Course Specification

(Bachelor)

Course Title: **Engineering Drawing**
Course Code:**ME 2311**
Program: Bachelor in **Mechanical Engineering**
Department:**: Mechanical Engineering**
College: **College of Engineering**
Institution: **King Khalid University, Abha, Saudi Arabia**
Version: **First**
Last Revision Date:

Table of Contents:

A. General information about the course:

1. Credit hours: (3)					
6h Lab=3Ch					
2. Course type					
A.	☐University	☐College	■Department	☐Track	☐Others
B.	■Required		☐Elective		
3. Level/year at which this course is offered: (3rd/2nd)					
4. Course general Description:					
This course covers an overview of using drawing tools, and to learn drawing isometric, orthographic projections and sectional views, standards and conventions in drawing and dimensioning, and detailed drawings.					
5. Pre-requirements for this course (if any)**:**					
Nil					
6. Pre-requirements for this course (if any)**:**					
Nil					
7. Course Main Objective(s):					
Upon completing this course, it is expected that the students will be able to:					
1. Recognize the principles of engineering drawing.					
2. Acquire imagination skills for projections of engineering parts.					
3. To have the knowledge of generating the pictorial views.					
4. Master the use of engineering drawing tools.					
5. Master the use of engineering drawing software.					

1. Teaching mode(mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	90	100
2.	E-learning		
3.	Hybrid • Traditional classroom • E-learning		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	15
2.	Laboratory/Studio	75
3.	Field	--
4.	Tutorial	--
5.	Others (specify)	--
	Total	90

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	State the principles of geometrical construction and tell the fundamentals of orthographic projection, Sectional and, isometric views	[KLO 1] Identify, formulate, solve complex engineering problems using principles of engineering sciences, mathematics, and natural sciences, and to validate the obtained solution.	Lectures, videos and training exercises	Class work, homework, Midterm exams
2.0				
2.1	Construct two-dimensional representation into 3D images and vice versa (Acquire spatial thinking).	[KLO 2] Design solutions for complex engineering problems that meet specified needs with consideration for public health, safety, welfare, and environmental, sustainability, and economic factors, as well as other realistic constraints related to the design solution, while complying with	Lectures, videos and training exercises	Class work, homework, Midterm exams

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
		relevant standards and design codes		
2.2	Illustrate graphical skills including freehand sketching and drawings. to scale	[KLO 3] Conduct investigations of complex engineering problems through developing and executing relevant experiments, and analyzing and interpreting data, supported by engineering judgment to achieve valid conclusions.	Lectures, videos and training exercises	Class work, homework, Midterm exams
2.3	Apply imagination skills for projections of machine parts and apply international standards of dimensioning on engineering drawings	[KLO 4] Create, select, adapt, and apply appropriate techniques, resources, and modern engineering and IT tools to solve complex engineering problems with an understanding of the limitations.	Lectures, videos and training exercises	Class work, homework, Midterm exams
3.0	Values, autonomy, and responsibility			
3.1				
...				

C. Course Content

No	List of Topics	Contact Hours
1	Sheet Sizes, Scales, Lines and Lettering, Scales Lettering – Engineering drawing tools and their using (Manual)	9
2	Free hand sketch – Dimensions (Manual)	9
3	Tangency operations (Manual & Software)	15
4	Projections – Isometric views (Manual & Software)	15

5	Projections –Multi-views (Manual & Software)	18
.6	Missing views (Software)	12
7	Sectional Orthographic Projections (Software) Surfaces intersections, relations between point, line, and surface	12
Total		90

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1	Class Work & Home Work 1,2	2	5%
2	Class Work & Home Work 3,4	3,4	5%
3	Class Work & Home Work 5,6	5	5%
4	Class Work & Home Work 7,8	6	5%
5	Mid-1 Exam	5-6	15%
6	Class Work & Home Work 9,10	8	5%
7	Class Work & Home Work 11,12	9	5%
8	Class Work 13	10-12	5%
9	Home Work 13	12-13	5%
10	Mid-2 Exam	11-12	15%
11	Final Exam	15	30%
12	Total		100%

*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. David E. Goetsch, William S. Chalk, Raymond L. Rickman, John Nelson. Technical Drawing and Engineering Communication, 6th Edition, 2010. (ISBN: 1111321752, 9781111321758) 2. By Frederick E Giesecke, Ivan L Hill, Henry C Spencer, Alva Mitchell, John T Dygdon, James E. Novak, Shawna Lockhart, Marla Goodman. Technical Drawing with Engineering

	Graphics, 14th Edition, 2010. Peachpit Press. (ISBN: 1292038586, 9781292038582)
Supportive References	Colin Simmons Dennis Maguire, Manual of Engineering Drawing, 4th Edition. Technical Product Specification and Documentation to British and International Standards, Elsevier, 2012. (ISBN: 0080966535, 9780080966533
Electronic Materials	Drawing Software (AUTOCAD)
Other Learning Materials	Blackboard Collaborate Ultra

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms equipped with 50 seats and 50 drawing tables. 3Audio-visual system, mic, headphone
Technology equipment (projector, smart board, software)	Data show and multimedia Blackboard and ZOOM
Other equipment (depending on the nature of the specialty)	None

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	Indirect through surveys
Effectiveness of students assessment	Faculty and Quality Committee	Direct through Rubrics
Quality of learning resources	Students and faculty	Indirect through surveys (Student, faculty)
The extent to which CLOs have been achieved	Faculty and Quality Committee	Direct (through Rubrics)
Other		

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

Assessment Methods(Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	Reviewed by Curriculum Committee Approved by Quality Committee
REFERENCE NO.	
DATE	02-02-2024