



Course Specification

— (Bachelor)

Course Title: **Engineering Drawing**

Course Code: **121-GEC-3**

Program: **Bachelor of Science in Engineering**

Department: **Mechanical Engineering**

College: **College of Engineering**

Institution: **Najran University**

Version: **1.0**

Last Revision Date: **02/27/2024**



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	9
D. Students Assessment Activities	9
E. Learning Resources and Facilities	9
F. Assessment of Course Quality	10
G. Specification Approval	10



A. General information about the course:

1. Course Identification

1. Credit hours: 3

2. Course type

A. University College Department Track Others
B. Required Elective

3. Level/year at which this course is offered: first Year \ Level 2

4. Course general Description:

Students in this course will learn how to draw different geometrical shapes and apply them in higher engineering applications through different modes such as projection and development of surfaces by hand and get acquaintance with the basics of using AutoCAD.

5. Pre-requirements for this course (if any):

NIL

6. Co-requisites for this course (if any):

NIL

7. Course Main Objective(s):

1. Mastering the use of various technical drawing tools to produce high-quality and neat drawings.
2. Developing the students' skills in producing professional engineering drawings to present their design ideas.
3. Increasing the students' imaginary design thinking and expanding their design visual language proficiency.
4. Learn the principle of using the AutoCAD package in the drawing.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	60	100%
2	E-learning		
3	Hybrid <ul style="list-style-type: none"> • Traditional classroom • E-learning 		
4	Distance learning		



3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	15
2.	Laboratory/Studio	45
3.	Field	NIL
4.	Tutorial	NIL
5.	Others (specify)	NIL
Total		60

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

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Know the several drawing instruments and their functional use.	1	<p>Interactive lectures using PowerPoint slides with more examples in the class.</p> <p>TS:2- Engaging the students in problem-based learning through examples.</p> <p>TS:3-Recall the topics discussed in the last lecture by asking questions to the students.</p> <p>TS: 4 – Associating the topics in each chapter with the CLO.</p>	<p>-Test performance evaluation</p> <p>-Evaluation through individual assignments</p>



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
			TS:5 –Discussion with the students in the class hours	
1.2	Translate physical objects into paper and computer drawing models	6	TS:1-Interactive lectures using PowerPoint slides with more examples in the class. TS:2- Engaging the students in problem-based learning through examples.	-Test performance evaluation -Evaluation through individual
...			TS:3-Recall the topics discussed in the last lecture by asking questions to the students. TS: 4 – Associating the topics in each chapter with the CLO. TS:5 –Discussion with the students in the class hours	assignments
2.0	Skills			
2.1	Develop a good foundation of technical drawing skills.	2	TS:1-Interactive lectures using PowerPoint slides with more examples in the class. TS:2- Engaging the students in problem-based learning through examples.	•Locally Developed Exams such as Mid & Final Exams with scoring rubrics •Assignments involving critical and logical thinking questions



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
			<p>TS:3-Recall the topics discussed in the last lecture by asking questions to the students.</p> <p>TS: 4 – Associating the topics in each chapter with the CLO.</p> <p>TS:5 –Discussion with the students in</p>	
2.2	Develop the drawing skills for various design elements.	6	<p>TS:1-Interactive lectures using PowerPoint slides with more examples in the class.</p> <p>TS:2- Engaging the students in problem-based learning through examples.</p> <p>TS:3-Recall the topics discussed in the last lecture by asking questions to the students.</p> <p>TS: 4 – Associating the topics in each chapter with the CLO.</p> <p>TS:5 –Discussion with the students in the class hours</p>	<ul style="list-style-type: none"> • Locally Developed Exams such as Mid & Final Exams with scoring rubrics •Assignments involving critical and logical thinking questions





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
2.3	Encourage discussions and new ideas.	1	<p>TS:1-Interactive lectures using PowerPoint slides with more examples in the class.</p> <p>TS:2- Engaging the students in problem-based learning through examples.</p> <p>TS:3-Recall the topics discussed in the last lecture by asking questions to the students</p> <p>TS: 4 – Associating the topics in each chapter with the CLO.</p> <p>TS:5 –Discussion with the students in the class hours</p>	<p>Locally Developed Exams such as Mid & Final Exams with scoring rubrics</p> <p>•Assignments involving critical and logical thinking questions</p>
3.0	Values, autonomy, and responsibility			
3.1	Enhance the communication skills.	3	<p>Values, autonomy, and responsibility</p> <p>TS:1-Interactive lectures using PowerPoint slides with more examples in the class.</p> <p>TS:2- Engaging the students in problem-based learning through examples.</p>	<p>Locally Developed Exams such as Mid & Final Exams with scoring rubrics</p> <p>•Assignments involving critical and logical thinking questions</p>



Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
			<p>TS:3-Recall the topics discussed in the last lecture by asking questions to the students.</p> <p>TS: 4 – Associating the topics in each chapter with the CLO.</p> <p>TS:5 –Discussion with the students in the class hours</p>	
3.2	Act responsibly and ethically.	4	<p>TS:1-Interactive lectures using PowerPoint slides with more examples in the class.</p> <p>TS:2-students in problem-based learning through examples.</p> <p>TS:3-Recall the topics discussed in the last lecture by asking questions to the students.</p> <p>TS: 4 – Associating the topics in each chapter with the CLO.</p> <p>TS:5 –Discussion with the students in the class hours</p> <p>Engaging the</p>	<p>Locally Developed Exams such as Mid & Final Exams with scoring</p> <p>Locally Developed Exams such as Mid & Final Exams with scoring rubrics</p> <p>•Assignments involving critical and logical thinking questions rubric</p> <p>•Assignments involving critical and logical thinking questions .</p>
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C. Course Content

No	List of Topics	Contact Hours
1.	Introduction to Engineering Drawing and its course specifications.	5
2.	Engineering drawing instruments and their properties	5
3.	Applied geometry	10
4.	Orthographic projections (basic views, applied dimensions and lettering vertical sections.	10
5.	Orthographic Projections (missing views)	10
6.	Pictorial drawings (Isometric and oblique)	4
7.	Introduction to Engineering Drawing using AutoCAD (Draw and modify commands.	8
8.	Engineering Drawing using AutoCAD (Layers, Dimensioning, zooming and printing commands)	8
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Assignments	1-10	20%
2.	Mid-term	6 & 12	20%
3.	Quiz	11	10%
4.	Final exam	15	50%

*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	Engineering Drawing & Graphics” K. Venugopal, New Age International, 2007
Supportive References	Cecil H. Jensen; Jay D. Helsel; Dennis R. Short, Engineering Drawing & Design (2007), 7th Edition, McGraw Hill, Science Engineering.
Electronic Materials	NA
Other Learning Materials	NA

2. Required Facilities and equipment



Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Studios, Classrooms and laboratories
Technology equipment (projector, smart board, software)	Projector, Drawing Boards, Drawing Sheets
Other equipment (depending on the nature of the specialty)	AutoCAD Lab Facility

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Program Leaders and Peer Reviewer	Direct, Indirect
Effectiveness of Students assessment	Students & Faculty	Direct and Indirect
Quality of learning resources	Students & Faculty	Direct and Indirect
The extent to which CLOs have been achieved	Students & Faculty	Direct and Indirect
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	DEPARTMENT OF MECHANICAL ENGINEERING
REFERENCE NO.	
DATE	02/27/2024

