1. Course Name:	
Fundamentals of Static and Dynamic	
2. Course Code:	
CIV12205	
3. Semester / Year:	
2nd / First year	
4. Description Preparation Date:	
6-12-2025	
5. Available Attendance Forms:	
Weekly (Theory: 4 hours, Tutorial: 1 hours)	
6. Number of Credit Hours (Total) / Number of Units (Total)	
Theory: 60 Hours Tutorial: 15 hours Total: 75 hours ECTS: 6	
7. Course administrator's name (mention all, if more than one name)	
Name: Asst. Lect. Hussein Ali Hussein **Email:** Hussein.a.hilfi@muc.edu.iq	
8. Course Objectives	
Course Objectives	Graduation of civil engineers qualified to work in their various fields of specialization: **1.** Utilize mathematical, scientific, and engineering knowledge. **2.** Serve on inter-professional teams. **3.** Identify, formulate, and solve engineering problems. **4.** Employ the techniques, abilities, and contemporary engineering instruments required for engineering practice. **5.** Communicate successfully.
9. Teaching and Learning Strategies	
Strategy	The primary strategy for delivering this module will be to encourage student participation in the tasks, while also honing and enhancing their critical thinking skills. This will be accomplished through courses and student-oriented interactive tutorials. The primary objective of studying engineering mechanics is to develop the ability to predict the effects of force and motion while performing engineering's creative design functions.

1. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	4	To understand and apply the force of friction to rigid bodies.	Introduce the friction forces	Theoretical	Exam
2	4		concept of dry friction	Theoretical	Quiz
3	4		Equations of Equilibrium and Friction	Theoretical	Homework
4	4	Determine the center of gravity and center of mass.	Introduce the center of gravity and center of mass	Theoretical	Exam
5	4	Remember and apply the area's centroid	locate of the centroid for a body of arbitrary shape	Theoretical	Quiz
6	4		locate of the centroid for a body of composite shape	Theoretical	Homework
7	4	Determine the magnitud and moment of inertia about a specified axis	Definition of Moments of Inertia for Areas	Theoretical	Exam
8	4		Parallel-Axis Theorem for an Area	Theoretical	Quiz
9	4	Determine the magnitud Radius of Gyration	Radius of Gyration of an Area	Theoretical	Homework
10	4	Discuss location, motion, speed, and acceleration relationships	Discuss location, motion, speed, and acceleration relationships	Theoretical	Exam
11	4	Visualize straight-line particle movement	Visualize straight-line particle movement	Theoretical	Quiz
12	4	Introduction to dynamics (particle kinematics and motion of particles). Determine the motion, velocity, and acceleration in a straight line. Determine the Kinetics of particles, forces, masses, and accelerations.	Particle migration along a curved trajectory in multiple coordinate systems	Theoretical	Homework
13	4		Newton's Second Law of Motion in addition to defining mass and weight	Theoretical	Exam
14	4		System of Particles' Kinematic Equation	Theoretical	Quiz
15	4	Preparatory	Preparatory week before the final exam	Theoretical	Homework

2. Course Evaluation

The grade distribution is as follows: Assessment: Formative 40 marks, Mid-term exam 10 marks Final exam: Theory 50 marks.	
3. Learning and Teaching Resources	
Required textbooks (curricular books any)	Engineering Mechanics Statics and Dynamic, by Higdon.
Main references (sources)	Engineering Mechanics Statics and Dynamic, by Meriam.
Recommended books and references (scientific journals, reports…)	Mechanics for Engineers-Statics and Dynamic, by Ferdinand P.Beer, E. Russell.
Electronic References, Websites	

Course Description Form

(Fundamentals of Static and Dynamic)