

 FLORIDA ATLANTIC UNIVERSITY	COURSE CHANGE REQUEST Undergraduate Programs	UUPC Approval <u>2/27/23</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department Ocean & Mechanical Engineering College Engineering & Computer Science	
Current Course Prefix and Number EGN 4432	Current Course Title Dynamic Systems	
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.		
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 <input type="checkbox"/> Remove <input type="checkbox"/> Change General Education Requirements*** Add <input type="checkbox"/> Remove <input type="checkbox"/> <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: 1. MAP 3305 or MAP 2302, 2. EGN 3321, 3. EGN 2213, all with a grade of C or above 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 2023	Terminate course? Effective Term/Year for Termination:	
Faculty Contact/Email/Phone Dr. P. Edgar An / pan@fau.edu / 561-297-2792		
Approved by Department Chair <u>Pierre Philippe Beaujean</u> College Curriculum Chair <u>Hongbo Su</u> College Dean _____ UUPC Chair <u>Ethlyn Williams</u> Undergraduate Studies Dean <u>Dan Meeroff</u> UFS President _____ Provost _____	Date _____ 1/30/2023 _____ 02/09/2023 _____ 2/9/23 _____ 2/27/23 _____ 2/27/23 _____ _____	

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

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Revised Date: Dec 21, 2022

1. Course title/number, number of credit hours
EGN 4432 Dynamic Systems (3 credit hours)
2. Instructional Method
<p>This class will be conducted in class only. All students are required to attend in person for lectures, quizzes, and exams.</p> <p><u>Study Habits</u></p> <ul style="list-style-type: none">• Budget 3 hours per week to study outside the classroom for each credit hour. That is 9 hours of study per week outside the classroom.• Take notes during lectures, and summarize/organize the notes afterward• Spend 20 minutes reviewing the notes and refreshing your memory before any new lecture• Do ALL the homework problems and practice quizzes by yourself (do not just look at the solutions)• Take advantage of office hours available• Form study groups• Do not binge study for quizzes and exams. It does not work for this class! <p><u>Student Recording of Class Lectures</u></p> <p>Students enrolled in this course may record video or audio of class lectures for their personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member, except it may be shared with university officials in connection with a complaint to the university or as evidence in a criminal or civil proceeding.</p> <p>If a student publishes a recording of a class lecture without the faculty member's written permission, and it is not in connection with a complaint to the university or as evidence in a criminal or civil legal proceeding, the student could face severe legal and/or disciplinary consequences. Florida law allows an injured party to sue for damages, including attorneys' fees, totaling as much as \$200,000.00. Failure to adhere to these requirements may also constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.</p> <p><u>Definition of a Credit Hour Policy</u></p> <p>The Provost's guidelines regarding the definition of a credit-hour policy can be found at https://www.fau.edu/provost/documents/definition-of-a-credit-hour-september-30-2022.pdf</p> <p>Each credit hour covers no less than one hour (50 Minutes) of direct instruction each week for fifteen weeks per semester, and covers no less than two hours of out-of-class assignments each week for fifteen weeks per semester, or adjusted equivalent for other delivery modes. Out-of-class assignments may include readings, research, homework assignments, research papers, interactive tutorials, study groups, or other activities appropriate for the course. Courses meeting during shorter enrollment periods must document the equivalent direct instruction time. Online and hybrid courses, laboratory courses, internships, clinical practice, fieldwork, studio work, and other academic work leading to the award of credit must document weekly equivalent instructional activities to demonstrate the effort needed to achieve the course learning</p>

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outcomes. Additional information on determining equivalent instructional time based on activities can be found at <https://www.fau.edu/elearning/faculty/instructional-activity-equivalents/index.php>

3. Course prerequisites, co-requisites, and where the course fits in the program of study

Prerequisites:

1. EGN 3321 - Dynamics or equivalent
2. EGN 2213 Computer Applications for ME I, or equivalent
3. MAP 3305 – Engineering Mathematics I or MAP 2302 – Differential Equations

(all with a grade of C or above)

If students have not completed the required prerequisites for the course and do not inform their course instructor and advisor, they will be dropped from the course. If this occurs after the first week of the semester, they will be fee liable to the University.

4. Course logistics

Term: Fall 2023
Lecture: TR 9:30 – 10:50 am, FL429

5. Instructor contact information

<i>Instructor's name</i>	Dr. An
<i>Office address</i>	EW 174, Boca Raton Campus
<i>Office Hours</i>	Office hours (T 2-4 pm, W 3-5 pm, R 2-4 pm)
<i>Contact telephone number</i>	561-297-2792
<i>Email address</i>	pan@fau.edu

6. TA contact information

<i>TA's name</i>	TBD
<i>Office address</i>	
<i>Office Hours</i>	
<i>Contact telephone number</i>	
<i>Email address</i>	

7. Course description

To acquaint Ocean and Mechanical Engineering students with basic knowledge about dynamic systems, systems stability analysis, and basic controller design.

8. Course objectives/student learning outcomes/program outcomes

<i>Course objectives</i>	To acquaint Ocean and Mechanical Engineering students with basic knowledge about dynamic systems, systems stability analysis, and basic controller design
<i>Student learning outcomes & relationship to ABET 1-7 objectives</i>	<ol style="list-style-type: none"> 1. A basic knowledge of the fundamental principles governing the dynamics of simple mechanical and electro-mechanical systems. (1) 2. An ability to apply the knowledge of mathematics and engineering to model simple dynamic systems. (1) 3. An ability to simulate dynamic systems using computer simulation tools. (1,2,6) 4. An ability to characterize the stability properties of a dynamic system. (1,2,6) 5. An ability to design a simple feedback control system that meets desired system output specifications. (1,2,6)

9. Course evaluation method

Chapter Review – 5% (CONNECT)
Homework – 10% (best of 3 attempts, CONNECT)

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Quizzes – 20%
Attendance – 5%
Exam 1 – 30%
Exam 2 – 30%
Final Exam – 30%

The lowest quiz score will be dropped. The final exam can be waived if the overall grade by the last week of the semester is maintained at 70% or above. If possible, the final exam scores will replace the lowest of any of the exam scores. Otherwise, the final exam score will not be included in the course grade. You can think of the final exam as a makeup exam if you did not do well in any of the exams.

Grading Policy

- | | |
|--|------|
| 1) all the steps are correct and the final answer is correct: | 100% |
| 2) overall most of the steps are correct, but the final answer is wrong: | 90% |
| 3) the steps show the majority of concepts are correct but have numerous errors: | 70% |
| 4) the steps show some fundamental errors and are far from completing the problem: | 40% |
| 5) no steps included other than the answer is correct: | 10% |
| 6) blank, no steps: | 0% |

10. Course grading scale

> 90.0	A
86.7-90.0	A-
83.3-86.7	B+
80.0-83.3	B
76.7-80.0	B-
73.3-76.7	C+
70.0-73.3	C
66.7-70.0	C-
63.3-66.7	D+
60.0-63.3	D
56.7-60.0	D-
< 56.7	F

11. Policy on makeup tests, late work, and incompletes

Makeup tests are given only if there is solid evidence of a medical or otherwise serious emergency that prevented the student from participating in the exam. Makeup exams should be administered and proctored by department personnel unless there are other pre-approved arrangements

Late work without verifiable justification will NOT be graded.

Incomplete grades are against the policy of the department. Unless there is solid evidence of a medical or otherwise serious emergency, incomplete grades will not be given.

12. Special course requirements

N/A

13. Classroom etiquette policy

University policy requires that 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.

14. Attendance Policy Statement

Students are expected to attend all of their scheduled University classes and satisfy all academic objectives as outlined by the instructor. The effect of absences on grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.

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Students are responsible for arranging to make up work missed because of legitimate class absences, such as illness, family emergencies, military obligations, court-imposed legal obligations, or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice before any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

15. Disability Policy Statement

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations 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. For more information, please visit the SAS website at www.fau.edu/sas/

16. 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 with 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/>

17. Code of Academic Integrity Policy Statement

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards because it interferes with the university's mission to provide a high-quality education in which no student enjoys an unfair advantage over any other.

Academic dishonesty is also destructive to the university community, which is grounded in a system of mutual trust and places a high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. See University Regulation 4.001 at [www.fau.edu/regulations/chapter4/4.001 Code of Academic Integrity.pdf](http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf)

Cell phones are not allowed during exams. If cell phones or any form of cheating are detected during any exam period, this will result in a **grade of "zero" on that exam and a note in the student's academic file.**

18. Required texts/reading

Connect 3P Inclusive Access Online Access for System Dynamics

19. Supplementary/recommended readings

Lecture notes and practice quizzes will be provided by the instructor

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

Course Topics:

Block Diagrams
Matlab / Simulink Usage for System Analysis
Transient and Steady-State Responses
Stability Analysis
PID Control
Numerical Analysis
Linearization
Modeling of Dynamic Systems (DC Motor, Mechanical Systems)

Matlab Tutorial: https://ctms.engin.umich.edu/CTMS/index.php?aux=Basics_Matlab

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Simulink Tutorial: https://ctms.engin.umich.edu/CTMS/index.php?aux=Basics_Simulink
Matrix Tutorial: <http://stattrek.com/tutorials/matrix-algebra-tutorial.aspx>
Laplace Transform Tutorial: <https://web.stanford.edu/~boyd/ee102/laplace.pdf>
Complex Numbers Tutorial: <http://www.electronics-tutorials.ws/ac/circuits/complex-numbers.html>
Partial Fraction https://www.youtube.com/watch?v=HZTv4zCgEnA&ab_channel=patrickJMT
https://www.youtube.com/results?search_query=Partial+Fraction+Decomposition+-+Example+2
https://www.youtube.com/watch?v=lHgMw65vAIA&t=13s&ab_channel=patrickJMT

Important Dates

The last day to drop the course without receiving an F in course: March 24, 2023 (Friday)

Quiz: Only on Thursdays (about 20 minutes each). Tentatively, there is approximately 1 quiz every week unless otherwise stated.

Exam 1: Feb 23, 2023 (Thursday)

Exam 2: Apr 20, 2023 (Thursday)

Final Exam: Apr 27, 2023 (Thursday, 7:45 am – 10:15 am)