS (3 CR)**

This course includes information about the industry, its major assets, structure and typical operations. Upon successful completion of this course, students will be able to define the current North American railroading industry characteristics, basic operations components and processes,

and industry structure and administrative processes. 3 hrs. lecture/wk.

**RRT 165**  
**RR SAFETY, QUALITY/ENVIRON (3 CR)**

This course covers the importance of safety, quality, personal health and environmental awareness to the railroad industry and emphasizes the basic tools and techniques for improving these conditions on the job. Upon successful completion of this course, students should be able to define and explain the need for improved safety, quality, health and environmental awareness; describe their basic principles; explain the elements of successful programs; and apply these elements to typical tasks on the job. 3 hrs. lecture/wk.

## **Railroad Operations-Mechanical (RRTM)**

**RRTM 124**  
**ORIENTA/RR MECHANICAL CRAFT (2 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, mechanical option*

This course is designed to familiarize the student with work in railroad mechanical crafts. Upon successful completion of the course, students should be able to describe apprenticeship program structures, benefits, organizational goals, basic safety and quality principles, and other aspects of mechanical craft work. 2.5 hrs. lecture/wk.

**RRTM 170**  
**RR MECHANICAL SAFETY & HEALTH (2 CR)**

*Prerequisite: Admission to the JCCC's railroad operations program, mechanical option, and completion of RRTM 124 with a minimum grade of "C"*

This course is designed to teach the principles and policies governing railroad safety and health. Upon successful completion of this course, the student should be able to describe safety and health rules and policies, including applying a team process to improving safety and health, use and care of personal protective equipment, back injury prevention, hazard communications, lockout/tagout procedures, and hearing conservation. Students will be qualified to perform first aid and CPR and will be able to conduct a job safety analysis. 2.5 hrs. lecture/wk.

**RRTM 251**  
**LOCOMOTIVE DIESEL ENGINE FUNDA (2 CR)**

*Prerequisite: Admission to the JCCC railroad operations program, mechanical option, and completion of RRTM 124 and RRTM 170 with a minimum grade of "C"*

This course teaches the principles of diesel engine operation. Upon successful completion of this course, students will be able to identify 2-cycle and 4-cycle diesel engine parts and describe how diesel engine lubricating, cooling, and fuel systems operate. 1.5 hrs. lecture, 1 hr. lab/wk.

**RRTM 253**  
**FREIGHT CAR FUNDAMENTALS (2 CR)**

*Prerequisite: Admission to the JCCC's railroad operations program, mechanical option, and completion of RRTM 124 and RRTM 170 with a minimum grade of "C"*

This course teaches the basic types and purposes of railroad freight cars. Upon successful completion of this course, students will be able to identify five types of railroad freight cars, explain their functions, describe their basic construction and explain purposes and references for AAR rules and regulations governing freight cars. 1.5 hrs. lecture, 1 hr. lab/wk.

**RRTM 254**  
**BASIC LOCOMOT ELECTRIC/ELECTRO (2 CR)**

*Prerequisite: Admission to the JCCC's railroad operations program, mechanical option and completion of RRTM 124 and RRTM 170 with a minimum grade of "C"*

This course teaches the theory and operation of electrical and electronic circuitry on board modern locomotives and complements EMD and GE electrical systems classes. Upon successful

completion of this course, students will be able to describe the theory and purpose of the processes and operation of locomotive electrical system components and maintenance techniques. 1.5 hrs. lecture, 1 hr. lab/wk.

## **Railroad Work Equipment (RRWE)**

### **RRWE 136 BASIC ELECTRONICS (2 CR)**

*Prerequisites: Approval of the railroad training director and the JCCC division administrator*

This course is an introduction to electronics with a review of basic electrical concepts. Instruction is provided on the operation and use of an oscilloscope, function generator, DC power supply, digital multi-meter and watt-meter. The course also includes an introduction to electronic devices, schematics, basic electronic formulas and programmable logic controllers. 1 hr. lecture, 1.5 hrs. lab/wk.

### **RRWE 138 WORK EQUIPMENT SYMBOLS (2 CR)**

*Prerequisite: Approval of the railroad training administrator and the JCCC division administrator*

This course is designed to introduce the mechanic to the different types of symbols found on railroad track equipment. Major symbols families that will be discussed include mechanical, hydraulic, pneumatic, ladder and logic devices. At the end of each major topic, several small projects will be assigned to ensure that understanding has been achieved. As a final project, students will be assigned a project that will test their ability to use correctly several different families of symbols in one complete working drawing. 1 1/2 hrs. lecture, 1 hr. lab/wk.

### **RRWE 146 HYDRAULIC PRINCIPLES (2 CR)**

*Prerequisite: Approval of the railroad training administrator and the JCCC division administrator*

This course is designed for operators and maintenance personnel who use hydraulic systems in their work. Upon successful completion of this course, the student should be able to apply hydraulic principles to improve operational availability of equipment. Students will learn to read hydraulic diagrams and perform preventive maintenance and troubleshooting. In order to explain component operation, there will be extensive use of cut-away components. 1 hr. lecture, 1.5 hrs. lab/wk.

### **RRWE 148 ELECTRONIC PRINCIPLES (2 CR)**

*Prerequisites: Approval of the railroad training administrator and the JCCC division administrator*

This introductory course is designed to familiarize the student with the basic principles of electricity/electronics, the proper usage of a VOM or DMM, the reading of electrical prints in performing basic troubleshooting and the ability to identify basic hardware found in electrical circuits on maintenance-of-way equipment. 1 hr. lecture, 1.5 hrs. lab/wk.

### **RRWE 157 FLUID POWER SYSTEMS (2 CR)**

*Prerequisite: Approval of the railroad training administrator and the JCCC division administrator*

This course is designed to introduce the field of fluid power. Major topics that will be discussed include the two types of fluid power systems, major parts in a fluid power system and their purpose, the calculations needed to size motors and cylinders, the proper preventive maintenance procedures needed to keep the system operating at peak efficiency, and the troubleshooting methods used to isolate the problem in a system that is not working correctly. 2 hrs. lecture/wk.

### **RRWE 190 ADVANCED HYDRAULIC PRINCIPLES (2 CR)**

*Prerequisites: RRWE 146 and the approval of the railroad training administrator and the JCCC division administrator*

This advanced course contains information on hydraulic components found on the more complex maintenance-of-way equipment. Upon successful completion of this course, the student should be able to understand symbols, describe the theory of operation of and perform basic troubleshooting tasks on these components. 1 hr. lecture, 1.5 hrs. lab/wk.

**RRWE 192**  
**ADVANCED ELECTRONIC PRINCIPLES (2 CR)**

*Prerequisites: RRWE 146 and the approval of the railroad training administrator and the JCCC division administrator*

This advanced course contains information on electronic components and circuits found on the more complex maintenance-of-way equipment. Upon successful completion of this course, the student should be able to understand symbols, describe the theory of operation of and perform basic troubleshooting tasks on these components. 1 hr. lecture, 1.5 hrs. lab/wk.

## Reading (RDG)

**RDG 124**  
**BASIC VOCABULARY & READ SKILLS (3 CR)**

*Prerequisite: Appropriate assessment score*

This is the beginning course in a reading-course sequence designed especially for those who have difficulty understanding English in print. It focuses on building a functional vocabulary and increasing comprehension on the sentence, paragraph and multi-paragraph level. 3 hrs./wk. This course does not fulfill degree requirements.

**RDG 125**  
**FUNDAMENTALS OF READING (3 CR)**

*Prerequisite: RDG 124 or appropriate assessment score*

This is the second class in a sequence of mandatory reading courses. It is designed for students who need to improve their understanding of written expression. The focus is on vocabulary, dictionary usage, literal comprehension and written communication. 3 hrs./wk. This course does not fulfill degree requirements.

**RDG 126**  
**READING SKILLS IMPROVEMENT (3 CR)**

*Prerequisite: RDG 125 or LC 125 or appropriate assessment score*

This final course in a sequence of mandatory reading courses is designed for students who need to improve their understanding of written expression. The focus of the course is on higher-level comprehension and vocabulary skills. Students use Newsweek magazine to apply and practice skills learned in the class and to provide a background for written assignments. 3 hrs./wk. This course does not fulfill degree requirements.

**RDG 127**  
**COLLEGE READING SKILLS (3 CR)**

*Prerequisite: RDG 126 or LC 126 or appropriate assessment score*

In this advanced course, designed for students who wish to further improve their reading, students will develop critical reading skills, expand background knowledge through reading, increase vocabulary, develop flexible reading techniques, and improve study and writing skills. Students use National Geographic and Atlantic Monthly to apply and practice skills learned in the class and to provide a background for written assignments and class discussions 3 hrs./wk.

## Religion (REL)

**REL 120**  
**EXPLORING WORLD RELIGIONS (3 CR)**

This course is a comparative study of the world's major religious traditions. The basic beliefs of Hinduism, Buddhism, Confucianism, Taoism, Judaism, Christianity and Islam will be explored. A comparative framework for religious studies will be provided, and essential differences between Eastern and Western religions will be noted. Literary texts and iconographic images will be studied as appropriate. 3 hrs. lecture/wk.

## Respiratory Care (RC)

### **RC 125** **BEGINNING PRINCIPLES/RESP CARE (4 CR)**

*Prerequisite: Admission to the Respiratory Care Program*

This is an introduction to the basic therapeutic modalities used in respiratory care, including patient safety and comfort considerations, infection control and standard precautions, medical gas delivery, humidity and aerosol therapy, basic respiratory pharmacology, secretion clearance techniques and lung expansion therapy. Emphasis is on patient assessment, clinical application of therapies, therapy evaluation and communication techniques. The roles of respiratory care in the health care system and basic respiratory care service scope, organization and operation are also introduced. Students will have the opportunity to work with patients after two to three weeks of introductory lecture and lab demonstration and practice. 6 hrs. lecture, 16 hrs. lab/wk. Summer.

### **RC 130** **RESPIRATORY CARE EQUIPMENT (4 CR)**

*Prerequisite: Admission to the Respiratory Care Program*

This course is an introduction to basic respiratory care equipment. The operation, function, calibration, troubleshooting and maintenance for oxygen administration devices, aerosol generators, humidifiers and hyperinflation devices will be addressed. Medical gas production and storage will also be addressed. 6 hrs. lecture, 8 hrs. lab/wk. Summer

### **RC 135** **CARDIOPULMONARY MEDICINE I (1 CR)**

*Prerequisite: Admission to the Respiratory Care Program*

This is the first of three courses that provide a detailed review of the respiratory and cardiac system anatomy and physiology and the clinical implications of normal and abnormal function. 2 hrs./wk. Summer.

### **RC 220** **CARDIOPULMONARY PHYSIOLOGY (2 CR)**

*Prerequisite: Successful completion of the summer sequence of respiratory care courses*

This is a comprehensive study of the physiology and pathophysiology of the pulmonary, cardiovascular and renal systems as they relate to respiratory care. 2 hrs./wk. Fall.

### **RC 230** **CLINIC TOPICS & PROCEDURES I (4 CR)**

*Prerequisite: Successful completion of the summer sequence of respiratory care courses*

This course supplements the fall clinical experiences. Concepts, techniques and procedures learned in the summer semester are reinforced. The student will develop new understandings and skills in the acute care, basic emergency care and introductory-level critical care settings. Emphasis will be on arterial blood gas procurement and analysis, cardiac rhythm assessment and management, airway equipment and management procedures, patient management of obstructive lung disorders, perioperative care and chest trauma. In addition, basic mechanical ventilation concepts and techniques will be addressed as they relate to physiologic effects, ventilator commitment, management and basic troubleshooting. 3 hrs. lecture, 3 hrs. lab/wk. Fall

### **RC 231** **CLINIC TOPICS & PROCEDURES II (4 CR)**

*Prerequisite: Successful completion of the fall sequence of respiratory care courses*

This course supplements the spring clinical experiences. Concepts, techniques and procedures learned in the fall semester are reinforced. The student will refine understandings of and skills in the acute care, basic emergency care and critical care settings. Emphasis will be on ventilator management of patients with specific lung insults, neurological compromise and cardiac problems. Advanced mechanical ventilation concepts and techniques will be addressed as they relate to physiologic effects, management and troubleshooting. Home care, pulmonary rehabilitation, physician-assisted procedures, cardiopulmonary stress testing, patient case management and department management will be addressed. 3 hrs. lecture, 3 hrs. lab/wk. Spring.

**RC 233**  
**RESPIRATORY CARE OF CHILDREN (2 CR)**

*Prerequisite: RC 230*

The focus will be on the respiratory care of neonatal and pediatric patients, with emphasis on the management of cardiopulmonary disease states unique to children. Information will be based on developmental anatomy and physiology, pathology, diagnostic/laboratory assessments, and associated patient management in the acute, critical, emergency care, transport and home care settings. 2 hrs./wk. Spring.

**RC 235**  
**CARDIOPULMONARY MEDICINE II (2 CR)**

*Prerequisite: Successful completion of the summer sequence of respiratory care courses*

This is the second in a series of three courses that provide a detailed review of the physical and diagnostic assessments of the cardiopulmonary patient and the related clinical implications of the assessment finding. 2 hrs. lecture/wk. Fall

**RC 236**  
**CARDIOPULMONARY MEDICINE III (2 CR)**

*Prerequisite: Successful completion of the fall sequence of respiratory care courses*

This is the third in a series of three courses that provide a detailed review of pulmonary disorders, their pathology and their management. 2 hrs. lecture/wk. Spring

**RC 240**  
**CARDIOPULMONARY PHARMACOLOGY (2 CR)**

*Prerequisite: Successful completion of the summer sequence of respiratory care courses*

This course acquaints the student with general principles of pharmacology and provides a comprehensive review of all drugs and drug groups that are either administered by respiratory-care practitioners or play an integral part in the management of patients they may encounter. Emphasis is on the clinical application of pharmacological agents, their therapeutic effects, mechanism of action and adverse effects, rather than the biochemistry involved. 2 hrs. lecture/wk. Fall.

**RC 245**  
**CRT-RRT CLINIC TOPICS & PROC (4 CR)**

*Prerequisite: Admission to the Respiratory Care Program CRT to RRT transition process*

This course is a transition course for the certified respiratory therapist preparing for the registry respiratory care process. Assessment, monitoring and respiratory management of the adult critical care patient is the primary emphasis. 4 hrs./wk.

**RC 271**  
**CLINICAL PRACTICE I (6 CR)**

*Prerequisite: Successful completion of the summer sequence of respiratory care courses*

This course is the clinical application of respiratory care therapeutic and diagnostic procedures. Students will have the opportunity to work with patients under close supervision to further develop their skill and understanding of basic respiratory care procedures for adults and children. The course objectives progress throughout the semester to involve the student initially in basic care of the less critically ill patient. As their comfort level and exposures progress, students are allowed to work with the more critically ill patients. 24 hrs./wk. Fall.

**RC 272**  
**CLINICAL PRACTICE II (6 CR)**

*Prerequisite: Successful completion of the fall sequence of respiratory care courses*

This course is the clinical application of respiratory care therapeutic and diagnostic procedures. Students will have the opportunity to work with patients under close supervision to further develop their skill and understanding of critical respiratory care procedures for adults and children. Students will also be involved in specialty activities to include physician rounds, pulmonary rehabilitation, home care, pulmonary function and cardiopulmonary stress testing. 24 hrs./wk. Spring.

## **Sociology (SOC)**

**SOC 122**  
**INTRODUCTION TO SOCIOLOGY (3 CR)**

Introduction to Sociology introduces students to sociology, "science of society," and its approach to human social life. The course shows students how sociologists conduct research, and it describes the basic concepts and theories sociologists use to explain the social world.

**SOC 125**  
**SOCIAL PROBLEMS (3 CR)**

Selected social problems will be analyzed. Problems associated with race, gender, class, deviance, crime and ecology will be examined as perennial issues in contemporary society. In addition, other topics will be analyzed as they arise or as the instructor and students determine them to be significant. The history and development of each problem, as well as possible solutions, will be examined from a variety of perspectives. 3 hrs. lecture/wk.

**SOC 131**  
**MARRIAGE AND THE FAMILY (3 CR)**

This is a sociological examination of marriage and the family as a social institution. It will emphasize changing roles, family formation, socialization, domestic conflict, interaction among family members and marriage partners, and the role of marriage and the family in society. 3 hrs./wk.

**SOC 146**  
**INTRO SOCIAL WORK/SOC WELFARE (3 CR)**

This course will introduce the student to the profession of social work and to the history and development of social welfare and social service systems in the United States. This is a required introductory course in the sequence of study leading to a professional

**SOC 147**  
**SOCIAL WORK/SOCIAL JUSTICE (3 CR)**

The history of social movements in the United States will be integrated into exploration of current economic, political, religious and psychosocial issues, at micro and macro practice levels, relevant to the professional practice of social work at the BSW or MSW level of practice. This course is designed to support the National Association of Social Workers (NASW) Code of Ethics and Council of Social Work Education (CSWE) requirements for culturally competent practice. 3 hrs./wk.

**SOC 152**  
**PERSPECTIVES ON AGING (3 CR)**

Social aspects of aging will be identified. Areas of special interest will include research themes and demographic trends; aging and its relationship to family, the economy, politics, religion and education; the effect of cultural values on behavior; and the future of the elderly. 3 hrs./wk.

**SOC 165**  
**CHINESE SOCIETY:PAST & PRESENT (3 CR)**

An introduction to Chinese society since 1949, this course examines Chinese society and culture and focuses on contemporary social change while tracing the historical roots of Chinese culture and institutions. Social processes such as social movements, institutional development, political change, social organization and conflict are examined and analyzed. 3 hrs. lecture/wk.

**SOC 200**  
**INTERCULTURAL APPLICATIONS (3 CR)**

*Prerequisite or corequisite: SPD 180*

This course will provide students with direct experience with people from other cultures and community organizations. Through their work with international representatives and service agencies, students will gain experiential and reflective knowledge of various cultures, social institutions and social issues and will develop skills needed to successfully negotiate intercultural settings. Enrollment in the course requires participation in a weekend retreat and some additional hours in activities outside the classroom. 3 hrs. lecture/wk.

## **Speech/Debate (SPD)**

**SPD 120**  
**INTERPERSONAL COMMUNICATION (3 CR)**

This basic speech course deals with the oral communication process through the study of interpersonal communication. Principles of effective speech communication in one-to-one and small-group relationships are studied and applied in a variety of learning situations. Individualized talks may be given but everyday communication is stressed. 3 hrs./wk.

**SPD 121**  
**PUBLIC SPEAKING (3 CR)**

This course is designed to meet the needs of people who wish to improve their ability to prepare and deliver effective oral presentations before an audience. This fundamental speech course emphasizes creation of ideas, audience analysis, organization skills and delivery techniques. Students will extemporaneously deliver a variety of speeches, including informative and persuasive types of speeches. 3 hrs./wk.

**SPD 125**  
**PERSONAL COMMUNICATION (3 CR)**

This course is concerned with the most frequently used human communication skills, interpersonal communication and public speaking. The course demonstrates the natural relationships between communicating one-to-one and in public, showing that skills in one can be employed in the other and giving practice in both. Focus will be communication theory, listening concepts of self, language, perception and types of public speaking, including impromptu, informative and persuasive. 3 hrs./wk.

**SPD 128**  
**BUSINESS & PROFESSIONAL SPEECH (3 CR)**

Students will improve their verbal communication skills both formally and informally by studying interview techniques, making effective presentations, working in groups, negotiating, studying



listening techniques, and recognizing verbal and nonverbal messages. The course is designed for the student presently working in business or planning to pursue a business degree. 3 hrs./wk.

**SPD 130**  
**ELEMENTARY DEBATE (3 CR)**

This course is designed for those students interested in participating in competitive intercollegiate debate. Through the course, students will learn debate theory, debate skills and techniques, and methods of becoming successful intercollegiate competitors. Specific skills in research, argument construction, debate format, intercollegiate debate speaking style and refutation will be developed. Students enrolling in this course will be required to participate as members of the intercollegiate debate team and will attend two to eight weekend intercollegiate debate tournaments a semester. 3 hrs./wk.

**SPD 132**  
**INTERMEDIATE DEBATE I (3 CR)**

*Prerequisite: SPD 130 or the equivalent*

This course is designed for those students interested in participating in competitive intercollegiate debate. Through the course, students will learn debate theory, debate skills and techniques, and methods of becoming successful intercollegiate competitors. Specific skills in research, argument construction, debate format, intercollegiate debate speaking style and refutation will be developed. Students enrolling in this course will be required to participate as members of the intercollegiate debate team and will attend two to eight weekend intercollegiate debate tournaments a semester. 3 hrs./wk.

**SPD 140**  
**ORAL INTERPRETATION/LITERATURE (3 CR)**

The student will develop techniques for effective spoken performance of literature. Using poetry, fiction and non-fiction, students will create literary interpretations and then master both the verbal and nonverbal methods necessary for effective spoken expression of those interpretations. This course includes topics such as selecting literary works for performance, interpretation of literary works, audience analysis and performance. Skills acquired in this course will be essential to actors, broadcast journalists, educators and other public speakers. 3 hrs./wk.

**SPD 141**  
**VOICE AND SPEECH (3 CR)**

The student will develop techniques to expand breath support, vocal range and dynamics; develop precise articulation; and strengthen the connection between thought and sound. Through the use of exercises to free, develop and strengthen the voice, the student will be better able to communicate the full range of human emotion and all the nuances of thought. Skills acquired in this course are essential for actors, broadcast journalists, educators and other public speakers. 3 hrs./wk.

**SPD 180**  
**INTERCULTURAL COMMUNICATIONS (3 CR)**

This course utilizes concepts drawn from sociology, psychology, anthropology and communication. Upon successful completion of the course, students will recognize how communication is influenced by culture and how culture is influenced by communication. Students will identify the cultural bases of beliefs, attitudes, values and behaviors. Students will be able to recognize commonalities across cultures, tolerate ambiguity in a variety of situations, develop a more global multicultural perspective, identify and appreciate other cultural orientations, and recognize and assign cultural explanations to specific behaviors. The intercultural communication course is concerned with communication theory. Students will be required to identify the principles and terminology of human communication. With a commitment to perform at your best and actively participate in classroom and outside activities, the competencies listed in the course outline, as well as many others, will be successfully satisfied. 3 hrs. /wk.

**SPD 230**  
**INTERMEDIATE DEBATE II (3 CR)**

*Prerequisite: SPD 132 or the equivalent*

This course is designed for students interested in participating in competitive intercollegiate debate. Through the course, students will learn debate theory, debate skills and techniques, and methods of becoming successful intercollegiate competitors. Specific skills in research, argument construction, debate format, intercollegiate debate speaking style and refutation will be developed. Students enrolling in this course will be required to participate as members of the intercollegiate debate team and will attend two to eight weekend intercollegiate debate tournaments a semester. 3 hrs./wk.

**SPD 235**  
**ADVANCED DEBATE (3 CR)**

*Prerequisite: SPD 230 or the equivalent*

This course is designed for students interested in participating in competitive intercollegiate debate. Through the course, students will learn debate theory, debate skills and techniques, and methods of becoming successful intercollegiate competitors. Specific skills in research, argument construction, debate format, intercollegiate debate speaking style and refutation will be developed. Students enrolling in this course will be required to participate as members of the intercollegiate debate team and will attend two to eight weekend intercollegiate debate tournaments a semester. 3 hrs./wk.

## **Supply Chain Logistics (KSCL)**

**KSCL 210**  
**LOGISTICS MANAGEMENT (3 CR)**

Logistics management is an integrated system approach involving a variety of environments within a global marketplace. The course explores the logistic system from inbound movement of material and freight into the organization through physical distribution of the completed product to the consumer. Hands-on applications, activities and simulations are part of the course. The Council of Logistics Management's guidelines will be emphasized.

**KSCL 211**  
**OPERATIONS MANAGEMENT (3 CR)**

This course covers the central role and importance of the operations function in both service and product organizations. Strategy, design, scheduling, materials handling, inventory, production, MRP and distribution are covered.

**KSCL 212**  
**TRANSPORT OPERATIO/ MANAGEMENT (3 CR)**

This course covers the significance of an integrated, organized transportation system to a market-driven economy. The development of the transportation system of the United States from both historic and economic perspectives is included.

**KSCL 213**  
**WAREHOUSNG & DISTRIBUTION CTRS (3 CR)**

Warehousing and Distribution Centers is an integrated systems approach involving a variety of environments within a global marketplace. The course covers the organization and operations of warehouses and distribution centers. The major components are warehousing and distribution center paradigms, system design, locations, technology and financial dimensions.

## **Surgical Technology (KST)**

**KST 100**  
**INTRODUCTION TO SURGICAL TECH (2 CR)**

This course explores the historical development of surgery; health care facilities development and organization; the composition and duties of the surgical team; ethical, legal and moral responsibilities; and career obligation of the surgical technologist. Focus is on effective communication skills, accurate medical terminology and the effect of transcultural psychosocial outcomes for clients in the surgical setting. 4 hrs./wk.

**KST 102**  
**FUND/OPERATING ROOM TECHNIQUE (11 CR)**

This course explores the application of the principles of medical and surgical asepsis, preparation and maintenance of the sterile field, and identification of instruments, sutures, supplies and equipment. Emphasis is on basic skills of the surgical technologist in preparation for and during the operative procedure. The student will practice maintaining a safe client environment and explore the responsibilities and duties of surgery personnel. Common surgical techniques and procedures are introduced. 21 hrs. (clinical 15 hrs.)/wk.

**KST 104**  
**BODY STRUCTURE AND FUNCTION (2 CR)**

*Prerequisite: Students must meet entrance standards and must be accepted into the program*

This course introduces students to the major structures and function of the human body. Each body system is explored. Laboratory time is used to introduce and reinforce classroom instruction. 2 hrs. lecture, 2 hrs. lab/wk.

**KST 105**  
**PHARMACOLOGY FOR SURGICAL TECH (2 CR)**

This course explores the development of knowledge and understanding of the metric, apothecary, household and linear systems of measurement. The conversion of equivalents from one system to another is explored. Focus is on terminology associated with pharmacology and procedures for safe and accurate handling of medications and solutions. Included is discussion of principles of anesthesia administration, post-anesthesia client care and care in emergencies. 3 hrs. lecture, 1 hr. lab/wk.

**KST 106**  
**ASEPTIC TECH FOR SURGICAL TECH (2 CR)**

This course studies the structure, function and pathogenicity of microorganisms and immune and infectious responses. Emphasis is on principles of sterilization, disinfecting, environmental sanitation and practices that promote optimal healing. 4 hrs. lecture/wk.

**KST 109**  
**PRINCIPLES/SURGIAL PROCEDURE I (8 CR)**

*Prerequisite: Successful completion of all previously attempted courses of the program*

This course focuses on the diagnosis, pathology and surgical sequence of general surgery, gynecological surgery, genitourinary surgery and laparoscopic surgery. Included is discussion of postoperative care and complications. 16 hrs. (clinical 12 hrs.)/wk.

**KST 110**  
**PRINCIPLES/OF SURGIAL PROCEDII (7 CR)**

This course focuses on diagnosis, pathology and surgical sequence of ophthalmologic, ENT, head and neck, plastic/reconstructive, and orthopedic surgeries. Included is a discussion of postoperative care and complications. 15 hrs. (clinical 12 hrs.)/wk.

**KST 111**  
**CAREER DEVELOPMT/SURGICAL TECH (2 CR)**

This course focuses on resume development, interviewing techniques and introduction to the current health care market. Emphasis is on self-evaluation of professional skills and their application to the health care market. 2 hrs./wk.

**KST 114**  
**PRINCIPLES/SURGICAL PROCED III (7 CR)**

This course focuses on diagnosis, pathology and surgical sequence with complex surgical specialties: neurosurgery, cardiovascular and peripheral vascular, thoracic, pediatric, geriatric and trauma. Included is discussion of postoperative care and complications. 13 hrs. (clinical 9 hrs.)/wk.

## **Theater (THEA)**

**THEA 120**  
**INTRODUCTION TO THEATRE (3 CR)**

Students will be introduced to a variety of theatrical experiences, read great plays and see live theater presentations. They also will discuss theater practices, dramatic literature and the history of the theater. Includes 12 required shop hours. 3 hrs./wk.

**THEA 123**  
**IMPROVISATION FOR THEATER (2 CR)**

*Prerequisite: THEA 130*

The student will be introduced to theater improvisation, which will emphasize creative stage activities not requiring a written script. Participation in activities of this course will release and enhance the work of serious acting students and show the students how to approach characterization viscerally rather than intellectually, spontaneously rather than intentionally. 2 hrs. lecture/wk.

**THEA 130**  
**ACTING I (3 CR)**

The fundamentals of acting will be studied in this class. Emphasis will be on discovering and expanding creative potential through exercises in self-awareness, posture, movement, voice and personality projection. Students will complete a minimum of three in-class performances. 3 hrs./wk. plus rehearsals and performances.

**THEA 131**  
**VOICE AND SPEECH (3 CR)**

The student will develop techniques to expand breath support, vocal range and dynamics; learn precise articulation; and strengthen the connection between thought and sound. Through the use of exercises to free, develop and strengthen the voice, the student will be better able to communicate the full range of human emotion and all the nuances of thought. Skills acquired in this course are essential for actors, broadcast journalists, educators and other public speakers. 3 hrs. lecture/wk.

**THEA 133**  
**TECHNICAL PRACTICUM I (1 CR)**

Students gain practical experience in technical theater in this course. The student completes the

course objectives by working in the theatre department's productions and/or working in the scene/costume shop during the semester. 2 hrs. lab/wk.

**THEA 134**  
**PERFORMANCE PRACTICUM I (1 CR)**

This course will enable students to gain practical experience in performance-related aspects of college theater productions. Admission is by audition. 2 hrs. lab/wk.

**THEA 135**  
**STAGE MAKEUP (2 CR)**

This course will provide an understanding of and practical skill in the design and application of makeup for theatrical performance. Students will learn how to apply basic corrective makeup as well as specialized techniques, such as creating aged skin, scars and false facial hair. They will also work with hair and wigs, airbrushing techniques and prosthetic pieces. These techniques will enable students to create makeup designs that reflect the traits of characters in plays. 2 hrs. lecture/wk.

**THEA 136**  
**BASIC COSTUMING (3 CR)**

This is a survey of the theory, techniques and skills used in costume production for the theater and film. Areas of study and practice include basic construction, patterning and cutting; fabrics, design and realization; millinery; craft work; and organization. 2 hrs. lecture, 2 hrs. lab/wk.

**THEA 137**  
**MOVEMENT FOR THE STAGE (3 CR)**

The student will develop techniques to expand kinesthetic awareness, flexibility, physical freedom and the language of movement. Through the use of exercises to free, develop and strengthen physical vocabulary, the student will be better able to communicate the physical life of a character. Skills acquired in this course will include mime, stage combat, commedia, improvisation and circus techniques. 3 hrs. lecture/wk.

**THEA 138**  
**ORAL INTERPRETATION/LITERATURE (3 CR)**

The student will develop techniques for effective spoken performance of literature. Using poetry, fiction and nonfiction, students will create literary interpretations and then master both the verbal and nonverbal methods necessary for effective spoken expression of those interpretations. This course includes topics such as selecting literary works for performance, interpretation of literary works, audience analysis and performance. Skills acquired in this course will be essential to actors, broadcast journalists, educators and other public speakers. 3 hrs. lecture/wk.

**THEA 140**  
**BASIC STAGECRAFT (3 CR)**

This course introduces the general student and theater major to basic stagecraft. Through lectures, in-class demonstrations and hands-on experiences, the student will gain a working and appreciative knowledge of technical theater. The course includes 15 lab hours and attendance at two live theatrical productions. 2 hrs. lecture, 2 hrs. lab/wk.

**THEA 145**  
**INTRODUCTION TO THEATER DESIGN (3 CR)**

This lecture and studio class introduces the theory and practice of theater design and the graphics and standards of entertainment technology. Emphasis will be on the processes and practices used in designing for the performing arts. Using course-taught computer and hand-based drawing techniques, the student will create a portfolio of his or her work through in-class projects. 2 hrs. lecture, 2 hrs. lab/wk.

**THEA 225**  
**READER'S THEATER (3 CR)**

*Prerequisite: THEA 138*

Students will combine acting, interpretation and rhetoric as they analyze and perform poetry, prose and dramatic literature and present public performances. Through the process of reading, studying, investing, rehearsing and performing literary and nonliterary works, the student will learn to pay particular attention to the voice embodied in a given text and the cultural and social context within which that voice speaks. 3 hrs./wk. plus rehearsals.

**THEA 230**  
**ACTING II (3 CR)**

*Prerequisite: THEA 130 and THEA 131*

This continuation of Acting I will focus on more in-depth character analysis and development, emphasizing the actor's responsibility in creating the character. 3 hrs./wk. plus rehearsals and performances.

**THEA 233**  
**TECHNICAL PRACTICUM II (1 CR)**

*Prerequisite: THEA 133*

Students gain practical experience in technical theater in this course. The student completes the course objectives by working on the theatre department's productions and/or working in the scene/costume shop during the semester. 4 hrs.lab/wk.

**THEA 234**  
**PERFORMANCE PRACTICUM II (1 CR)**

*Prerequisite: THEA 134*

This course will enable students to gain further practical experience in the performance-related aspects of college theater productions. Admission granted upon being cast in a JCCC production. 2 hrs.lab/wk.

**THEA 235**  
**TECHNICAL PRACTICUM III (2 CR)**

*Prerequisite: Permission of the instructor*

Students will gain professional technical theater experience in this course by working as an apprentice for the theater department and an outside professional performing arts agency. While on campus and/or on location, students will build and install a stage and/or scenery as they work alongside theater professionals to execute theatrical productions. 4 hrs. lab/wk.

**THEA 240**  
**COSTUMING (1 CR)**

Students will study designing and creating costumes for theatrical productions. 2 hrs./wk.

## **Veterinary Technology (KSAH)**

**KSAH 100**  
**INTRO VETERINARY TECHNOLOGY (2 CR)**

This course is an orientation to career opportunities available in veterinary technology. Professional ethics, public relations and the psychological adjustment of the student to the need for physical treatment and emotional involvement in the care of animals will be discussed. Client relations, vaccination programs, regulatory organizations, receptionist duties, breeds and breed characteristics, neutering, puppy care, diets and hospital management also will be covered. 2 hrs./wk.

**KSAH 101**  
**PRINCIPLES OF ANIMAL SCIENCE I (3 CR)**

This course will present the principles of handling, housing and managing animals; basic dietary and sanitation requirements; restraint and handling; administration of medications; bathing and skin scraping TPRs; and basic laboratory tests. The emphasis will be on animal physiology, including the cell, muscle, nervous, respiratory and cardiovascular systems. An introduction to anesthesia and general animal nursing also will be included. 2 hrs. lecture, 2 hrs. lab./wk.

**KSAH 108**  
**CLINICAL MATH (1 CR)**

The metric system and conversion of units; apothecaries' equivalents and vocabulary; preparation of solutions -- strengths, procedures and computations; and drug administration -- calculating and measuring dosages -- will be covered. 1 hr./wk.

**KSAH 110**  
**PRINCIPLES/ANIMAL SCIENCE II (3 CR)**

*Prerequisite: KSAH 101*

This course is a continuation of Animal Science I. Specimen collection, urinary catheterization, blood collection, basic bandaging, and an introduction to surgical preps and radiographic processing will be covered. Emphasis will be on anesthesia and the physiology of the digestive, urinary, endocrine and reproductive systems. 2 hrs. lecture, 2 hrs. lab./wk.

**KSAH 111**  
**SANITATION AND ANIMAL CARE (2 CR)**

This course is an introduction to microorganisms, sanitation, disinfectants and sterilization. Zoonotic diseases and public-health problems; parasitology and vermin control; specimen preservation, instrument identification, cleaning and sterilization; and anesthesia monitoring and patient care will be discussed. 1 hr. lecture, 2 hrs. lab/wk.

**KSAH 120**  
**CLINICAL PATHOLOGY TECHNIQUES (4 CR)**

This introduction to laboratory procedures includes preparation of blood smears, cell identification, fecal analysis and parasitology. Urinalysis and urine sediment evaluation also will be covered. 1 hr. lecture, 6 hrs. lab/wk.

**KSAH 200**  
**VETERINARY HOSPITAL TECH I (3 CR)**

*Prerequisites: KSAH 101 and KSAH 110*

This course will cover the administration of anesthetics and surgical assisting, bandaging, casting, blood transfusions, surgical preparation and postoperative procedures. Parenteral fluid administration, intravenous hook-ups, and an introduction to orthopedics, electrocardiography, bone marrow cytology and pharmacology also will be presented. 1 hr. lecture, 4 hrs. lab/wk.

**KSAH 202**  
**VETERINARY TECH ANATOMY (5 CR)**

*Prerequisites: BIOL 101/Maple Woods or BIOL 127/JCCC and KSAH 101 and KSAH 110*

This course will present the basic principles of anatomy using a systemic approach. Physiology as it relates to anatomy and applicable pathology involving the animal body systems will be covered, as will a comparison of the animal species using the cat for dissection. 3 hrs. lecture, 4 hrs. lab./wk.

**KSAH 203**  
**LABORATORY ANIMAL TECHNOLOGY (2 CR)**

*Prerequisites: KSAH 101, KSAH 110 and KSAH 120*

Restraint and handling of laboratory animals and birds, blood collection, physical examinations, medicating and anesthesia of various species will be covered. 1 hr. lecture, 3 hrs./wk.

**KSAH 209**  
**EQUINE MEDICINE AND MANAGEMENT (3 CR)**

This course will cover breeds and types of horses and their use. Also presented will be conformation as it relates to soundness, horse psychology, fitting, conditioning, first aid and restraint, parasites and their control, farm management for safety, nutrition, mare care, breeding, foaling, hoof soundness, and diseases and their prevention. 2 hrs. lecture, 2 hrs. lab/wk.

**KSAH 210**  
**ANIMAL HOSPITAL TECH II (3 CR)**

*Prerequisite: KSAH 200*

This course will cover the administration of anesthetics and surgical assisting, bandaging, casting, blood transfusions, surgical preparations and postoperative care. Parenteral fluid administration, emergency treatments, and an introduction to ophthalmology and dermatology also will be covered. 1 hr. lecture, 4 hrs.lab/wk.

**KSAH 211**  
**CLINICAL PATHOLOGICAL TECH II (5 CR)**

*Prerequisite: KSAH 120*

Theory and performance in hematology, urinalysis, clinical chemistry and parasitology will be covered. This course is an introduction to immunologic testing, blood coagulation tests and bone marrow evaluation. 2 hrs. lecture, 6 hrs. lab/wk.

**KSAH 212**  
**LARGE ANIMAL TECHNOLOGY (4 CR)**

*Prerequisites: KSAH 101 and KSAH 110*

Studied will be the techniques necessary to assist the veterinarian in a large animal or mixed practice and in research facilities. Equine, bovine, porcine and ovine medicine and management, including restraint, blood collection, medicating and nursing techniques, will be covered. 2 hrs. lecture, 4 hrs. lab/wk.

**KSAH 213**  
**RADIOLOGY/ELECTRONIC PROCEDURE (2 CR)**

This course is an intensive study providing practice in radiological techniques, radiographic exposure techniques, film processing, contrast radiography and machine electronics. 1 hr. lecture, 2 hrs. lab/wk.

**KSAH 214**  
**VETERINARY TECHNICIAN INTERNSH (6 CR)**

*Prerequisite: Two semesters of first-year animal health courses*

Supervised intensive clinical study under the direction of a cooperating veterinarian will provide the student with actual work experience. 420 work hours.



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