



MENG 4317 – Vibrations

Course Syllabus

Semester / Year	Fall 2023												
Catalog Description	Analysis and prediction of the free and forced dynamic behavior and of mechanical systems; first, second, and higher order systems; vibration isolation and absorption; vibration characteristics of rotating machinery.												
Prerequisites	ENGR2302 (Dynamics), MATH 3305 (Differential Equations) with a minimum “C” grade.												
Section Number	001, 040												
Instructor Name	Dr. A. Ibrahim												
Contact Information	Email: aibrahim@uttyler.edu Office: RBN 3008												
Class Type / Instruction Mode / Location	F2F for Tyler Campus. Room: TBD Zoom for HEC. Room: TBD												
Class Time	Mo/We 12:20PM - 1:40PM												
Office Hours	Mo 9:00 AM – 12:00 PM or by appointment.												
No. of Credits	3												
Required Textbook	No textbook is required as lectures will reference material from a range of text and provide a full complement of lecture notes.												
Optional References	<ul style="list-style-type: none"> - Engineering Vibration, 5th edition, Pearson - Daniel J. Inman, ISBN-13: 9780136809531 - Mechanical Vibrations, 6th edition, Pearson, Singiresu S. Rao, ISBN-13: 9780137515288 												
Additional Rules and Requirements	Programming skills.												
Evaluation Method	<table style="width: 100%; border: none;"> <tr> <td style="width: 70%;"><i>Assignments</i></td> <td style="text-align: right;">25%</td> </tr> <tr> <td><i>First Exam</i></td> <td style="text-align: right;">25%</td> </tr> <tr> <td><i>Second Exam</i></td> <td style="text-align: right;">25%</td> </tr> <tr> <td><i>Third Exam</i></td> <td style="text-align: right;">25%</td> </tr> </table>	<i>Assignments</i>	25%	<i>First Exam</i>	25%	<i>Second Exam</i>	25%	<i>Third Exam</i>	25%				
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Grading Policy / Scale	Letter grades, scale: A: 90 – 100; B: 80 – 89; C: 70 – 79; D: 60 – 69; F: < 60												
Important Events / Dates	<p>Census date: September 1st, 2023. Last date to withdraw from one or more 15-week courses: October 30, 2023 (https://www.uttyler.edu/schedule/files/2023-2024/academic-calendar-2023-2024-main-20230328.pdf)</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">Assignments</td> <td colspan="3">Expect assignment every week.</td> </tr> <tr> <td><i>First Exam</i></td> <td style="text-align: center;">Monday</td> <td style="text-align: center;">September</td> <td style="text-align: right;">25th</td> </tr> <tr> <td><i>Second Exam</i></td> <td style="text-align: center;">Monday</td> <td style="text-align: center;">October</td> <td style="text-align: right;">23rd</td> </tr> </table>	Assignments	Expect assignment every week.			<i>First Exam</i>	Monday	September	25th	<i>Second Exam</i>	Monday	October	23rd
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	Third Exam Wednesday November 29th
Attendance / Makeup policy / other rules	<i>Attendance is required. No makeup. 3+ Absences => F</i>
Course Learning Objectives / ABET & PEOs Relation	<i>By the end of this course students will be able to: 1. Formulate analyzable models of vibrating mechanical systems. 2. Solve single-degree-of-freedom (SDOF) free and forced vibration problems using analytical and computer methods. 3. Solve multiple-degree-of-freedom (MDOF) vibration problems using analytical and computer methods. 4. Vibration of continuous systems.</i>
Tentative Topics / Course Plans	<i>1. Vibration and Free Response. 2. Response to Harmonic Excitation. 3. General Force Response 4. Vibration of MDOFS 5. Vibration of Continuous Systems</i>
University Policies	https://www.uttyler.edu/academic-affairs/files/syllabus_information_2021.pdf