Jordan University of Science and Technology

Faculty of Engineering

Mechanical Engineering Department

ME212 Dynamics - JNQF Level: 7
Second Semester 2024-2025

Course Catalog
3 Credit Hours. Dynamics of particles, planar dynamics of rigid bodies, moment of inertia, work and energy, impulse and momentum for rigid bodies.
Teaching Method: On Campus

Text Book	
Title	Engineering Mechanics: Dynamics
Author(s)	R. C. Hibbeler
Edition	14th Edition
Short Name	Text Book
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref #1	Vector Mechanics for Engineers: Dynamics	F. P. Beer, E. R. Johnson, and William E. Clausen	7th Edition	

Class Schedule & Room

Section 1:
Lecture Time: Mon, Wed : 10:30 - 12:00
Room: C2006

Section 2:
Lecture Time: Sun, Tue, Thu : 13:00 - 14:00
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, 4	1. Kinematics of a Particle	
Weeks 5, 6	2. Kinetics of a Particle: Force & Acceleration	
Weeks 7, 8	3. Kinetics of a Particle: Work & Energy	
Weeks 8, 9	4. Kinetics of a Particle: Impulse and Momentum	
Weeks 10, 11, 12	5. Planar Kinematics of a Rigid Body	
Weeks 12, 13	6. Planar Kinetics of a Rigid Body: Force & Acceleration	
Weeks 14, 15	7. Planar Kinetics of a Rigid Body: Work & Energy	
Week 16	Final exam	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Build free-body and kinetic diagrams and extract the relevant information [1SO1] [1L7S2]	10%	
Apply the concepts of planar idealization models, such as the particle and rigid-body representation, in dynamic analysis [1SO1] [1L7S2]	30%	
Use appropriate kinematic relationships describing position, velocity and acceleration [1SO1] [1L7S1]	30%	
Use three different methods of approaching dynamics problems, namely: Newton's 2nd law, work and energy, and impulse and momentum [1SO1] [1L7S2]	30%	

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

Relationship to NQF Outcomes (Out of 100%)	
L7S1	L7S2
30	70

Evaluation	
Assessment Tool	**Weight**
First Exam	30%
Second Exam	30%
Final Exam	40%

Policy	
Evaluation:	First Exam 30% Second Exam 30% Final Exam 40%

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