

Ministry of Higher Education and Scientific Research

Supervision and Scientific Evaluation Department

Quality Assurance and Academic Accreditation Office

Engineering Mechanics-Static Course Description

The template provides a summary of the main course features and expected student learning outcomes.

1. Educational Institution	Shatt Al-Arab University
2. Department / Center	Department of Laser and Optoelectronics Engineering
3. Course Title /Code	Engineering Mechanics / ATU15021
4. Lecturer Name	Amjad Hashim Faisal
5. Type of Teaching	Attendance
6. Academic Year /Term	Term
7. Total No. of Teaching Hours	150
8. Date of Preparing this Course Description	30/7/2025

1. Course Objectives

The student can use the knowledge of Engineering Mechanics (Statics) for analyzing force systems (structures, machines, frames...etc.) , in order to became able to design components and finally the systems as a whole in the next years.

2. Course Output, Methodology and Evaluation

(A) Cognitive Objectives

1. Knowing how to calculate rectangular components, moment, couple and resultant.
2. The Student can apply equilibrium equations to find forces - and or - reaction that maintain the state of equilibrium to the structures.
3. Learning the ability to analyze truss structures, using method of joints and method of sections.
4. The student can calculate the forces in frames and machines.

(B) Skill Objectives Related to the Program:

The main strategy that will be adopted in delivering this module is to encourage students' participation in the exercises, while at the same time refining and expanding their critical thinking skills. This will be achieved through classes, interactive tutorials that are interesting to the students.

(C) Methods of Teaching and Learning

- Delivering Pre-Prepared Lectures.
- Assigning Homework.
- Facilitating Group Discussions.

(D) Methods of Evaluation

- **Oral Tests:** Assessing students' understanding through verbal responses.
- **Monthly Tests:** Evaluating students' knowledge and progress on a monthly basis.
- **Daily Quizzes:** Regular quizzes to gauge students' grasp of material covered each day.
- **Regular Attendance:** Monitoring and evaluating students' consistent participation in classes.

(E) Sentimental and Value Objectives

- **Ethical Understanding:** Promoting respect, integrity, and social responsibility.
- **Attitudes and Values:** Fostering positive attitudes towards learning, collaboration, and ethical behavior.

(F) General and Qualitative Skills (other skills related to the ability of employment and personal development)

- Develop students' leadership skills.
- Improve students' proficiency in presenting technical information, writing reports, and explaining results.
- Encourage students to adapt to new technologies and methodologies related to Engineering Mechanics.

3. Course Structure

Course Structure					
Week	No of Hours	Required Learning Output	Title of Subject	Teaching Method	Evaluation
١		Basic Concepts, Scalars and Vectors, Units Conversion.	Scalars and Vectors	Lectures and discussions	Oral tests and questions
٢		Two-Dimensional Force Systems-Rectangular Components	Two-Dimensional Force Systems	Lectures and discussions	Oral tests and questions
٣		Two-Dimensional Force Systems-Moment and	Two-Dimensional Force Systems	Lectures and discussions	Oral tests and questions

		Couple			
٤		Two-Dimensional Force Systems-Resultant	Two-Dimensional Force Systems	Lectures and discussions	Oral tests and questions
٥		Three-Dimensional Force systems-Rectangular Components	Three-Dimensional Force systems	Lectures and discussions	Oral tests and questions
٦		Three-Dimensional Force Systems-Moment and Couple	Three-Dimensional Force systems	Lectures and discussions	Oral tests and questions
٧		Mid-term Exam.	Mid-term Exam.	Lectures and discussions	Oral tests and questions
٨		Three-Dimensional Force Systems-Resultant	Three-Dimensional Force Systems	Lectures and discussions	Oral tests and questions
٩		Two-Dimensional Equilibrium, F.B.D. , Equilibrium Conditions ...etc.	Two-Dimensional Equilibrium	Lectures and discussions	Oral tests and questions
١٠		Three-Dimensional Equilibrium, F.B.D. , Equilibrium Conditions ...etc.	Two-Dimensional Equilibrium	Lectures and discussions	Oral tests and questions
11		Structures, Plane Trusses, Method Of Joints	Structures	Lectures and discussions	=
12		Structures, Plane Trusses, Method Of Sections	Structures	=	=
13		Structures, Space Trusses	Structures	=	=
14		Structures, Frames and Machines	Structures	=	=
15		Review	Review	=	=

5. Learning and Teaching Resources

Textbooks	- ENGINEERING MECHANICS – STATICS, MERIAM and KRAIGE, Sixth Edition Advanced calculus, Murray R. Splegel, 1962 - VECTOR MECHANICS FOR ENGINEER – STATICS, BEER and JOHNSON, Ninth Edition
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6. Course Improvement Plan

- Updating and expanding the curriculum content to include modern developments and applications related to Engineering Mechanics.