هيئة تقويم التعليم والتدريب
Education & Training Evaluation Commission

T-104
2022

Course Specification

Course Title:	Engineering Drawing II
Course Code:	241 MMET
Program:	Mechanical Maintenance Engineering Technology (MMET)
Department:	Mechanical Engineering Technology (MET)
College:	College of Applied Industrial Technology (CAIT)
Institution:	Jazan University
Version:	T-104 - 2022
Last Revision Date:	2023

Table of Contents:

A. General Information about the Course

Course Identification								
1. Credit Hours: 1								
2. Course Type:								
a. University		College		Department	☑	Track		Others
b. Required	☑	Elective						
3. Level/year at which this course is offered:	5th Level		2nd Year					

4. Course General Description

This course provides students with a broad introduction into 2-dimensional and 3-dimensional Computer-Aided Design (CAD) and modeling with a focus on construction specific applications, including Building Information Modeling (BIM). Students will learn how to use industry leading CAD software programs (Autodesk AutoCAD) to model construction projects, and then create and distribute basic, industrial standard manufacturing drawings.

5. Pre-requirements for this course (if any):	111 MMET
6. Co- requirements for this course (if any):	-------

7. Course Main Objective(s):

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Upon completion of this course, the student will be able to:

• Create technically correct surface and solid models that are common to and useful for visualization and problem solving in civil and mechanical engineering disciplines

• Create technical documentation/presentations of models from mechanical engineering disciplines in both technically correct and visually pleasing solid, orthographic, and section view formats

• Produce project design documentation using modeling skills in project-based assignments

• Coordinate engineering models into the design development process.

• Students may easily be absorbed in Design & Development, modern Manufacturing and Maintenance department of Automobile & manufacturing industries

1. **Teaching Mode: (Mark all that apply)**

No	Mode of Instruction	Contact Hours	Percentages
1	Traditional classrooms	22	100.0%
2	E-learning		0.0%
3	Hybride * Traditional classrooms * E-learning		0.0%
4	Distance learning		0.0%

2. **Contact Hours (based on the academic semester)**

No	Activity	Contact Hours
1	Lectures	
2	Laboratory/Studio	
3	Field	
4	Tutorial	22
5	Others (specify)	
	Total	**22**

Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes (CLOs)	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	Recall 2D Geometries, Isometric and Orthographic Projection and use of AutoCAD drafting tools.	K1.2	Structured Lectures Worked Examples	Quizzes Exams
2.0	**Skills**			
2.1	Recognize 3D AutoCAD Commands (Extrude, Revolve, Sweep, Loft), Presspull & Polysolid to draw 3-D Models	S1.2	Structured Lectures Worked Examples	Quizzes Exams
2.2	Construct 3D-Models with dimension based on 2D-drawing	S1.2	Structured Lectures Worked Examples	Quizzes Exams
2.3	Modify 3D-models (Solid Editing) and generate 2D drawing.	S2.3	Structured Lectures Worked Examples	Quizzes Exams
2.4	Prepare assembly drawing and Bill of Material using 3D-models and 2D-drawing	S3.1	Structured Lectures Worked Examples	Quizzes Exams
3.0	**Values, autonomy, and responsibility**			
3.1	Participate in Team work, Timely completion of task, Showing eagerness towards self improvement.	V1.3	Collaborative Learning Feedback	Report Oral

C. Course Content

No	List of Topics	Contact Hours
1	Introduction : Introduction & Brief Description to Engineering Drawing II, Revision of AutoCAD commands	3
2	Solid Modeling (Basic Shapes): Introduction, 3D Modeling Workspace in AutoCAD, The Box tool, Creating the User Coordinate System, Creating a Wedge, Creating a Cylinder, Using Dynamic User Coordinate System, Model	3
3	Creating Other Primitive Shapes: Creating Cones, Sphere, Torus, Pyramid, Using Polysolid tool, Extrude tool, Revolve tool, Sweep tool, Loft tool, Presspull tool, Performing Boolean Operations (Union, Subtraction,	6
4	Solid Editing: Introduction, Using 3D Move tool, 3D Array tool, 3D Align tool, 3D Mirror tool, Fillet Edge tool, Taper Faces tool, Offset Faces tool, 3D Rotate tool, 3D Polyline tool, 3D Polar Array, Shell tool, Chamfer Edge tool,	3
5	Generating 2D Views: Setting the Drafting Standard, Creating a Base View, Creating a Projected View, Creating Section Views, Creating Section Views, Creating the Section View Style, Creating a Full Section View, Creating a	3
6	Creating Assembly Drawing: Introduction, Creating Bill of Material.	4
	Total	**22**

D. Students Assessment Activities

No	Assessment Activities	Assessment Timing (In Week No)	Percentage of Total Assessment Score
1	Class Work 1	Week 1	3%
2	Class Work 2	Week 3	3%
3	Class Work 3	Week 5	3%
4	Class Work 4	Week 8	3%
5	Class Work 5	Week 9	3%
6	Group Activity 1 (Components Moc	Week 6	5%
7	Group Activity 2 (Components Moc	Week 10	5%
8	Formative Assessment	Week 7	20%
9	Self Study/Project Report	Week 11	15%
10	Final Exam	As Scheduled	40%

* Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.)

E. Learning Resources and Facilities

1 References and Learning Resources

Essential References	1	Introduction to Drafting and AutoCAD 3D by Wally Baumback, edited by Bruce McGarvie, and copyrighted by Vancouver Community College is licensed under a CC BY
Supportive References	1	AutoCAD 2016 For Beginners by CADFolks
	2	100 CAD exercises: 50 2D exercises and 50 3D exercises by 12CAD.com
Electronic Materials	1	
Other Learning Materials	1	

2 Required Facilities and Equipment

Items	Resources
Facilities (Classrooms, Laboratories, Exhibition rooms, Simulation Room, etc.)	Suitable Lab
Technology Equipment (Projector, Smart Board, Software)	Suitable Software
Other Equipment (Depending on the nature of the specialty)	Computer with Latest version operating system required

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Method
Effectiveness of Teaching	Course Coordinator	Direct
	Course Instructor (Faculty)	Direct/Indirect
	Program Coordinator	Indirect
Quality of Learning Resources	Course Coordinator	Direct
	Course Instructor (Faculty)	Direct
	Head of Department	Direct/Indirect
The extent to which CLOs have been achieved	Course Coordinator	Direct
	Course Instructor (Faculty)	Direct
	Program Coordinator	Direct/Indirect
Other		

G. Specification Approval Data

Council/Committee	Mechanical Engineering Technology (MET)
Reference Number	
Date	