

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Undergraduate Programs	UUPC Approval <u>1/29/24</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department _____ College _____	
Current Course Prefix and Number		Current Course Title
<i>Syllabus must be attached for ANY changes to current course details. See Checklist. Please consult and list departments that may be affected by the changes; attach documentation.</i>		
Change title to: Change prefix From: _____ To: _____ Change course number From: _____ To: _____ Change credits* From: _____ To: _____ Change grading From: _____ To: _____ Change WAC/Gordon Rule status** Add _____ Remove _____ Change General Education Requirements*** Add _____ Remove _____ <small>*Review Provost Memorandum</small> <small>**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines.</small> <small>***General Education criteria must be indicated in syllabus and approval attached to this form. See GE Guidelines.</small>		Change description to: Change prerequisites/minimum grades to: Change corequisites to: Change registration controls to: Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).
Effective Term/Year for Changes: Fall, 2024		Terminate course? Effective Term/Year for Termination:
Faculty Contact/Email/Phone		
Approved by Department Chair <u>Pierre Philippe Beaujean</u> College Curriculum Chair <u>Hongbo Su</u> College Dean <u>[Signature]</u> UUPC Chair <u>Korey Sorge</u> Undergraduate Studies Dean <u>Dan Meeroff</u> UFS President _____ Provost _____		Date _____ _____ _____ _____ _____ _____

Email this form and syllabus to mjenning@fau.edu seven business days before the UUPC meeting.

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1. Course title/number, number of credit hours	
Vibration Synthesis and Analysis/EGN 4323	3 credit hours
2. Course prerequisites, co-requisites, and where the course fits in the program of study	
1. MAP 3305 Engineering Mathematics I or MAP 2302 Differential Equations 2. EGN 3321 – Dynamics All with a grade of C or above	
3. Course logistics	
Term: Spring 2018 This is a classroom lecture course Class location and time CM 125, 2:00-3:20, T R This course has no design content.	
4. Instructor contact information	
Instructor's name Office address Office Hours Contact telephone number Email address	Guoqiang Cai Room 403G, Building 96 (EE) 8:30-11:00, T R 561-297-3428 caig@fau.edu
5. TA contact information	
TA's name Office address Office Hours Contact telephone number Email address	N/A
6. Course description	
Free and forced vibration of mechanical systems; damping; periodic and transient excitations; two degrees of freedom, and continuous systems.	
7. Course objectives/student learning outcomes/program outcomes	
Course objectives	To introduce the students to basic theory and applications of mechanical vibration analysis and vibration control design techniques. Emphasis is on developing sound modeling and analysis techniques as well as engineering insights in treating practical mechanical vibration problems.
Student learning outcomes & relationship to ABET a-k objectives	1. Students will be well aware of the notion of free vibration in the context of the single degree of freedom system. (a,e,k/1,2,6) 2. Students will be familiar with harmonically excited vibrations for the single degree of freedom system. (a,e,k/1,2,6) 3. Students will be familiar with transient vibration under general forcing conditions. (a,e,k/1,2,6) 4. Students will learn multi-degree of freedom systems' basic notions

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	including determination of the frequencies and mode shapes. (a,e,k/1,2,6) 5. Students will learn longitudinal vibrations of bars and flexural vibrations of beams. (a,e,k/1,2,6) 6. Students will be able to effectively communicate by writing a report. (g/3)
8. Course evaluation method	
Exams - 100 %	<i>Note:</i> The minimum grade required to pass the course is C.
9. Course grading scale	
Grading Scale: A: 90-100, A-: 86-90, B+: 82-86, B: 78-82, B-: 74-78, C+: 70-74, C: 66-70, C-: 62-66, D+: 58-62, D: 54-58, D-: 50-54, F: 0-50.	
10. Policy on makeup tests, late work, and incompletes	
<i>Makeup tests</i> are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student of participating in the exam. Makeup exam should be administered and proctored by department personnel unless there are other pre-approved arrangements <i>Incomplete grades</i> are against the policy of the department. Unless there is solid evidence of medical or otherwise serious emergency situation incomplete grades will not be given.	
11. Special course requirements	
<p>1. Rules for exams:</p> <ul style="list-style-type: none"> (1) No cell-phones, i-pads, or other electronic devices are allowed during the exams. (2) No watches capable of taking pictures or communicating with others are allowed during exams. (3) If, because of an emergency, there is a need to carry an electronic device to the exam, you must secure permission from the instructor. <p>Violation of any of the above exam rules will, at a minimum, result in receiving a zero on the exam.</p> <p>2. Inquiries about exams must be presented within two weeks of the date when the scores are posted in the CANVAS. Afterwards, inquiries about the exams and project are closed and the scores will not be changed.</p> <p>3. For students registered in online section:</p> <ul style="list-style-type: none"> (1) It is important to watch the recorded lectures. (2) The proctored tests must be held the same time as that for the regular section. (3) Due to the large volume, the graded exams will not be returned electronically. They will be in the instructor's office for picking up. 	
12. Classroom etiquette policy	
University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones and laptops, are to be disabled in class sessions.	
13. Attendance Policy	
1. Students in the regular section (Section 1) are required to attend the class, and sign in for each class. Each student is allowed to have four absences, and one point toward the final score (1%) will be deducted for each additional absence.	

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2. A written proof is required for a special situation for an absence, and it must be presented to the instructor before or within one week of the event.

14. Disability policy statement

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodation due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses.

15. Counseling and Psychological Services Center

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

16. Required texts/reading

S. S. Rao, Mechanical Vibrations, 6th Edition, Pearson, 2017.

17. Supplementary/recommended readings

N/A

18. Course topical outline, including dates for exams/quizzes, papers, completion of reading

Weeks 1 - 3 (01/08 - 01/26)	Chapter 1 Fundamentals of Vibration Chapter 2 Free Vibration of SDOF Systems
02/01	Exam 1 (Chapters 1, 2)
Weeks 4 - 6 (01/29 - 02/16)	Chapter 3 Harmonically Excited Vibration Chapter 4 Vibration under General Forcing Conditions 11.4 Runge-Kutta Method for SDOF systems
02/27	Exam2 (Chapters 3, 4)
Week 7 - 8 (02/19 - 03/02)	Chapter 5 Two Degree of Freedom Systems
Week 9 (03/05-03/09)	Spring Break
Week 10 -11 (03/12 - 03/23)	Chapter 9 Vibration Control
03/29	Exam3 (Chapters 5, 9)
Week 12 - 13 (03/24 – 04/04)	Chapter 6 Multidegree of Freedom Systems 11.7 Runge-Kutta Method for MDOF systems
Weeks 14 - 16 (04/07- 04/23)	Chapter 8 Continuous Systems

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04/26 (1:15 – 2:45)

Exam 4 (Chapters 6, 8)