AutoCAD
Synopsis

Goals:

Introduction to Mechanical Drafting to include terminology and fundamentals, including size and shape descriptions, projection methods, geometric construction, sections, and auxiliary views. This class serves as the introductory computer-aided-design (CAD) course.

Objectives:

At the completion of this course, the student will have demonstrated the ability to:

- Create technical sketches, geometric constructions, orthographic projections, pictorial/sectional views, dimension drawings, and apply lettering techniques (source WECM manual end-of-course outcome).
- Prepare free-hand multiview sketches of objects assigned by the instructor.
- Prepare technical drawings utilizing traditional drafting tools and techniques.
- Prepare orthographic/multiview drawings using miter line construction techniques employing line conventions and line weights that comply with the ASME Y14.3-2003 standard.
- Prepare technical drawings with AutoCAD requiring students to set units, limits, layers, and utilize the tools of AutoCAD's Draw, Modify, and Dimension toolbars.
- Print CAD drawings to the scale and sheet sizes specified by their instructor.
- Create AutoCAD dimension styles that comply with the ASME Y14.5-2009 standard and fully dimension multiview drawings.
- Add dimensions that comply with accepted industry standards to architectural drawings.
- Draw section views of machine parts using AutoCAD techniques complying with the ASME Y14.3-2003 standard.
- Prepare isometric, pictorial drawings of machine parts utilizing AutoCAD.
- Prepare auxiliary views of machine parts with AutoCAD that comply with the ASME Y14.3-2003 standard.
- Create, insert and edit blocks with AutoCAD.
- Utilize AutoCAD to prepare multi-sheet working drawings for machine assemblies that comply with the ASME Y14.34-2008 standard.
- Utilize AutoCAD to prepare multi-sheet working drawings (floor plan and elevations) for a small residential project.
- Create a block library of architectural symbols in one drawing and insert the blocks into a different drawing using AutoCAD's Design Center.
- Create 3D models of machine parts utilizing AutoCAD software utilizing the tools located on AutoCAD's Modeling, View, Orbit, and Visual Styles toolbars.

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Scope and Sequence

1st Six Weeks –
Wk 1 – Introduction of Course Syllabus
Wk 2 – Multiview Drawings
Wk 3 – Multiview Drawings
Wk 4 – Multiview Drawings
Wk 5 – Traditional Drafting
Wk 6 – Traditional Drafting / Evaluation

2nd Six Weeks –
Wk 1 – CAD Basics
Wk 2 – Draw and Edit Tools
Wk 3 – Modify Commands
Wk 4 – Bracket, Shaft Guide, Tool Holder and Tool Slide
Wk 5 – Dimensioning Machine Parts
Wk 6 – Dimensioning Machine Parts / Evaluation

3rd Six Weeks –
Wk 1 – Dimensioning Architecture
Wk 2 – Isometric Drawing
Wk 3 – Isometric Drawing
Wk 4 – Sections
Wk 5 – Flange Bearing
Wk 6 – Blocks / Semester Evaluation

4th Six Weeks –
Wk 1 – Mechanical Working Drawings
Wk 2 – Mechanical Working Drawings
Wk 3 – Mechanical Working Drawings
Wk 4 – Mechanical Working Drawings
Wk 5 – Mechanical Working Drawings
Wk 6 – Mechanical Working Drawings / Evaluation

5th Six Weeks –
Wk 1 – CAD Project
Wk 2 – CAD Project
Wk 3 – CAD Project
Wk 4 – CAD Project
Wk 5 – CAD Project
Wk 6 – CAD Project / Evaluation

6th Six Weeks –
Wk 1 – 3D Modeling
Wk 2 – 3D Modeling
Wk 3 – 3D Modeling
Wk 4 – 3D Modeling
Wk 5 – 3D Modeling
Wk 6 – 3D Modeling / Semester Evaluation