

Module (Engineering Mechanics 1) Catalogue

2023-2024

College/ Institute	College of Erbil Technical Engineering	
Department	Civil Engineering	
Module Name	Engineering Mechanics 1	
Module Code	ENM104	
Degree	Technical Diploma <input type="checkbox"/> Bachelor <input checked="" type="checkbox"/> High Diploma <input type="checkbox"/> MSc <input type="checkbox"/> PhD <input type="checkbox"/>	
Semester	1	
Qualification	PhD	
Scientific Title	Lecturer	
ECTS (Credits)	7	
Module type	Prerequisite <input type="checkbox"/> Core <input checked="" type="checkbox"/> Assist. <input type="checkbox"/>	
Weekly hours	4	
Weekly hours (Theory)	(4) hr Class	(189) Total hrs Workload
Weekly hours (Practical)	(0) hr Class	(0) Total hrs Workload
Number of Weeks	15	
Lecturer (Theory)	Dr. Kamaran S. Ismail Tava Dhahir Mohammed	
E-Mail & Mobile NO.	kamaran.ismail@cive.soran.edu.iq tava.mohammed@epu.edu.iq	
Lecturer (Practical)	N/A	
E-Mail & Mobile NO.	N/A	
Websites		

Course Book

<p>Course Description</p>	<p>This course introduces the principles required to solve engineering mechanics problems. It addresses the modeling and analysis of static equilibrium problems, emphasizing real-world engineering applications and problem-solving. To master this course, you should have a background in basic calculus and physics covering classical mechanics. Concepts will be applied in this course from previous courses you have taken in basic math and physics</p>			
<p>Course objectives</p>	<p>In this course students will learn a process for analysis of static objects; concepts of force, moment, and mechanical equilibrium; how to analyze forces and moments in two and three dimensions; and how to analyze distributed forces and internal loads. They will be able to analyze forces in various systems such as frames, trusses, beams, and cables. The tools learned in this course will provide the basis for later courses and a career in engineering.</p>			
<p>Student's obligation</p>	<p>Attending the lecture is a fundamental part of the course. Students are expected to attend every class meeting for the entire class period. Only extreme circumstances should require your missing class. If you do miss class, it is your responsibility to obtain announcements, course documents, and assignments. You are responsible for the material presented in the lecture whether or not it is discussed in the textbook. You should expect questions on the exams to test your understanding of concepts discussed in the lecture and the homework assignments.</p> <p>It can be very helpful to study with a group. This type of cooperative learning is encouraged; however, be sure that you have a thorough understanding of the concepts besides the mathematical steps used to solve a problem. You must be able to work through the problems on your own.</p> <p>Students will need to submit the required homework, reports, seminars, and/or any other assignments requested by the lecturer in time and in a proper way.</p>			
<p>Required Learning Materials</p>	<p>lecture halls with data show equipment for lecture presentations, whiteboard, overhead projector, posters, and the handouts of lecture notes will be used as forms of teaching. Also, the online lectures and Moodle platform may be used.</p>			
<p>Evaluation</p>	<p>Task</p>	<p>Weight (Marks)</p>	<p>Due Week</p>	<p>Relevant Learning Outcome</p>
	<p>Paper Review</p>			

	Assignments	Homework	10%	1-12	All
		Class Activity	2%	1-12	All
		Report			
		Seminar	8%	8	All
		Essay			
		Project	8%	10	All
	Quiz	8%	1-12	All	
	Lab.				
	Midterm Exam	24%	8	All	
	Final Exam	40%	14	All	
Total	100%				
Specific learning outcome:	<p>On successful completion of this module, students should be able to;</p> <ol style="list-style-type: none"> 1. Understand the basic concepts of engineering mechanics. Define a force and a moment. 2. Use a standard process for analyzing static objects. 3. Add forces and moments in two and three dimensions and find a component of a force or moment in a given direction. Conversion between Moments and Couples. 4. Construct free body diagrams of an object or a system of connected objects and calculation of resultant for a set of forces and/or moments. 5. Describe conditions of equilibrium and their associated component equations. Also, use conditions of equilibrium and known forces and moments to solve for unknown external forces and moments. 				
Course References:	<p>1-Engineering Mechanics - STATICS, by R.C. Hibbeler 2-Engineering Mechanics - STATICS, by J. L. Meriam and L. G. Kraige. 3-A Textbook of Engineering Mechanics, by R. S. Khurmi</p>				
Course topics (Theory)			Week	Learning Outcome	
Basic Concepts.			1	1	
Basic Concepts.			2	1	
Force Systems.			3	2	
Force Systems.			4	2	
Moment and couples			5	3	
Free Body Diagram			6	4	

Resultant of Force System.	7	4
Resultant of Force System.	8	4
Equilibrium of Force System.	9	5
Equilibrium of Force System.	10	5
Equilibrium of Force System.	11	5
Equilibrium of Force System.	12	5
Practical Topics	Week	Learning Outcome
N/A		

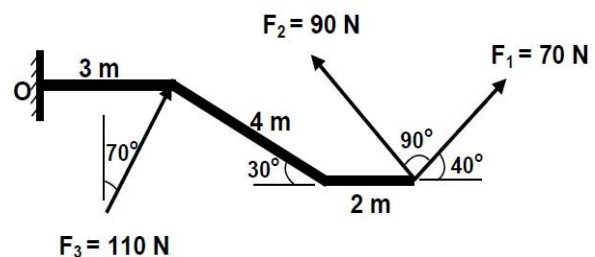
Questions Example Design

The exam questions may have similarities with the examples and Homework assignments taught during the course, but it is not necessary to be the same.

For example:

Q: Determine the resultant moment of the forces (F_1 , F_2 , and F_3) shown in figure about point (O).

Solution :



Extra notes:

Since there is no time in class to include everything in the reference books, the book must be studied outside of class. Assigned reading should be done before the class in which the topic is covered, and then studied after class so that the concepts are thoroughly grasped and you can complete the assigned problems. Lecturing will be kept to a level necessary to better understand the principles and techniques described in the textbooks. Students will be actively involved in learning during the class. Always bring your calculator and paper.

Because each class builds on previous classes, it is essential to keep up with assignments. Collaboration on homework is allowed to improve learning. Any student may be called upon at any time to present a homework solution to the class. Homework will be checked for completion; problem solutions will be returned with the checked homework, so late homework will not be possible.

