COURSE CATALOG

Course Code: CE 204				**Course Name**: Dynamics			
Semester	**T + P + L**	**Credits**	**ECTS**	**Language of Instruction**	**Course Type**	**Instruction Methods**	**Prequisite(s)**
4	3 + 2 + 0	3	6	English	Required (D1)	Lecture+Problem Session	CE 102 Statics
Course Objectives			To introduce students a fundamental knowledge of the dynamics and associated engineering mechanics concepts.				
Topics Covered			Introduction. Kinematics of a particle. Kinetics of a particle: Force and acceleration. Kinetics of a particle: Work and energy. Kinetics of a particle: Impulse and momentum. Planar kinematics of a rigid body. Planar kinetics of a rigid body: Force and acceleration. Planar kinetics of a rigid body: Work and energy. Planar kinematics of a rigid body: Impulse and momentum. Three-dimensional kinematics of a rigid body. Vibrations.				
Learning Outcomes of the Course			The students who pass this course should: 1- gain basic knowledge of the concepts of the dynamics and develop mathematical skills to identify the engineering dynamics problems [1, 2, 3, 12] 2- apply the concepts of work-energy and impulse-momentum to particle and rigid body motions [1, 2] 3- develop skills for computer usage of packages such as word, excel, matlab [14] 4- understand the practical applications of the dynamics concepts used in designs of engineering structures [13, 14, 16] 5- develop skills to analyze three dimensional engineering dynamics problems [12, 13, 14, 16] *[Note that the numbers in brackets refer to the bullet numbers in the program outcomes list.]*				
ISCED Category of the Course			52 Engineering				
Textbook			R. C. Hibbeler. *Engineering Mechanics: Dynamics*, Prentice Hall, 11th edition, 2007.				
Recommended Sources			J. L. Meriam and L.G. Kraige. *Engineering Mechanics: Dynamics*, John Wiley and Sons, 2007**.**				

WEEKLY SCHEDULE

Week	Theoretical Topic	Applied / Laboratory Topics
1	Introduction. Kinematics of a particle.	
2	Kinematics of a particle.	
3	Kinetics of a particle: Force and acceleration.	
4	Kinetics of a particle: Work and energy.	
5	Kinetics of a particle: Impulse and momentum.	
6	Kinetics of a particle: Impulse and momentum.	
7	Planar kinematics of a rigid body.	
8	Planar kinetics of a rigid body: Force and acceleration.	
9	Planar kinetics of a rigid body: Work and energy.	
10	Planar kinematics of a rigid body: Work and energy.	
11	Planar kinematics of a rigid body: Impulse and momentum.	
12	Three-dimensional kinematics of a rigid body.	
13	Three-dimensional kinematics of a rigid body.	
14	Vibrations.	

COURSE ASSESSMENT POLICY

	Activities	Number	Contribution (%)
Studies throughout the term	**Quizes**	-	-
	Term Homework/ Project	-	-
	Reports	-	-
	Graduation Thesis/ Project	-	-
	Seminar	-	-

	Homeworks	5	30
	Presentations	-	-
	Midterm Exams	2	35
	Project	-	-
	Laboratory	-	-
	Other (field work)	-	-
FINAL EXAM		1	35
Total			100

CONTRIBUTION OF THE COURSE TO CIVIL ENGINEERING PROGRAM OUTCOMES

	Program Outcomes	**1**	**2**	**3**
1	The ability to apply knowledge of mathematics, science, and engineering			X
2	The ability to identify, formulate, and solve engineering problems			X
3	The ability to design a system or component to meet desired needs with realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability and sustainability		X	
4	The ability to analyze and interpret data	X		
5	The ability to design and conduct experiments and apply experimental results to improve processes	X		
6	The ability to convey technical material through oral presentations and written papers/reports	X		
7	The ability to function within multidisciplinary teams	X		
8	The understanding of professional and ethical responsibilities		X	
9	The understanding of the impact of engineering on society	X		
10	The understanding of the necessity to engage in life-long learning	X		
11	The understanding of management and leadership principles and techniques	X		
12	The appreciation of the role of research in civil engineering problems		X	
13	A knowledge of contemporary issues in civil engineering		X	
14	The ability to use modern engineering techniques, skills, and tools			X
15	The ability to understand and explain basic concepts in management, business, and leadership	X		
16	A commitment to quality, punctuality and continuous improvement		X	

Contribution Level: 1 low, 2 medium, 3 high

ECTS-WORKLOAD TABLE

ACTIVITIES	**Number**	**Duration (Hour)**	**Workload(Hour)**
Lecture Time	14	5	70
Final Exam (Including Prepation Time)	1	25	25
Quizes	-	-	-
Term Homework / Project	-	-	-
Reports	-	-	-
Graduation Thesis/Project	-	-	-
Seminar	-	-	-
Study Time Outside the Class	14	1	14
Homeworks	5	3	15
Presentations	-	-	-
Midterm Exams (Including Prepation Time)	2	13	26
Project	-	-	-
Laboratory	-	-	-
Total Workload			150
ECTS Credits of the Course (Total Workload / 25)			6

Last update on 28.01.2014	**Coordinator / PREPARED BY Cihan BAYINDIR**	**APPROVED BY Esin İnan**