FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Undergraduate Programs

Department Ocean & Mechanical

College COECS

UUPC Approval 11-4-24
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

***Current* Course Prefix and Number**	EML 4500	***Current* Course Title**	Machine Design

*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 ☐ **Remove** ☐

Change General Education Requirements***

Add ☐ **Remove** ☐

*Review Provost Memorandum

**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See WAC Guidelines.

***General Education criteria must be indicated in syllabus and approval attached to this form. See GE Guidelines.

Change description to:

Introduction to machine design; static and fatigue failure theories; design of machine elements including shafts, bearings, and bolts; design of basic machinery, including linkages and gear trains; and design projects

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 2025	**Terminate course? Effective Term/Year for Termination:**	

Faculty Contact/Email/Phone Dr. Pierre-Phillip Beaujean / pbeaujea@fau.edu

Approved by		***Date***
Department Chair	Pierre Philippe Beaujean	10/22/2024
College Curriculum Chair	Galan Liu	10/24/24
College Dean		11/4/24
UUPC Chair	Korey Sorge	11-4-24
Undergraduate Studies Dean	Dan Macroff	11-4-24
UFS President		
Provost		

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

Department of Ocean and Mechanical Engineering
Florida Atlantic University
Course Syllabus

1. Course title/number, number of credit hours	
Machine Design /EML 4500	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
Prerequisites: EGM 4523C – Intermediate Strength of Materials, EGN 1111C – Engineering Graphics (all with a grade of C or above) Prerequisite or Corequisite: EML 4730L Mechanical Engineering Lab	
3. Course logistics	
Term: Fall 2025 This is a classroom lecture course *Class location and time* FL 401, 12:30-1:50, W F This course has 35% design content.	
4. Instructor contact information	
Instructor's name *Office address* *Office Hours* *Contact telephone number* *Email address*	Pierre-Phillip Beaujean Room 183, Building EW 954-924-7051 pbeaujea@fau.edu
5. TA contact information	
TA's name *Office address* *Office Hours* *Contact telephone number* *Email address*	
6. Course description	
Introduction to machine design; static and fatigue failure theory; design of machine elements including shafts, bearings, and bolts; design of basic machinery, including linkages and gear trains; and design projects.	
7. Course objectives/student learning outcomes/program outcomes	
Course objectives	This course will integrate the knowledge of Statics, Dynamics, Strength of Materials and Engineering Materials into the design process of machine elements. Students will learn the fundamentals of the design process, and the design of some common machine elements will be the focus. The students will apply the concepts in the design of a simple machine.
Student learning outcomes & relationship to ABET a-k objectives	1. The student will be able to use the knowledge in Statics and Strength of Materials for design of machine elements. (a, c, e, k) 2. The student will learn the concepts of failure theories, and apply them in machine design. (a, c, e,k)

	3. The student will be able to design shafts for rotating machinery. (a,c,e,k) 4. The student will be able to select appropriate bearings, springs, gears, and screws for machine design. (a,c,e,k) 5. The student will be able to communicate effectively through written and oral skills. (g)

8. Course evaluation method

Exams - 65 % Design Project - 35 %	*Note*: 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

Makeup tests 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
Incomplete grades 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

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 two absences, and one point toward the final score (1%) will be deducted for each additional absence.
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.
3. Rules for the project are:
   (1) It is a team-project, and an actual machine component will be designed and made in machine shop.
   (2) Every team submits one report in hard copy with the built machine component.
   (3) Project reports must be submitted on the due day. No late submission is accepted.
   (4) The graded project reports will be returned in classroom. The left will be kept in the instructors' offices.
4. Students must report the discrepancies between the scores posted in the Blackboard and appearing on the exams and project reports **within two weeks** after they are posted in the Blackboard. Afterwards, the scores will not be changed.
5. For students registered in online section:
   (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) Students must come to FAU to participate the process of building the machine components.

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. 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.

14. Honor code policy

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 mission to provide a high quality education in which no student enjoys unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and place 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

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

Norton, R. L., Machine Design, An Integrated Approach, 5th Edition, Prentice Hall, 2014.

17. Supplementary/recommended readings

N/A

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

Weeks 1 -3	Chapter 1 Introduction to Design Chapter 2 Materials and Processes Chapter 3 Load Determination
Weeks 4 - 6	Chapter 4 Stress, Strain, and Deflection Chapter 5 Static Failure Theories
Weeks 7 , 8	Chapter 15 Screws and Fasteners **(for project)**
Weeks 9, 10	Chapter 6 Fatigue Failure Theories
Weeks 11 - 16	Chapter 10 Shafts, Keys, and Couplings Chapter 14 Spring Design

Exam 1 - TBD
Exam 2 – TBD
Exam 3 – TBD

*** All exams are open-book/notes, and equally weighted.**
*** The exam dates may be changed according to the course progress.**