SLCC

Engineering Department

EDDT 1040: Introduction to AutoCAD

COURSE DISCRIPTION: Basic skills using AutoCAD for drawing applications are taught. The course includes: draw and modify commands, geometric construction, dimensions, templates, blocks and libraries, hatching, layers, scales, and plotting. Students will also be introduced to 3D CAD. Pre-Req: EDDT 1010

COURSE LEARNING OUTCOMES:

· Demonstrate an understanding of AutoCAD's draw and modify commands, geometric construction, dimensions, templates, blocks and libraries, hatching, layers, scales, and plotting

· An understanding of AutoCAD's user interface including: Screen Access, Menus, Toolbars, Dialog Boxes, command structure, Windows applications for editing, customized profiles, button assignments, drafting settings. Also drawing scales and factors.

· An understanding of each of the following, modification, and reproduction commands, use of AutoCAD functions for ease and efficiency in geometric construction, orthographic and auxiliary projection including: polygons, ellipses, tangencies, splines, and alignments.

· An understanding of drawing aids including: snap, grid, Object snap tools, Ortho, Polar tracking, Object tracking, coordinate and polar input, Cartesian coordinate system in the creation of precision drawings.

· An understanding of basic Dimensioning including: Quick dimensioning, ANSI standards for different types of dimensioning, Ordinate dimensions from a 0,0 datum, Metric dimensions and scales,

Mechanical dimensions with tolerances, different precisions, and text added, Changing and creating dimension styles, scales, tolerances, units, and format.

· Understand of how to create blocks and block libraries, modifying existing blocks, attributes and using blocks from the Design Center

· An understanding of how to draw and dimension orthographic drawings, section drawings, and auxiliary drawings.

· Be introduced to 3-D cad and rapid prototyping and how they apply to the design process.

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 |

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|---|---|
| D+ | 67-69 |
| D | 63-66 |
| D- | 60-62 |
| E | 0-59 |

Homework: Most of the work can be completed in class. There are 4 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:

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| Lesson 1 | AutoCAD's draw and modify commands, geometric construction, dimensions, templates, blocks and libraries, hatching, layers, scales, and plotting |
| Lesson 2 | AutoCAD's user interface. Also drawing scales and factors. |
| Lesson 3 | Use of AutoCAD functions for ease and efficiency in geometric construction, orthographic and auxiliary. |
| Lesson 4 | Drawing aids |
| Lesson 5 | Dimensioning |

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|---|---|
| Lesson 6 | Create blocks and block libraries, modifying existing blocks, attributes and using blocks from the Design Center |
| Lesson 7 | Draw and dimension orthographic drawings, section drawings, and auxiliary drawings. |
| Lesson 8 | Introduced to 3-D cad and rapid prototyping. |

Mechanical Design & Engineering 1 USHE Strand Alignment

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Strand 1. Careers. Students meet with the academic advisor and come up with a plan to meet their Career goal. Students update this plan each semester and go over our own requirements and how they all transfer to other institutions.

Strand 2. Sketching and the Design Process. Students sketch out what they are drawing including the features and the dimensions that go with each of them and the Design Process with every assignment including what the part is used for, how it should be manufactured, dimensioning method, Fit Form and Function and much more. This is assessed in Actuator base, bearing plate, blade holder, clutch lever, guide block, geneva cam, brush holder, holder block, bearing, and Stuffing box assignments

Strand 3. Math, Measuring, and scales. Fractions, decimals, and metric are discussed and how to use them and convert back and forth. Class of fits for each method and how to scale a drawing to fit on a page along with dimension features etc. are explained and put into practice with actuator base, bearing plate, blade holder, clutch lever, and guide block assessments.

Strand 4. Orthographic View. A discussion on how many features each drawing has and the order that each feature should be built is assessed with Actuator base, bearing plate, blade holder, clutch lever, guide block, stuffing box, bearing assignments. Within these assignments, dimension for each feature in the same order and with the same dimensions which were used to create the part are practiced.

Strand 5. Line Types. The course starts with the Alphabet of lines on day one and create different layers for each line type. These are then applied to every drawing such as Actuator base, bearing plate, blade holder, clutch lever, and guide block

Strand 6. Dimensioning. Students adhere to the ANSI standards and apply them to every drawing that students do starting on day one, such as Actuator base, bearing plate, blade holder, clutch lever, and guide block

Strand 7. CAD software. The students use the software every day and cover 8 basic commands to get a drawing started on day one, then add more commands for use in these particular assignments: Actuator base, bearing plate, blade holder, clutch lever, and guide block. By the end of the semester students are able to start applying for jobs in the industry.