SLCC

Engineering Department

EDDT 1010: INTRO TO ENGINEERING AND DESIGN

COURSE DISCRIPTION: The use of design tools to create and understand Orthographic Projection, Section views, Dimensioning, Sketching, Assembly drawings, Tolerancing and Fasteners. An introduction to Electronics, Manufacturing and Machining and how they all fit together will also be discussed.

COURSE LEARNING OUTCOMES:

- Basic Orthographic Projection including: standard views and view placement, alphabet of lines, rules for creation, and create drawings by sketches and CAD.
- Basic Dimensioning including: types of dimensions, placement of dimensions, basic dimensioning rules, and how to apply dimensions to a drawing.
- Sketching including: reading and understanding an object depicted in a sketch, create both two-and three-dimensional sketches, demonstrate how to sketch different features, and understand sketching techniques.
- Section Views including: meaning of sections and cutting-plane lines, understanding seven types of sections, demonstrate how to section ribs-webs-and spokes, and recognize section-lining symbols for different materials.
- Design and Working Drawings including: understanding different types of designs, describe the stages of the design process, introduction to solid modeling and rapid prototyping, how to document and revise a drawing, and understanding a Bill of Materials.
- Basic Tolerancing including: Fit-Form-and-function, apply class-of-fits to a drawing, read and create limit dimensions, understand Geometric Tolerancing Symbols and understand tolerance build-up.
- Fasteners including: parts of a screw thread, screw thread forms, types of thread representation, typical thread specifications, understand and recognize different screw thread types.

- Geometric Construction including: draw four different types of triangles and five types of parallelograms, identify and draw a regular triangle, square, hexagon, and octagon, divide a space into equal parts, an angle in half, divide a line into equal parts, draw lines and arcs tangent to each other, and understand the meaning of a tangent point.
- Introduction to Electronics, Manufacturing, and Machining and how they all relate to each other. The student will also be introduced to the EDMT faculty and understand the content of each of these areas. Basic concepts will also be introduced to give the student a basic understanding of each of the technology areas.

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Mechanical Design & Engineering 2

Strand 1. Mathematics, measuring and scale are met in assignments Sketching, Guide block, Blade Holder, Index Feed, Dovetail Slide, Nut and Bolt, Auxiliary Views, Gears and Cams, Wheel Support, Geometric Design 1,2,3, and 4, Class of Fits.

Strand 2. 3D modeling with constraints are met with assignments in Guide Block, Blade Holder, Index Feed, Dovetail Slide, Nut and Bolt, Gears and Cams, Wheel Support, Geneva Cam, Personal Project

Strand 3. Line Types are assessed with Alphabet of Lines, Sketching, and Orthographic Projections,

Strand 4. Section and Detail Views are assessed in Wheel Support, Geneva Cam, Personal Project

Strand 5. Technical drawing using 3D modeling software are assessed with Guide Block, Blade Holder, Index Feed, Dovetail Slide, Nut and Bolt, Gears and Cams. SolidWorks and Inventor are used currently, but any approved 3D modeling software can be used.

Strand 6. Dimensioning and Tolerancing are taught directly from the Machinery Handbook with ANSI specifications and are assessed with Do's and Don'ts of Dimensioning, Class of Fits, Wheel Support, Personal Project
This course requires students to meet with an advisor, research careers in the industry, and make a resume, as shown in the reports assignment.

Required Supplies: Computer Storage device**.**

Course Evaluation:

Grading of the course will be based on mastery of the performance objectives and determined according to accuracy, appearance, adherence to drafting standards, and completion of both the assignments and the final exam. The final grade will be based on the following percentages:

Letter Grade	Score
A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
E	0-59

Homework: Most of the work can be completed in class. There are four CAD labs at the college which students can use to complete their work. Students can also download the software on their personal computer to do work at home.

CAD Assignments: CAD assignments will be graded and recorded in canvas. Assignments will be graded with the instructor to fully understand corrections that need to be made.

TENATIEVE SCHEDULE:

Introduction: Report on Careers, Meet with an Advisor

Module 1: Sketching, Orthographic Projections

Module 2: Guide Block, Blade Holder, Index Feed, Dove Tail Slide

Module 3 (Fasteners and Nuts): Nut and Bolt

Module 4 (Auxiliary Views): Wheel Support, Geneva Cam

Module 5 (Geometric Design): Geometric Design 1, Geometric Design 2, Geometric Design 3, Geometric Design 4

Module 6: Circuit Board