Miami Dade College

Course Description

ETD1110 | Technical Drawing 1 | 4.00 credits

Introduces students to the principles of instrument drawing, orthographic projection, visualization, specialized computer processes and introductory computer aided drawing (CAD). Students develop drawing and sketching techniques common to industry.

Course Competencies

Competency 1: The student will demonstrate understanding of drawing standards, conventions, and categories by:

1. Recognizing industry-standard drawing formats, symbols, abbreviations, and notation conventions, such as ANSI, ISO, or ASME standards
2. Recognizing different types of engineering drawings, including orthographic projections, isometric drawings, section views, and assembly drawings

Competency 2: The student will demonstrate proficiency in technical sketching by:

1. Developing freehand sketches to quickly communicate design ideas and concepts
2. Creating precise and clean lines, including the proper use of line weights

Competency 3: The student will demonstrate proficiency in geometry and dimensioning by:

1. Drawing principles of geometric construction, such as circles, ellipses, polygons, and splines
2. Dimensioning drawings accurately using linear, angular, and radial dimensions

Competency 4: The student will demonstrate proficiency in Multiview Projections by:

1. Mastering the creation of orthographic projections (front, top, side views) from 3D objects and vice versa

Competency 5: The student will demonstrate proficiency in sectional views by:

1. Creating sectional views to reveal internal details of complex objects
2. Correctly using and explaining cutting-plane lines and section lining conventions

Competency 6: The student will demonstrate proficiency in auxiliary views by:

1. Generating auxiliary views to represent inclined or oblique surfaces accurately
2. Constructing auxiliary views from orthographic projections

Competency 7: The student will demonstrate proficiency in isometric and 3d drawings by:

1. Creating isometric drawings to represent 3D objects in a simplified and realistic manner
2. Exploring 3D modeling and visualization techniques using CAD software

Competency 8: The student will demonstrate proficiency in assembly and exploded views by:

1. Creating assembly drawings that show how multiple parts fit together
2. Presenting exploded views to illustrate component relationships

Competency 9: The student will demonstrate proficiency in detailing and notation by:

1. Detailing drawings by adding information such as surface finishes, welding symbols, and bill of materials (BOM)
2. Utilize common notation for threads, fasteners, and weld joints

Competency 10: The student will demonstrate proficiency in CAD Software by:

1. Using computer-aided design (CAD) software to create, edit, and annotate engineering drawings

Competency 11: The student will demonstrate proficiency in Drawing Interpretation by:

1. Analyzing engineering drawings produced by others

2. Identifying design intent, manufacturing processes, and potential issues

Competency 12: The student will demonstrate proficiency Communication and Collaboration by:

1. Presenting and explaining drawings and design concepts
2. Showing written and verbal communication skills for effective collaboration with engineers, designers, and other stakeholders

Competency 13: The student will show understanding of Ethical and Professional Standards by:

1. Discussing the importance of ethical conduct, intellectual property rights, and responsible engineering practices in the context of technical drawing

Learning Outcomes:

- Formulate strategies to locate, evaluate, and apply information
- Demonstrate knowledge of ethical thinking and its application to issues in society
- Use computer and emerging technologies effectively