



Course Specification

(Bachelor)

Course Title: **terial testing Ma**

Course Code: **ME3133**

Program: **Mechanical engineering**

Department: **Mechanical engineering**

College: **College of Engineering and Architecture**

Institution: **Umm Al Qura University**

Version: *Course Specification Version Number*

Last Revision Date: **29 December 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:	4
D. Students Assessment Activities:	5
E. Learning Resources and Facilities:	5
F. Assessment of Course Quality:	5
G. Specification Approval:	6



A. General information about the course:

1. Course Identification

1. Credit hours: (3)				
2. Course type				
A.	☐ University	☐ College	☒ Department	☐ Track
B.	☒ Required		☐ Elective	
3. Level/year at which this course is offered: (5 th level)				
4. Course General Description:				
The course involves basic concepts of materials testing. A plan for using a variety of established material testing techniques to give some help in acquiring the overall picture for mechanical engineering materials behavior under testing.				
5. Pre-requirements for this course (if any):				
Material Science- ME2133				
6. Co-requisites for this course (if any):				
7. Course Main Objective(s):				
Students will develop skills to obtain experiment data and communicate results for major concepts in materials science.				

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	2 Lectures- 3 lab	100%
2	E-learning		
3	Hybrid - Traditional classroom - E-learning		
4	Distance learning		



3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	45
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		75

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

Code	Course Learning Outcomes	Code of PLOs aligned with the program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1	Describe the basic concept of mechanical behavior of materials under various mechanical tests.	K1,	Lectures.	Homework and lab assignments.
1.2	Explain materials testing concepts and techniques in solving mechanical problems.	K1		
...				
2.0	Skills			
2.1	Compute the mechanical properties of different materials using lab experimental data.	S2	Lab.	Lab assignments.
...				
3.0	Values, autonomy, and responsibility			
3.1	Organize the work done by performing mechanical tests individually or within a team	V2	Performing Mechanical tests in Lab.	Reports and Lab presentations
...				



C. Course Content

No		Contact Hours
1.	Introduction to Material Testing	3
2.	Tension Test	9
3.	Compression, Bending and Torsion Tests	9
4.	Hardness Test	6
5.	Impact Test	3
6.	Fatigue Test	9
7.	Creep Test	6
Total Processes		45

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Lab work	Repeated more than once	10%
2.	Course Activities (Projects, reports, quizzes ...etc.):	Distributed	10%
3.	Presentations	along the	10%
4.	Mid-term Exam	semester	20%
5.	Final Exam	At least one for each team	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	Materials Science and Engineering: An Introduction, Authors (William D. Callister, Jr. and David G. Rethwisch): 9 th edition, (ISBN: 978-1-118-32457-8), Wiley (2014)
Supportive References	
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms and materials testing lab
Technology equipment	Data show





Items	Resources
(projector, smart board, software)	
Other equipment (depending on the nature of the specialty)	Tensile, hardness, impact and fatigue test machines and specimens

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Faculty	Direct/indirect
Effectiveness of Students assessment	Program Coordinator	Direct/indirect
Quality of learning resources	Student	Direct/indirect
The extent to which CLOs have been achieved	Program Coordinator	Direct/indirect
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	
REFERENCE NO.	
DATE	

