

# Information Systems Technology, A.S.

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The national and regional job outlook and earnings for careers in information technology continue to be strong. Employees in this sector may possess a diverse or concentrated background in areas such as software and hardware development, mobile computing, data storage and analysis, information security, system administration and integration, computer networking, mathematics and science.

Students completing the Associate of Science (AS) emphasis in Information Systems Technology will be prepared with a diverse set of skills that include the fundamentals of software development. They can then transfer credits seamlessly to the University of Kansas, Edwards campus, to complete a Bachelor of Science in Information Technology in two additional years. Completion of the AS degree may help students obtain internships or entry-level jobs as they complete their bachelor's degree.

Cultural Diversity Course Requirement at JCCC (<http://catalog.jccc.edu/fall/degrecertificates/electives/cultural-diversity-courses-aa>)

(Major Code 2940; State CIP Code 24.0101)

## Associate of Science

### First Semester

CS 134	Programming Fundamentals	4
ACCT 121	Accounting I	3
SPD 121	Public Speaking	3
MATH 171	College Algebra*	3
ENGL 121	Composition I*	3
Total Hours		16

### Second Semester

ENGL 122	Composition II*	3
CS 200	Concepts of Programming Algorithms Using C++*	4
CIS 204	UNIX Scripting and Utilities*	3
BIOL 135 or CHEM 124 & CHEM 125	Principles of Cell and Molecular Biology General Chemistry I Lecture* and General Chemistry I Lab	4-5
Humanities Elective ^		3

Note: Ethics is recommended as one of the two humanities electives. Humanities electives chosen must transfer to KU, and one of the humanities electives must satisfy the JCCC cultural diversity requirement.

Total Hours 17-18

^ Humanities Elective (<http://catalog.jccc.edu/spring/degrecertificates/electives/humanities-as>)

### Third Semester

CIS 235	Object-Oriented Programming Using C++*	4
CS 210	Discrete Structures I*	3
CIS 260	Database Management*	4
PSYC 130	Introduction to Psychology	3
ECON 132	Survey of Economics	3
Total Hours		17

### Fourth Semester

CS 250	Basic Data Structures using C++*	4
CS 211	Discrete Structures II*	3
PHYS 130	College Physics I*	5
Health and/or Physical Education Elective ^		1
Humanities Elective ^^		3

Note: Ethics recommended as one of the two humanities electives. Humanities electives chosen must transfer to KU, and one of the humanities electives must satisfy the JCCC cultural diversity requirement.

Total Hours

16

^ Health and/or Physical Education Elective (<http://catalog.jccc.edu/spring/degrecertificates/electives/health-and-or-physical-ed-as>)

^^ Humanities Elective (<http://catalog.jccc.edu/spring/degrecertificates/electives/humanities-as>)

**Total Program Hours: 66-67**

## Courses

### **CS 134 Programming Fundamentals\* (4 Hours)**

**Prerequisites or corequisites:** RDG 126 or College Reading Readiness

In this introductory course, students will create interactive computer applications that perform tasks and solve problems. Students will utilize fundamental logic, problem-solving techniques and key programming concepts to design, develop and test modular applications written in an object-oriented programming language. 3 hrs. lecture, 2 hrs. lab /wk.

### **CS 200 Concepts of Programming Algorithms Using C++\* (4 Hours)**

**Prerequisites:** CIS 134 or CS 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. open lab/wk.

### **CS 200H HON: Concepts/Prog. Algorithms (1 Hour)**

One-credit hour honors contract is available to qualified students who have an interest in a more thorough investigation of a topic related to this subject. An honors contract may incorporate research, a paper, or project and includes individual meetings with a faculty mentor. Student must be currently enrolled in the regular section of the courses or have completed it the previous semester. Contact the Honors Program Office, COM 201, for more information.

### **CS 201 Concepts of Programming Algorithms using C#\* (4 Hours)**

**Prerequisites:** CIS 134 or CS 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, 2 hrs. open lab/wk.

### **CS 205 Concepts of Programming Algorithms using Java\* (4 Hours)**

**Prerequisites:** CIS 134 or CS 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, 2 hrs. open lab/wk.

### **CS 210 Discrete Structures I\* (3 Hours)**

**Prerequisites:** MATH 171 or both MATH 116 and CIS 134 or CS 134 or appropriate math assessment 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 210H HON: Discrete Structures I (1 Hour)**

One-credit hour honors contract is available to qualified students who have an interest in a more thorough investigation of a topic related to this subject. An honors contract may incorporate research, a paper, or project and includes individual meetings with a faculty mentor. Student must be currently enrolled in the regular section of the courses or have completed it the previous semester. Contact the Honors Program Office, COM 201, for more information.

### **CS 211 Discrete Structures II\* (3 Hours)**

**Prerequisites:** 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 211H HON: Discrete Structures II (1 Hour)**

One-credit hour honors contract is available to qualified students who have an interest in a more thorough investigation of a topic related to this subject. An honors contract may incorporate research, a paper, or project and includes individual meetings with a faculty mentor. Student must be currently enrolled in the regular section of the courses or have completed it the previous semester. Contact the Honors Program Office, COM 201, for more information.

**CS 225 Digital Logic with VHDL\* (2 Hours)****Prerequisites:** ELEC 125

This course introduces students to the Very High Speed Integrated Circuit Hardware Descriptive Language (VHDL) used to implement digital logic designs with programmable logic devices. Students will learn the different types of programmable logic devices and how to use an industry-standard programming environment to code designs with VHDL. 1hr. lecture & 2 hrs. instructional lab/wk.

**CS 236 Object-Oriented Programming Using C#\* (4 Hours)****Prerequisites:** CS 201

This course prepares students to develop object-oriented, C# applications that solve a variety of problems. Students will apply object-oriented concepts including inheritance, function overloading, and polymorphism and will utilize available classes as well as design their own. Event-driven programming, Windows applications, web development, common data structures, database access, and frameworks will be presented. 3 hrs. lecture, 2 hrs. instructional lab/wk.

**CS 250 Basic Data Structures using C++\* (4 Hours)****Prerequisites:** CS 200 -**Prerequisites or corequisites:** 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. open lab/wk.

**CS 255 Basic Data Structures using Java\* (4 Hours)****Prerequisites:** 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, 2 hrs. open lab/wk.