

CAD Department Course Outline

DRFT 2293-Computer Aided Manufacturing (F)

Catalog Description:

This course explores the current technology used in Computer Aided Manufacturing (CAM). Students will first become familiar with basic cutting tool technology and progress to basic knowledge in design and manufacturing of parts used in industry. Current industry standard software will be used to generate machined part programs for a CNC mill and CNC lathe. Students will analyze Computer Aided Drawing (CAD) files and write CNC programs of increased complexity. The emphasis of the course is placed on learning to use the CAM software to select tools, manipulate part geometry, and convert CAD files and models into a CNC program.

Prerequisites:

DRFT 1234, DRFT 2114 or consent of instructor

Credit hours/Contact Hours/Load hours:

3/3/3

Target Audience/Transferability:

This is an elective course for the AAS CAD degree with the Mechanical Design option and is non-transferable

Student Learning Outcomes:

Students will:

- Demonstrate a basic understanding of machining fundamentals including tooling systems and work-holding systems for CNC milling and turning equipment
- Demonstrate a basic understanding of the various CAD/CAM and CNC processes and strategies
- Demonstrate an understanding of the working principles of CNC vertical machining centre, CNC Turning centre and how they are used in part making
- Develop CNC programs for milling and turning machining operations
- Integrate the CAD system and the CAM system by using the CAD system for modeling design information and converting it into a CAM model for manufacturing

Topics:

- Cutting Tool Geometry
- Drilling and Operations and Machines
- Turning Operations
- Mills and Milling Operations
- Precision Grinding Operations and Machines
- Technical Screw Threads
- Metallurgy for Machinists—Heat Treating and Measuring Hardness
- Coordinates, Axes, and Motion
- CNC Systems

Forms of Assessment:

- Completion of several small CNC projects
- Tests/quizzes on operations and concepts
- Final Project

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