SLCC

Engineering Department

EDDT 1050: ENGINEERING GRAPHICS – INTRODUCTION, PRICIPLES & APPLICATIONS USING CAD SOFTWARE

COURSE DISCRIPTION: Comprehensive applications of CAD-based national (ANSI/ASME) & international (ISO) graphics standards, including coordinate & geometric dimensioning and tolerancing. Introduction to Engineering & Technical design solutions related to STEM industries. Pre-Req: EDDT 1040

COURSE LEARNING OUTCOMES: In order to full-fill the goals of the College-wide Learning Outcomes, the following course learning outcomes have been established for this course. Upon completion of this course a student should be able to demonstrate a general understanding of the following essential learning outcomes:

· Create and constrain sketches using both dimensional and geometric constraints to convey engineering intent.

· Create 3D model features from sketches using extrude, revolve, cut extrude, sweep loft etc.

· Create 3D model based features using holes, fillets, blends, chamfers, shell.

· Create multiple configurations, both manually & using design tables.

· Demonstrate ability to analyze and determine engineering intent.

· Create 3D CAD solid model components, from of basic complexity to semi-complex mechanical components.

· Create 3D model assemblies from multiple different components using dimensional, geometric and mechanical mating constraints.

· Create, read, and understand engineering drawings composed of multiple views with standard dimensioning & tolerance nomenclature both national (ANSI/ASME) and international (ISO) standards.

· Measure and analyze 3D solid models, i.e., mass, centroid, distance.

Strand Alignment for USHE Concurrent Enrollment: Mechanical Design & Engineering 3

MechanicalDesignEngineering3 EDDT 1050.pdf

Strand 1. Portfolio and Resume. This is done in the pre-requisites Mechanical Design & Engineering 2

Strand 2. Fasteners are covered 3D classes specifically M5 Challenge: Gland and M5 Challenge: Actuator Mount Bracket

Strand 3. Welding Symbols are covered in 3D class, specifically M7 Challenge: E73750 Weldment Sub Assembly

Strand 4. 3D Printing. Students use the 3D printers in each and every class.

Strand 5. Flat Pattern Development. They are proven and built into the CAD software.

Strand 6. Create Assembly and Working Drawings, specifically M7 Challenge: Assembly + Caster Wheel

Grading: All grades will be given based on the following distribution:

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

Grades distribution:

Projects 50%

Participation 10%

Quizzes & Midterm 20%

Final Projects 10%

TENTATIVE SCHEDULE:

Lesson 1 Sketching	· Create and constrain sketches using both dimensional and geometric constraints to convey engineering intent.

Lesson 2 Making 3D from 2D	· Create 3D model features from sketches using extrude, revolve, cut extrude, sweep loft etc.
Lesson 3 Commands	· Create 3D model based features using holes, fillets, blends, chamfers, shell.
Lesson 4 Mirror & parametric modeling	· Create multiple configurations, both manually & using design tables.
Lesson 5 Threads	· Analyze and determine engineering intent.
Lesson 6 Shell, sweeps, geometry	· Create 3D CAD solid model components, from of basic complexity to semi-complex mechanical components.
Lesson 7 Assembly	· Create 3D model assemblies from multiple different components using dimensional, geometric and mechanical mating constraints.
Lesson 8 Configuration and Tables	· Create, read, and understand engineering drawings composed of multiple views with standard dimensioning & tolerance nomenclature both national (ANSI/ASME) and international (ISO) standards.
Lesson 9 Analysis	· Measure and analyze 3D solid models, i.e., mass, centroid, distance.