

MNE2116: ENGINEERING GRAPHICS

Effective Term

Semester B 2023/24

Part I Course Overview

Course Title

Engineering Graphics

Subject Code

MNE - Mechanical Engineering

Course Number

2116

Academic Unit

Mechanical Engineering (MNE)

College/School

College of Engineering (EG)

Course Duration

One Semester

Credit Units

0

Level

B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

Nil

Part II Course Details

Abstract

The aim of this course is to introduce to students basic concepts and use of engineering drawing in the design and mechanical field. Upon successful completion, students should have acquired the following learning outcomes:

- Use the medium of drawings in engineering communications.
- Describe the general principles involved in the use of Engineering Drawing.
- Demonstrate skills in interpreting, and producing engineering drawings accurately and efficiently; and
- Demonstrate skills in computer-aided-draughting to produce detailed 2D and 3D drawings.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if DEC-A1 app.)		
		DEC-A1	DEC-A2	DEC-A3
1	Use the medium of drawings in engineering communications.		x	
2	Describe the general principles involved in the use of Engineering Drawing.		x	
3	Demonstrate skills in interpreting, and producing engineering drawings accurately and efficiently.		x	
4	Demonstrate skills in computer-aided-draughting to produce detailed 2D and 3D drawings.		x	

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

TLAs	Brief Description	CILO No.	Hours/week (if applicable)	
1	Lecture	Explain principles and key concepts, such as orthographic projection, etc., related to engineering communications and drawing.	1, 2, 3	2 hrs/week for 4 weeks and 1 hr/week for 7 weeks
2	Laboratory Work	Learn and use CAD software for 2D and 3D drawing assignments.	3, 4	3 hrs/week for 10 weeks

Assessment Tasks / Activities (ATs)

ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)	
1	Assignments	1, 2, 3, 4	100	5-7 computer-based drawing assignments

Continuous Assessment (%)

100

Examination (%)

0

Examination Duration (Hours)

0

Additional Information for ATs

This course is assessed on a Pass/Fail basis.

Assessment Rubrics (AR)**Assessment Task**

Assignments

Criterion

- 1.1 Demonstration of understanding general principles involved in the use of engineering drawing.
- 1.2 Ability to demonstrate skills in interpreting, and producing engineering drawings accurately and efficiently.
- 1.3 Ability to demonstrate skills in computer-aided-draughting to produce detailed 2D and 3D drawings.

Pass (P)

Able to produce all the required drawings with reasonable accuracy and in accordance to the drawing convention.

Failure (F)

Unable to produce all the required drawings with reasonable accuracy and in accordance to the drawing convention.

Additional Information for AR

Note: This course is assessed on a Pass/Fail basis.

Part III Other Information

Keyword Syllabus

Use of Computer for Engineering Design Drawing. Conventional Representation of Standard Features. Orthographic Projection: 1st and 3rd angle. Isometric View and Oblique Projection. Standard Symbols on a Working Drawing. Dimensioning. Sectioning. Solid Modelling. 2D and 3D computer-aided-draughting software.

Reading List**Compulsory Readings**

Title	
1	A list of recommended textbooks is provided, although there are no specified compulsory readings for this training course. Students can select any books or other type of literature that would enhance their understanding of engineering drawing.

Additional Readings

Title	
1	M.A. Parker and F. Pickup, Engineering Drawing with Worked Examples, Part 1, Stanley Thornes Ltd.
2	Giesecke, F.E., Mitchell, A., Spencer, H.C., Hill, I.L., Dygdon, J.T., Novak, J.E., Loving, R.O., Lockhart, S., Johnson, C., Technical Drawing with Engineering Graphics, Pearson.
3	Bethune, D.B., Engineering Graphics with AutoCAD 2017, Pearson.

4	Howard, W., Musto, J., Introduction to Solid Modeling Using SolidWorks 2016, McGraw Hill.
5	Bertoline, G., Wiebe, E., Hartman, N., Ross, W., Fundamentals of Graphics Communication, McGraw Hill.