

MENG 3309 - Mechanical System Design
Course Syllabus

Semester / Year	Summer 2025
Catalog Description	Characterization, design, selection, and integration of mechanical systems and components including shafts, bearings, seals, gears, springs, mechanical fasteners, linkages. Three hours of lecture per week.
Prerequisites	MENG 3303, MENG 3319, and grade C or better in MENG/CENG 3306
Section Number	461
Instructor Name	Tahsin Khajah
Contact Information	Email: tkhajah@uttyler.edu Zoom Meeting ID: 903 566 7245 Phone: 903 566 7245
Class Type / Instruction Mode / Location	Online
Class Time	
Office Hours	Tuesday 9:00-10:30 am and Thursday 3:00-4:30 pm or by appointment
No. of Credits	3 credits
Required Textbook	McGraw Hill Connect - Budynas and Nisbett, Shigley's Mechanical Engineering Design, 11th Edition
Optional References	Robert L. Norton, Machine Design: An Integrated Approach, 5th ed
Additional Rules and Requirements	<p>Students may discuss their homework solutions with one another, but each student must submit their own, independent solution (i.e. you may not just copy someone else's homework.)</p> <p>You can use AI programs (ChatGPT, Copilot, etc.) in this course. These programs can be powerful tools for learning and other productive pursuits, including completing assignments in less time, helping you generate new ideas, or serving as a personalized learning tool. However, your ethical responsibilities as a student remain the same. You must follow UT Tyler's Honor Code and uphold the highest standards of academic honesty. This applies to all uncited or improperly cited content, whether created by a human or in collaboration on with an AI tool. If you use an AI tool to develop content for an assignment, you must cite the tool's contribution to your work.</p>
Evaluation Method	Mid-term Exam(s) 25% Final Exam 30% Homework 25% Project / Presentation 20%
Grading Policy / Scale	Letter grades, scale: A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60
Important Events / Dates	Census date: 07/10/2025 Exam date: TBD Last date to withdraw from one or more 15-week courses: 07/29/2025

Attendance / Makeup policy / other rules	<p>Mechanical System Design is one of the challenging courses in engineering. Regular participation is imperative if you want to do well in this course. It is your responsibility to stay updated with the course material and announcements posted on Canvas on assignments, exams, etc.</p> <p>Homework Assignments: homework will be assigned according with the topics covered in lectures. Assignments are considered very important for the understanding of the course material. Completing your homework independently is an absolute necessity to do well in this course.</p> <p>Canvas: Course syllabus, course material such as handouts and example problems with solutions, homework, assignments, homework solutions, review material, exam solutions will all be posted on Canvas. Please review all the material posted on Canvas on a regular basis.</p>
Course Learning Objectives / ABET & PEOs Relation	<p>By the end of this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Determine the stress, strain and deflection of machine elements. 2. Design for combined stresses and stress concentration. 3. Design to avoid fatigue failure against fully reversed and fluctuating cyclic loads. 4. Design of multi-step shafts and calculation of their critical speed 5. Select bearings based on design parameters
Tentative Topics / Course Plans	<ol style="list-style-type: none"> 1. Load determination & analysis 2. Stress, strain, and deflection 3. Static and fatigue failure theories 4. Screws, fasteners & design of non-permanent joints 5. Shafts
University Policies	<p>https://www.utt Tyler.edu/offices/academic-affairs/files/syllabus-information.pdf</p>