Drafting/CAD/AutoCAD (DRAF)

Courses

DRAF 120 Introduction to Drafting (2 Hours)
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, measuring, geometric construction, sketching, isometrics, orthographic views, section views, dimensioning and auxiliary views. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed. 1hr. lecture, 2hrs. lab/wk.

DRAF 123 Interpreting Machine Drawings* (2 Hours)
Prerequisites or corequisites: DRAF 120 or department approval

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 Interpreting Architectural Drawings (2 Hours)
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. lecture/wk.

DRAF 130 Introduction to CAD Concepts - AutoCAD* (3 Hours)
Prerequisites: DRAF 120 or department approval

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. open lab/wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed.

DRAF 132 Exploring AutoCAD (3 Hours)
This course is for non-drafting students/users who wish to casually use Autodesk?s AutoCAD (computer aided drafting) software. It provides a basic knowledge of how to manipulate AutoCAD commands on a Windows or Mac platform to create drawings. Covered topics include 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. 2 hrs. lecture, 3 hrs. open lab/wk.

DRAF 135 Graphic Analysis* (3 Hours)
Prerequisites: DRAF 120 and DRAF 130 or department approval

This course expands on introductory knowledge in drafting and CAD. Upon successful completion of this course, the student will 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 Hours)
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/wk.

DRAF 143 Introduction to BIM Building Information Modeling* (2 Hours)
Prerequisites or corequisites: DRAF 129

This course introduces students to the concepts and usage of BIM: Building Information Modeling in the building construction field. Students will use Building Information Modeling software to interact with a virtual building model. Upon successful completion of this course, students will manipulate the software interface to model, interpret, access data, and view the building model. The student will use the software to model and access plan views, elevations, sections, 3-D views, structural elements, schedules and support files found in a 3-D building model. The REVIT software package is currently used. 2 hrs. lecture/wk.

DRAF 145 Introduction to Parametric Design: Inventor* (2 Hours)
Prerequisites or corequisites: DRAF 123 or Department approval

This course is an introduction to parametric design. The course will cover parametric modeling fundamentals, solid geometry concepts, parametric constraints fundamentals and geometric construction tools. Basic software commands will also be covered to give the student ability to demonstrate parametric modeling knowledge. 2 hrs. lecture/wk.

DRAF 152 3D Modeling with SketchUp (2 Hours)
The course will teach how to model (draft in 3D) with SketchUp, a popular software program. Students will learn how to sketch their ideas for prototypes, floor plans and buildings, embellish a drawing for presentation purposes, make animations of their model, export the model into different file formats and 3D print the model. 2 hrs. lecture/wk.

DRAF 162 3D Printing and CNC Fabrication (2 Hours)
The course will teach how to model and fabricate prototype ideas using Autodesk 123D, a free suite of apps. Students will learn how to make solid, mesh and reality capture models, 3D print them and generate a file for a Computer Numeric Control (CNC) cutting machine. 2 hrs. lecture/wk.

DRAF 164 Architectural Drafting/Residential Interior Design (3 Hours)
Upon completion of this course the student should be able to interpret and draft residential architectural drawings and utilize industry references and resources. Drawings studied include floor plans, elevations, sections, reflected ceiling plans and schedules. Students will draft on a variety of relevant materials. This course is required in the Interior Design, Interior Entrepreneurship and Interior Merchandising AAS programs. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 164H HON:ArchDrafting/Res.Inter.Des (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.

DRAF 222 Mechanical Design and Drafting* (3 Hours)
Prerequisites: DRAF 123 and DRAF 135 and DRAF 145 and DRAF 230

Prerequisites or corequisites: MATH 131

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. Students will use the Machinery's Handbook, and other technical publications, to research and design projects. Project assignments will be completed using computer-aided drafting (CAD) software. This course is typically taught in the fall semester. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 225 Civil Drafting* (3 Hours)
Prerequisites: DRAF 230 or ENGR 131

Prerequisites or corequisites: MATH 131

Upon successful completion of this course, the student should be able to apply drafting techniques used in civil engineering offices. Topics covered include the surveying process, property legal descriptions, topographic maps, plan and profile drawings, roadway cross sections, and earthwork calculations. The student will use CAD software in drawing projects. This course is typically taught in the spring semester. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 230 Intermediate CAD: AutoCAD* (3 Hours)
Prerequisites: DRAF 130 or department approval

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. open lab/wk.

DRAF 238 Architectural Design and Drafting* (3 Hours)
Prerequisites: DRAF 129 and DRAF 135 and DRAF 143 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 design and draw floor plans, sections, elevations, dimensions and schedules. Industry standard code and reference books, such as the International Residential Code and Architectural Graphic Standards books, will be used in the research and design process. Projects will be completed using Computer Aided Drafting (CAD) software. This course is typically taught in the spring semester. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 242 Topics in CAD II* (2 Hours)
Prerequisites: DRAF 230 or department approval

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/wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed. For special topics, check the section note on the credit class search site.

DRAF 243 Advanced BIM: Revit* (2 Hours)
Prerequisites: DRAF 143 and DRAF 238 or department approval

This course introduces the student to advanced Building Information Modeling (BIM) concepts used by many architectural and engineering design firms. Topics include advanced modeling and documentation tools, project setup and the design process. Students will model commercial buildings and produce architectural drawings. Emphasis will be placed on the hands-on application of the current software to industrial projects. 2 hrs. lecture/wk.

DRAF 244 Civil 3D* (2 Hours)
Prerequisites: DRAF 230 or ENGR 131 or department approval

This course introduces the student to the Civil 3D software used by many land planning, civil engineering and surveying firms. Topics include software commands, project setup and the design process. Survey points, surfaces, topography, road layout, and soil volumes are covered in this course. 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/wk.

DRAF 245 Advanced Parametric Design: Inventor* (2 Hours)
Prerequisites: DRAF 145 and DRAF 222 or department approval

This course uses the Inventor Parametric design 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 design knowledge or have taken DRAF 222, Mechanical Drafting. 2 hrs. lecture/wk.

DRAF 250 Electrical Drafting* (3 Hours)
Prerequisites: MATH 130 and either 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. This course is typically taught in the fall semester. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 252 Structural Design and Drafting* (3 Hours)
Prerequisites: DRAF 129 and DRAF 135 and DRAF 230 or DRAF 129 and ENGR 131

Prerequisites or corequisites: MATH 131 or department approval

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. The student will use industry standard references and perform design calculations. Project work will be done using CAD. This course is typically taught in the spring semester. 2 hrs. lecture, 3 hrs. lab/wk.

DRAF 264 CAD:Interior Design* (3 Hours)
Prerequisites: DRAF 164 and ITMD 121(both courses must be completed with a grade of "C" or higher), or department approval

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. 2 hrs. lecture, 3 hrs. open lab/wk. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed. Note: Prerequisites DRAF 164 and ITMD 121 require a grade of "C" or higher.

DRAF 264H HON: CAD Interior Design (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.

DRAF 271 Drafting Internship I* (3 Hours)
Prerequisites: department 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 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. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed.

DRAF 272 Drafting Internship II* (3 Hours)
Prerequisites: DRAF 271 and department 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 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. Drafting classes that have additional lab have either the time and room listed or TBA (to be announced) with the room number listed.

DRAF 291 Independent Study* (1-7 Hour)
Prerequisites: 2.0 GPA minimum and department approval

Independent study is a directed, structured learning experience offered as an extension of the regular curriculum. It is intended to allow individual students to broaden their comprehension of the principles of and competencies associated with the discipline or program. Its purpose is to supplement existing courses with individualized, in-depth learning experiences. Such learning experiences may be undertaken independent of the traditional classroom setting, but will be appropriately directed and supervised by regular instructional staff. Total contact hours vary based on the learning experience.