

# DRAFTING AND DESIGN (DD)

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## DD 101 - Print Reading and Sketching

**Credit Hours: 3, Contact Hours: 4**

Division: Technical

Students will learn to read engineering drawings of products and tooling used in today's manufacturing. Basic drawing format and layout are presented using product, tooling assembly, and tooling detail drawings. Students learn methods of three dimensional shape description, dimensioning and tolerancing. Types of fasteners along with related terminology and manufacturing processes, material specifications, and welding symbols are presented. Students learn the presentation skills of orthographic projection, isometric and oblique pictorial drawings using straight line and free hand sketches. Group 2 course. Critical Thinking - Direct.

## DD 110 - Basic Metallurgy

**Credit Hours: 3, Contact Hours: 3**

Division: Technical

This course presents the making and forming of steel and the classification of steel and cast iron. Mechanical and physical properties are presented along with hardness and tensile testing labs. Principles of alloying, crystal structure, and the iron-carbon diagram help students understand how annealing, hardening, and tempering processes alter the mechanical properties of steel. Non-ferrous metallurgy is presented with an emphasis on aluminum. Group 2 course.

Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 recommended for entry.

## DD 160 - Tolerancing and GD&T

**Credit Hours: 3, Contact Hours: 3**

Division: Technical

This course first presents conventional tolerancing terminology, expressions, and accumulations in both inch and metric formats. Next, Geometric Dimensioning and Tolerancing (GD&T) presents an international system of symbols used to dimension products or tooling components. The course is based on the current ASME Y14.5M2009 Dimensioning and Tolerancing standard. Engineers, designers, drafters, cost estimators, machinists, and inspectors must understand this system. Students study actual product drawings and make design sketches of workholding and inspection devices. Group 2 course. Critical Thinking - Direct.

Required Prerequisites: DD 101

## DD 170 - CADD/Computer Modeling

**Credit Hours: 4, Contact Hours: 5**

Division: Technical

Graphic communication course using 3D parametric modeling techniques. Topics include 3D modeling using SolidWorks software in an engineering design environment. Students will also develop 2D drafting skills including proper organization and layout of component drawing views, dimensioning and tolerancing, sectioning and detailing, detail descriptive geometry and rapid prototyping. Group 2 course. Critical Thinking - Direct.

Recommended Prerequisites: Placement into MTH 23 and ENG 99/108 recommended for entry.

## DD 290 - Drafting Internship

**Credit Hours: 3, Contact Hours: 3**

Division: Technical

The purpose of the internship is to provide on-the-job training for the student who wishes to pursue a career in a technical field of study. The internship will be customized to meet the learning needs of the student and the job requirements of the sponsoring firm. Students spend 10-15 hours per week in this paid, supervised on-the-job training experience. In addition to the required 50 hours per credit in a work site, students participate in semi-monthly seminars. Students must apply one month prior to the semester in which they will complete the internship. Group 2 course. Communications - Direct.

Required Prerequisites: 30 credits of program specific courses with a GPA of 2.0 or higher