



**HASAN KALYONCU UNIVERSITY**  
**Faculty of Engineering**  
**Course Description Form**

<b>COURSE:</b> Dynamics				
<b>CODE:</b> CE221	<b>SEMESTER:</b> FALL			
<b>LANGUAGE:</b> ENGLISH	<b>TYPE:</b> COMPULSORY			
<b>PRE-REQUISITES: -</b> <b>CO-REQUISITES: -</b>	<b>THEORY</b>	<b>PRACTICAL</b>	<b>CREDIT</b>	<b>ECTS</b>
<b>WEEKLY HOURS: 3</b>	3	0	3	4

**CONTENT OF THE COURSE:**

This course covers the motion of moving solids, and the relation between speed, momentum and force. Topics include particle dynamics, linear and curvilinear motion, combination of motions, Newton's laws, Impulse, momentum and angular momentum, solid dynamics, kinematics, Euler's laws, and work and energy calculations.

**OBJECTIVE OF THE COURSE:**

To enable students to develop their analytical skills by understanding the basic concepts of dynamics of particles and rigid bodies, in addition to different types of motions and its governing equations.

**WEEKLY SCHEDULE AND PRE-STUDY PAGES**

<b>Week</b>	<b>Topics</b>
1	kinematics of a particle
2	kinematics of a particle
3	kinetics of a particle: force and acceleration
4	kinetics of a particle: force and acceleration
5	kinetics of a particle: work and energy
6	kinetics of a particle: work and energy
7	kinetics of a particle: impulse and momentum
8	Midterm exam
9	planar kinematics of a rigid body
10	planar kinematics of a rigid body: force and acceleration
11	planar kinetics of a rigid body: force and acceleration
12	planar kinetics of a rigid body: work and energy
13	planar kinetics of a rigid body: work and energy
14	planar kinetics of a rigid body: impulse and momentum

**TEXTBOOK:** "Engineering Mechanics / DYNAMICS" By R. C. Hibbeler – Pearson Prentice Hall, Upper Saddle River, New Jersey 07458, 13th Edition, 2013.

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11
LO1	3	2	0	0	0	1	0	0	0	0	0
LO2	3	2	0	0	0	1	0	0	0	0	0
LO3	3	2	0	0	0	1	0	0	0	0	0
LO4	3	2	0	0	0	1	0	0	0	0	0
LO5	3	2	0	0	0	1	0	0	0	0	0
PO: Program Outcomes   LO: Learning Outcomes Values: 0: None   1: Low   2: Medium   3: High											

<b>INSTRUCTOR(S):</b>	Asst.Prof.Dr. D1a Eddin NASSANI
<b>FORM PREPARATION DATE:</b>	22.05.2019

<b>LEARNING OUTCOMES OF THE COURSE:</b>
<b>LO1:</b> Study particle and rigid-body motion along straight and angular path <b>LO2:</b> Analyze the accelerated motion of a particle using the equation of motion <b>LO3:</b> Compute the principles of work-energy and impulse-momentum of particle and rigid-body <b>LO4:</b> Compute the planar kinetic equations of motion for rigid body using principle of force and acceleration <b>LO5:</b> Study the analysis of undamped forced vibration and viscous damped forced vibration

<b>CONTRIBUTION OF THE COURSE TOWARDS PROVIDING VOCATIONAL EDUCATION:</b> The student understands the basic principles related to the movement of 2D rigid objects and use it in civil engineering applications.
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