



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

ME332 Machine Design (1) - JNQF Level: 7

Second Semester 2024-2025

Course Catalog

3 Credit Hours. 3 Credit hours (3 h lectures). Introduction to design process. Design considerations. Tolerances, fits and surface finish. Stress analysis and deflection of mechanical elements. Energy methods. Statistical considerations in machine design. Failure of machine elements. Fatigue.

Teaching Method: On Campus

Text Book

Title	Shigley's Mechanical Engineering Design, 10th Edition in SI units
Author(s)	Richard Budynas and Keith Nisbett
Edition	10th Edition
Short Name	Text
Other Information	

Course References

Short name	Book name	Author(s)	Edition	Other Information
Ref#2	Fundamentals of Machine Component Design	Juvinall, R. C. and Marshek, K. M	3rd Edition	
Ref#3	Machine Elements in Mechanical Design	Mott, R. L.	3rd Edition	
Ref#4	Fundamentals of Machine Elements	Hamrock, B. J., Jacobson, B. and Schmid, S. R.	7th Edition	
Ref#5	Machine Design: An Integrated Approach	Norton, R. L.	2nd Edition	

Class Schedule & Room

Section 1: Lecture Time: U : - Room:
Section 2: Lecture Time: U : - Room:

Prerequisites		
Line Number	Course Name	Prerequisite Type
252023	ME202 Mechanical Drawing	Prerequisite / Study
252143	ME214 Strength Of Materials	Prerequisite / Pass

Tentative List of Topics Covered		
Weeks	Topic	References
Week 1	Chapter 1: Introduction	
Weeks 2, 3	Chapter 2: Materials	
Weeks 3, 4, 5, 6, 7	Chapter 3: Load & Stress Analysis	
Weeks 6, 7, 8	Chapter 4: Deflection and stiffness	
Weeks 9, 10, 11	Chapter 5: Failures Resulting from Static Loading	
Weeks 12, 13, 14	Chapter 6: Fatigue Failure Resulting from Variable Loading	
Weeks 15, 16	Chapter 7: Shafts and shaft components	

Mapping of Course Outcomes to Program Outcomes and NQF Outcomes	Course Outcome Weight (Out of 100%)	Assessment method
define the most critically stressed point in a machine component, and analyze stresses, strains and/or deflections. (1) [1SO1] [1L7K1]	50%	
choose appropriate/cross-sections from standards tables. (1) [1SO1] [1L7S1]	10%	
design thin- and thick-walled cylinders, shrink-fitted assemblies, and curved members, shafts, and beams. (1, 2) [1SO2] [1L7S3]	15%	
choose and apply the appropriate failure criterion for the design and analysis of mechanical components subjected to static and/or fatigue loading. (1, 2) [1SO2] [1L7S3]	25%	

Relationship to Program Student Outcomes (Out of 100%)						
SO1	SO2	SO3	SO4	SO5	SO6	SO7
60	40					

Relationship to NQF Outcomes (Out of 100%)		
L7K1	L7S1	L7S3
50	10	40

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

Policy	
Attendance	<p>Attendance is MANDATORY and will be checked often. Late coming is not encouraged as it disturbs students and instructors. Excuses for absence should be approved by the Deanship of Engineering and submitted to me within a week following the last day of absence. Bonus marks will be given to the student who has no absences.</p> <p>A regular student will not be allowed to continue in the course and take the final examination and will be given a DN grade if his absences are more than 20% of the lecture scheduled for the course regardless of his performance.</p>
HW & Quizzes	<p>It is your responsibility to solve the Home Work (HW) as soon as the material is covered in the class. HW problems will be posted on e-learning. Quizzes will be given regularly based on the lectures. All HW problems assigned during a given week are due in class one week from the date of assignment, unless otherwise stated. Late HW is not accepted.</p>

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