



Jordan University of Science and Technology
Faculty of Engineering
Civil Engineering Department

CE301 Dynamics For Civil Engineers - JNQF Level: 7

Second Semester 2024-2025

Course Catalog

2 Credit Hours. Learn kinematics of particles: rectilinear continuous and erratic motion, general curvilinear motion; rectangular, normal-tangential and cylindrical components, absolute dependent motion of two particles and relative motion of two particles. Learn kinetics of particles: force-acceleration, Newton's Laws of Motion, equations of motion; rectangular, normal-tangential, and cylindrical coordinates. Learn kinetics of particles: work-energy; principle of work and energy, work of a force, conservative forces, potential energy, elastic potential energy, and kinetic energy, conservation of energy. Learn kinetics of particles: impulse-momentum; principle of linear impulse and momentum, principle of angular impulse and momentum, conservation of linear momentum of system of particles, impact. Learn planar kinematics of rigid bodies; rigid body motion, translation, rotation about fixed axis, absolute general motion, relative motion, instantaneous center. Introduction to structural dynamics (free vibration of undamped single degree of freedom system)

Teaching Method: On Campus

Text Book

Title	Engineering Mechanics, Dynamics
Author(s)	Russell C. Hibbeler
Edition	14th Edition
Short Name	Ref # 1
Other Information	

Instructor

Name	Prof. Yousef Al Rjoub
Office Location	-
Office Hours	
Email	ysalrjoub@just.edu.jo

Class Schedule & Room

Section 1:

Lecture Time: Sun, Tue : 12:00 - 13:00

Room: C2010

Section 2:

Lecture Time: Sun, Tue : 14:00 - 15:00

Room: C2010

Prerequisites

Line Number	Course Name	Prerequisite Type
232011	CE201 Statics	Prerequisite / Study

Tentative List of Topics Covered

Weeks	Topic	References
Weeks 1, 2, 3	kinematics of particles: rectilinear continuous and erratic motion, general curvilinear motion; rectangular, normal-tangential and cylindrical components.	
Week 4	absolute dependent motion of two particles and relative motion of two particles	
Weeks 5, 6, 7	kinetics of particles: force-acceleration.	
Week 8	kinetics of particles: work-energy	
Weeks 9, 10	kinetics of particles: impulse-momentum	
Weeks 11, 12	planar kinematics of rigid bodies; rigid body motion, translation, rotation about fixed axis	
Weeks 13, 14	absolute general motion, relative motion, instantaneous center	
Week 15	Introduction to structural dynamics, single degree of freedom system.	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Students be able to use linear and curvilinear motion to define displacement, velocity and acceleration functions. [1PI-1a] [1L7K1]	25%	
Students be able to use Newton's laws of motion to define equations of motion in rectangular, normal-tangential, and cylindrical coordinates. [1PI-1a] [1L7K1]	20%	
Apply the work and energy principle to solve motion of the particle along a curve. [1PI-1a] [1L7K1]	15%	
Apply linear and angular impulse-momentum principles to solve motion of the particle along a curve. [1PI-1a] [1L7K1]	15%	

Students be able to use planar kinematics of rigid bodies to define displacement, velocity and acceleration functions. [1PI-1a] [1L7K1]	15%	
Identify an undamped and damped single degree of freedom system. [1PI-1a] [1L7K1]	10%	

Relationship to Program Student Outcomes (Out of 100%)											
PI-1a	PI-2a	PI-2b	PI-2c	PI-2d	PI-3a	PI-4a	PI-4b	PI-5a	PI-6a	PI-6b	PI-7a
100											

Relationship to NQF Outcomes (Out of 100%)	
L7K1	
100	

Evaluation	
Assessment Tool	Weight
Final Exam	40%
First Exam	20%
second Exam	20%
Quizzes	20%

Policy	
Attendance Policy	1- In accordance with the University Regulations, it is the student's responsibility to be punctual and to attend all classes. Failure to attend classes without prior approval for whatever reason is considered as part of the percentage missed. Students bear full responsibility for checking their own attendance record. 2- Attendance records are kept, and if a student is absent for more than 10% of the total contact hours without an excuse accepted by the faculty dean, he will fail
Examinations	1- Copying, or attempting to copy, from another student's answering sheets, or permitting another student to copy from your answering sheets. 2- Using notes of whatever kind in the formation of answers in a closed book examination.
Assignments	Copying: Copying another person's answers, assignment, paper, laboratory report, etc. and presenting it, either wholly or with only minor changes, as if it were the student's own work.

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