COURSE OUTLINE: CAD225 - AUTOCAD SCHEMATICS

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Course Code: Title	CAD225: AUTOCAD/DRAWING AND SCHEMATICS
Program Number: Name	4039: MECH. ENG. TN-MANUFA
Department:	CIVIL/CONSTRUCTION
Academic Year:	2024-2025
Course Description:	Sketches, schematics, diagrams and CAD drawings are all used to convey information in the mechanical fields. CAD drawings are an essential part of graphic communication and can provide precision information not available in paper based drawings and is an integral part of interfacing with CNC processes and equipment. This course is intended to enhance the students skills in the areas of CAD and drawing assembly and interpretation, with an emphasis on using CAD to create drawings.
Total Credits:	3
Hours/Week:	2
Total Hours:	28
Prerequisites:	DRF105
Corequisites:	There are no co-requisites for this course.
Substitutes:	CAD120
This course is a pre-requisite for:	CAD401
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**4039 - MECH. ENG. TN-MANUFA** VLO 5 Use current and emerging technologies to support the implementation of mechanical engineering projects. VLO 7 Interpret, prepare and modify mechanical engineering drawings and other related technical documents.
Essential Employability Skills (EES) addressed in this course:	EES 1 Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Other Course Evaluation & Assessment Requirements:	Grade Definition Grade Point Equivalent A+ 90 - 100% 4.00 A 80 - 89%

B 70 - 79% 3.00
C 60 - 69% 2.00
D 50 - 59% 1.00
F (Fail)49% and below 0.00

CR (Credit) Credit for diploma requirements has been awarded.
S Satisfactory achievement in field /clinical placement or non-graded subject area.
U Unsatisfactory achievement in field/clinical placement or non-graded subject area.
X A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR Grade not reported to Registrar`s office.
W Student has withdrawn from the course without academic penalty.

Attendance

Students are only allowed to miss three classes (where attendance is recorded) without a documented explanation. One percentage point will be deducted from your overall grade for each undocumented explanation. Valid documented explanations include:

- Medical reason
- Family emergency
- Child care issue
- Transportation problems
- And any other reasonable explanation

The documented explanation has to be sent to the course professor by e-mail no later than three days after a missed class. A Doctor`s note, etc., is to be attached as a PDF file to your e-mail.

Course Outcomes and Learning Objectives:

Course Outcome 1	**Learning Objectives for Course Outcome 1**
Upon successful completion, the student will be able to: 1. Understand technical information requirements and work flow.	1.1 Recognize the need for and use of technical drawings.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
Upon successful completion, the student will be able to: 2. Understanding the use of CAD in graphic communication and mechanical applications.	2.1 Identify value of CAD vs. paper drawings in terms of precision and information extraction. 2.2 Recognize the use of CAD as a precursor to CNC and other machining processes.
Course Outcome 3	**Learning Objectives for Course Outcome 3**
Upon successful completion, the student will be able to:	3.1 Recognize and configure AutoCAD setup tools, including units and drawing aids. 3.2 Create AutoCAD drawings using drawing entity and annotation tools.

3. Create AutoCAD drawings based on a supplied graphic using basic AutoCAD set-up, drawing and editing tools.	3.3 Edit AutoCAD drawings using the modify tools. 3.4 Plot drawings to an appropriate scale using layouts in AutoCAD. 3.5 Save and manage digital drawing information according to accepted practices.
Course Outcome 4	**Learning Objectives for Course Outcome 4**
Upon successful completion, the student will be able to: 4. Create sections views, add cross hatching patterns, and drawing threads.	4.1 Be able to project a section view (full, half or offset) from a primary view 4.2 Add a section (viewing) cut-line to the primary view 4.3 Toggle between visible and hidden lines and trim / remove as necessary to show the internal features of a part 4.4 Add cross-hatching patterns to the section views 4.5 Show internal and external threads using simplified or schematic representation (ASME or ISO standards) 4.6 Utilize various lineweights to produce black & white prints to quality standards
Course Outcome 5	**Learning Objectives for Course Outcome 5**
Upon successful completion, the student will be able to: 5. Produce 2D drawings using AutoCAD complete with all dimensions, details, leaders and general notes required to fabricate mechanical parts.	5.1 Be able to add all necessary dimensions (linear, angular, diameters / radii, baseline, continuous) to a drawing / sketch required for manufacturing or fabrication. 5.2 Be able to add all necessary notes to the drawing required for fabrication (leaders, hole call-outs, radii / chamfers, knurling pattern, for example). 5.3 Be able to scale the dimensions, text and leaders to be consistent with the size of the drawing border. 5.4 Add tolerances (unilateral, bilateral or limit) to features of the part. 5.5 Utilize various lineweights to produce black & white prints to quality standards.
Course Outcome 6	**Learning Objectives for Course Outcome 6**
Upon successful completion, the student will be able to: 6. Understand the requirements for an assembly drawing and package.	6.1 Combine numerous parts together on a single assembly drawing. 6.2 Develop a Bill of Material with proper references for various parts and detailed drawings required in the assembly.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Final Test	25%
Laboratories/Assignments	50%
Mid-term Test	25%

Date: August 9, 2024

Addendum: Please refer to the course outline addendum on the Learning Management System for further

information.