Jordan University of Science and Technology

Faculty of Engineering

Aeronautical Engineering Department

AE212 Dynamics - JNQF Level: 7

First Semester 2023-2024

Course Catalog
3 Credit Hours. Planar kinematics and kinetics of particles and rigid bodies; Rectilinear and curvilinear as well as Relative and constrained motion analysis in various coordinate systems, Instantaneous zero-velocity center, Newton's second law, Work and energy, Conservation of energy, Impulse and momentum, Impacts, Conservation of momentum.

Text Book	
Title	Engineering Mechanics (Dynamics)
Author(s)	R. C. Hibbeler
Edition	15th Edition
Short Name	Ref. 1
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref. 2	Vector Mechanics for Engineers: Dynamics	Beer, Johnston & Clausen	7th Edition	
Ref # 3	Engineering Mechanics (Dynamics)	R. C. Hibbeler	14th Edition	
Ref # 4	Engineering Mechanics (Dynamics)	R. C. Hibbeler	13th Edition	
Ref # 5	Vector Mechanics for Engineers: Statics and Dynamics	Ferdinand Beer, E. Johnston, David Mazurek, Phillip Cornwell, Brian Self.	12th Edition	

Instructor	
Name	**Dr. Ahmad Al Shyyab**
Office Location	M5 L2

Office Hours	Sun : 09:30 - 10:30 Mon : 09:30 - 11:30 Tue : 09:30 - 10:30 Wed : 09:30 - 11:30
Email	asalshyyab@just.edu.jo

Class Schedule & Room
Section 1: Lecture Time: Mon, Wed : 11:30 - 13:00 Room: M5125

Prerequisites		
Line Number	**Course Name**	**Prerequisite Type**
252112	ME211B Statics	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	**Topic**	**References**
Weeks 1, 2, 3	Kinematics of a Particles	**Chapter 12** From **Ref. 1**
Weeks 3, 4, 5	Kinetics of Particles: Force and Acceleration	**Chapter 13** From **Ref. 1**
Weeks 6, 7	Kinetics of Particles: Work and Energy	**Chapter 14** From **Ref. 1**
Weeks 7, 8	Kinetics of Particles: Impulse and Momentum	**Chapter 15** From **Ref. 1**
Weeks 9, 10, 11	Planer Kinematics of Rigid Body	**Chapter 16** From **Ref. 1**
Weeks 11, 12, 13	Planer Kinetics of Rigid Body: Force and Acceleration	**Chapter 17** From **Ref. 1**
Weeks 14, 15, 16	Planer Kinetics of Rigid Body: Work and Energy	**Chapter 18** From **Ref. 1**

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Students will be able to solve the position, velocity, and acceleration of particles and rigid bodies using suitable coordinate systems. [1SO1] [1L7K1]	25%	
Students will be able to apply Newton's 2nd law to comprehend dynamic force and motion analysis. [1SO1] [1L7K1]	25%	
Students will be able to apply principles of work and energy to solve kinetic problems. [1SO1] [1L7K1]	25%	
Students will be able to apply principles of impulse and momentum to solve kinetic problems. [1SO1] [1L7K1]	25%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
100						

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

Evaluation	
Assessment Tool	**Weight**
1st Exam	30%
2ed exam	30%
Final	40%

Policy	
Class Attendance	According to university roles, attendance in this course classes is required. You are allowed to be absent at most 20% of the course classes.

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