

### **Drafting 101 Engineering Graphics**

4 credit hours

This course provides instruction and CAD-based laboratory practice in graphical communication principles used in industry. Topics include technical sketching, lettering, geometric constructions, multi-view drawings, sectional views, auxiliary views, dimensioning practices, and drawing notation.

### **Drafting 120 Machine Drafting**

3 credit hours

Prerequisite: DRAF 101. This course advances the use of engineering graphics to produce functional drawings of machine mechanisms and basic machine elements. Included are fasteners, cams, gear trains, weldments, and fits. Dimensioning and tolerancing in accordance with ANSI standard Y14.5M is used throughout the course. CAD technology is used exclusively to complete lab assignments.

### **Drafting 141 Descriptive Geometry**

3 credit hours

Prerequisite: DRAF 101. This course is designed to develop problem-solving skills in the area of spatial relationships. A graphical analysis of points, lines, planes and angles, intersections, revolutions, and developments is undertaken. CAD technology is used exclusively to complete lab assignments.

### **Drafting 181 Applications in AutoCAD**

3 credit hours

Prerequisite: DRAF 101. This course is not intended as an introduction and students must have a basic understanding of AutoCAD prior to enrollment. This course is a study of AutoCAD and its applications as a continuation to DRAF 101. Students will be exposed to the depth of the AutoCAD system and the variables which control it. Advanced techniques will be taught to complement DRAF 101 in areas such as layer control, dimensioning, modifying geometry, text, blocks, symbol creation, attributes, xrefs, pictorial drawing, and three-dimensional drawing.

### **Drafting 211 Dimensioning and Tolerancing**

3 credit hours

Prerequisite: DRAF 120 and DRAF 234. Use of engineering graphics and basic measurement techniques to explore the application and effects of dimensioning and tolerancing. Topics will include geometric dimensioning and tolerancing (GD&T), fit analysis, tolerance stackups, metrology, and the effects of tolerancing in the manufacturing environment. Conformance to ANSI Y14.5M will be stressed throughout.

### **Drafting 221 Architectural Drafting**

3 credit hours

Prerequisite: DRAF 101 or 190. An introduction to architectural drawing production and practice. The student will prepare portions of a set of house construction documents including a site plan, floor plan, elevations, foundation plan, wall section and details, and door and window schedules. CAD technology will be used to complete most lab assignments.

### **Drafting 234 Introduction to SolidWorks**

3 credit hours

Prerequisite: DRAF 101. An introduction to SolidWorks, a popular 3D mechanical design tool. Topics will include modeling fundamentals, parametric constraints, associative part drawings, the relationship between 2D drawings and 3D models, design tables, assembly modeling, and visualization.

### **Drafting 252 Advanced SolidWorks**

3 credit hours

Prerequisite: DRAF 194 or 234. A study of advanced modeling, assembly, and drawing techniques using SolidWorks. Sweeps, lofts, surfaces, 3-D sketches, sheet metal parts, weldments and assemblies will be created, models will be analyzed using simulation tools, and physical parts will be produced using the rapid prototyping machine.

### **Drafting 262 Engineering Design**

3 credit hours

Prerequisite: DRAF 120. A course in creative problem solving and its uses in the design and development of new products and tools. Topics will include creative thinking, problem identification, ideation, product development, design refinement, product design, tool design, documentation, and communication of design ideas.