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

ME311 Mechanics Of Machines - JNQF Level: 7
Second Semester 2024-2025

Course Catalog
3 Credit Hours. Kinematic analysis of mechanisms.Velocity and acceleration polygons. Static and inertia force analysis of machinery. Dynamic analysis of cams, gear and gear trains.
Teaching Method: Blended

Text Book	
Title	Kinematics and Dynamics of Machinery
Author(s)	Norton, R.
Edition	2nd Edition
Short Name	TextBook
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Reference 1	Theory of Machines and Mechanisms	Shigley, J.E. and J. J. Uicker, J.J.	4th Edition	
Reference 2	Kinematics and Dynamics of Machinery	Wilson, C. and Sadler, J.	3rd Edition	
Reference 3	Mechanism Design: Analysis and Synthesis	Erdman, A. G., and Sandor	4th Edition	

Instructor	
Name	**Dr. Bassam Alshaer**
Office Location	M5L3
Office Hours	

Email	bjalshaer@just.edu.jo

Class Schedule & Room

Section 1:
  Lecture Time: Sun, Tue : 10:00 - 11:00
  Room: M2006

Section 2:
  Lecture Time: Sun, Tue : 11:00 - 12:00
  Room: M2006

Prerequisites

Line Number	Course Name	Prerequisite Type
252122	ME212 Dynamics	Prerequisite / Pass

Tentative List of Topics Covered

Weeks	Topic	References
Week 1	Introduction to mechanisms	
Weeks 2, 3	Kinematics pairs and mobility of planar mechanisms	
Weeks 4, 5	Displacement analyses in planar mechanisms	
Weeks 6, 7	Velocity analyses in planar mechanisms	
Weeks 8, 9	Acceleration analysis in planar mechanisms	
Weeks 10, 11	Dynamic force analysis in planar mechanisms	
Weeks 12, 13	Gears and gear trains	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
Analyze the types of mechanisms, joints, links and motion [1SO1] [1L7S1]	100%	
Evaluate degree of freedom (mobility) and equivalent linkages [1SO1] [1L7S1]	100%	
Evaluate position, velocity and acceleration of planar mechanisms using graphical and analytical methods [1SO1] [1L7S1]	100%	
Evaluate forces in linkages using static and dynamic laws and principles [1SO1] [1L7S1]	100%	
Analyze the cams, gears and geartrains motion and profiles.. [1SO1] [1L7S2]	100%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
500						

Relationship to NQF Outcomes (Out of 100%)	
L7S1	L7S2
400	100

Evaluation	
Assessment Tool	Weight
1st Exam	25%
2nd Exam	25%
Final	40%
Homework and Assignments	10%

Policy	
Course Policy	1) Never come late to the classroom, you will disturb your mates and your instructor if you do so. 2) Turn OFF your cell phones during the class. 3) DO Not TALK during the class please, unless you have a question for me. 4) No quizzes make-ups. 5) Make up exams are not held without an official signed and approved excuse from the Department Chairman. Please understand that this is a university law and I have no control over it. 6) Office hours are the hours I dedicate for you to ask me. If you think they do not suit you, then we can still arrange for a time of our convenience by sending an e-mail to me (you should expect an approval from my side). 7) The exams specified on the course syllabus are not subject to negotiations or change once approved by you TODAY. It is your responsibility to inform the other instructors about your assigned exams.

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