



COURSE INFORMATION FORM

Course Name	Course Code
DYNAMICS	151413237

Semester	Number of Course Hours per Week		ECTS
	Theory	Practice	
3	3	0	4

Course Category (Credit)				
Basic Sciences	Engineering Sciences	Design	General Education	Social
2	2			

Course Language	Course Level	Course Type
Turkish	Undergraduate	Compulsory

<b>Prerequisite(s) if any</b>	-
<b>Objectives of the Course</b>	The main purpose of this course is to provide the student with a clear and through presentation of the theory and application of engineering mechanics.
<b>Short Course Content</b>	Kinemattics of particles. Rectilinear motion and curvilinear motion of particles. Rotation about a fixed axis and a fixed point. General motion. Kinetics of particles:Newton’s second law.Work of a force. Kinetic energy of a particle. Principle of work and energy, potential energy, conservation of energy. Principle of impulse and momentum. Plane motion of rigid bodies.Mechanical vibration.

Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1 Have general knowledge to be used in engineering designs.	1, 2	1, 5, 10	A, K
2 The infrastructure of courses such as Earthquake Engineering and Structural Dynamics is formed.	1, 2	1, 5, 10	A, K
3 Understanding Problem Solving Techniques.	1, 2	1, 5, 10	A, K
4 To be able to model the problem.	1, 2	1, 5, 10	A, K
5 Physics,elementary classical mechanics.This course devotes the majority of effort to problem solving, since the governing equation is basically Newton’s second law.	1, 2	1, 5, 10	A, K
6			
7			
8			

\*Teaching Methods 1:Expression, 2:Discussion, 3:Experiment, 4:Simulation, 5:Question-Answer, 6:Tutorial, 7:Observation, 8:Case Study, 9:Technical Visit, 10:Trouble/Problem Solving, 11:Individual Work, 12:Team/Group Work, 13:Brain Storm, 14:Project Design / Management, 15:Report Preparation and/or Presentation

\*\*Measuring Methods A:Exam, B:Quiz, C:Oral Exam, D:Homework, E:Report, F:Article Examination, G:Presentation, I:Experimental Skill, J:Project Observation, K:Class Attendance; L:Jury Exam

<b>Main Textbook</b>	Dynamics “ by Hibbeler”
<b>Supporting References</b>	Dynamics “ by Beer & Johnston”- Dynamics” by J.L. Meriam “
<b>Necessary Course Material</b>	Calculator, protractor, compass, set square, pencil, eraser

<b>Course Schedule</b>	
<b>1</b>	Kinematics of Particles. Introduction to dynamics. Rectilinear Motion of Particles
<b>2</b>	Curvilinear Motion of particles
<b>3</b>	Circular Motion
<b>4</b>	Rotation about afixed point, and general motion.
<b>5</b>	Kinematics of Rigid Bodies.
<b>6</b>	Kinetics of Particles: Newton’s Second Law of Motion.
<b>7</b>	Kinetics of Particles: Newton’s Second Law of Motion.
<b>8</b>	Mid-Term Exam
<b>9</b>	Energy and Momentum Methods. Work of a Force. Kinetic Energy of a Particle. Principle of Work and Energy.
<b>10</b>	Principle of Work and Energy.
<b>11</b>	Potential Energy. Conservative Forces. Conservation of Energy. Principle of Impulse and Momentum.Impulsive Motion. Impact.
<b>12</b>	Potential Energy. Conservative Forces. Conservation of Energy. Principle of Impulse and Momentum.Impulsive Motion. Impact.
<b>13</b>	Plane Motion of Rigid Bodies. Forces and Acceleratin.
<b>14</b>	Plane Motion of Rigid Bodies.Energy and Momentum Methods.
<b>15</b>	Mechanical Vibrations. Vibrations without Damping. Damped Vibrations
<b>16,17</b>	Final Exam

<b>Calculation of Course Workload</b>			
<b>Activities</b>	<b>Number</b>	<b>Time (Hour)</b>	<b>Total Workload (Hour)</b>
Course Time (number of course hours per week)	14	3	42
Classroom Studying Time (review, reinforcing, prestudy,...)	14	2	28
Homework	0	0	0
Quiz Exam	0	0	0
Studying for Quiz Exam	0	0	0
Oral exam	0	0	0
Studying for Oral Exam	0	0	0
Report (Preparation and presentation time included)	0	0	0
Project (Preparation and presentation time included)	0	0	0
Presentation (Preparation time included)	0	0	0
Mid-Term Exam	1	1.5	1.5
Studying for Mid-Term Exam	1	20	20
Final Exam	1	1.5	1.5
Studying for Final Exam	1	20	20
<b>Total workload</b>			<b>113</b>
<b>Total workload / 30</b>			<b>3.77</b>
<b>Course ECTS Credit</b>			<b>4</b>

Evaluation	
<b>Activity Type</b>	<b>%</b>
Mid-term	40
Quiz	
Homework	
Bir öge seçin.	
Bir öge seçin.	
<b>Final Exam</b>	60
<b>Total</b>	100

RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
NO	PROGRAM OUTCOME	Contribution
1	Strong background in mathematics, science, and fundamental engineering principles; ability to apply theoretical and practical knowledge from these fields to model and solve engineering problems	4
2	Expertise in identifying, defining, and formulating complex engineering problems in civil engineering and related fields. Ability to select and apply appropriate analysis and modeling methods to solve these problems	4
3	Ability to design complex systems, devices, or products under realistic constraints and conditions. Proficiency in using modern design methods to meet specific objectives	
4	Competence in developing, selecting, and using modern techniques and tools for civil engineering applications. Effective utilization of information technologies to support engineering tasks	
5	Expertise in designing experiments, conducting tests, collecting data, analyzing results, and interpreting findings for civil engineering problem investigations	
6	Ability to work effectively in both intradisciplinary and interdisciplinary teams	
7	Effective Turkish oral and written communication skills and proficiency in using and developing foreign language skills	
8	Commitment to lifelong learning. Ability to access information, stay up-to-date with advances in science and technology, and continuously self-improve	
9	Strong sense of professional and ethical responsibility	
10	Knowledge of project management, risk management, and change management practices; awareness of entrepreneurship, innovation, and sustainable development principles	
11	Understanding of the global and societal impacts of engineering applications on health, the environment, and safety; awareness of national and international legal regulations, standards, and the legal implications of engineering solutions	
12		

LECTURER(S)				
<b>Prepared by</b>	Assis. Prof. Dr. Hasan Selim ŞENGEL			
<b>Signature(s)</b>				

**Date:** 06.06.2024