

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>COURSE CHANGE REQUEST</b> <b>Undergraduate Programs</b>	UUPC Approval <u>2-1-21</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department _____ College _____	
<b>Current Course Prefix and Number</b>		<b>Current Course Title</b>
<i>Syllabus must be attached for ANY changes to current course details. See <a href="#">Checklist</a>. Please consult and list departments that may be affected by the changes; attach documentation.</i>		
<b>Change title to:</b>  <b>Change prefix</b> From: _____ To: _____ <b>Change course number</b> From: _____ To: _____ <b>Change credits*</b> From: _____ To: _____ <b>Change grading</b> From: _____ To: _____ <b>Change WAC/Gordon Rule status**</b> Add _____ Remove _____ <b>Change General Education Requirements***</b> Add _____ Remove _____ <small>*Review <a href="#">Provost Memorandum</a></small> <small>**WAC/Gordon Rule criteria must be indicated in syllabus and approval attached to this form. See <a href="#">WAC Guidelines</a>.</small> <small>***General Education criteria must be indicated in syllabus and approval attached to this form. See <a href="#">GE Guidelines</a>.</small>		<b>Change description to:</b>   <b>Change prerequisites/minimum grades to:</b>   <b>Change corequisites to:</b>   <b>Change registration controls to:</b>   Please list existing and new pre/corequisites, specify AND or OR and include minimum passing grade (default is D-).
<b>Effective Date</b> (TERM & YEAR)		<b>Terminate course</b> <b>List final active term</b>
<b>Faculty Contact/Email/Phone</b>		
<b>Approved by</b> Department Chair <u>Membran Dan</u> College Curriculum Chair <u>Dan Mesroff</u> College Dean <u>Frederick Bloetscher</u> UUPC Chair <u>Jerry Haky</u> Undergraduate Studies Dean <u>Edward Pratt</u> UFS President _____ Provost _____		<b>Date</b> _____ <u>1-15-21</u> _____ <u>1-19-21</u> _____ <u>1-20-21</u> _____ <u>2-2-21</u> _____ <u>2-2-21</u> _____ _____ _____

Email this form and syllabus to [mjenning@fau.edu](mailto:mjenning@fau.edu) seven business days before the UUPC meeting.

**Department of Ocean and Mechanical Engineering  
Florida Atlantic University  
Course Syllabus**

<b>1. Course title/number, number of credit hours</b>	
EML 4521C – RI: ENGINEERING DESIGN	# of credit hours: 3
<b>2. Course prerequisites, corequisites, and where the course fits in the program of study</b>	
<p>Prerequisites:</p> <ol style="list-style-type: none"> <li>1. EML 4127 – Applied Thermal/Fluid Engineering</li> <li>2. EML 4500 – Machine Design</li> <li>3. EGM 4350 – Finite Element Analysis</li> </ol> <p>All with a grade of C or above.</p> <p>Corequisites:</p> <ol style="list-style-type: none"> <li>1. EGM 4350 – Finite Element Analysis</li> <li>2. EML 4263C – Fabrication of ME Systems</li> <li>3. EML 4127 – Applied Thermal/Fluid Engineering</li> <li>4. EML 4500 – Machine Design</li> </ol>	
<b>3. Course logistics</b>	
<p><i>Term:</i> Fall 2020  This is a classroom lecture course  Class – T/TR: 11:00AM - 12:20PM LEC      Location: Engineering West, EG 162</p>	
<b>4. Instructor contact information</b>	
<i>Instructor's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	Dr. Gary C. Salivar Engineering West (EG-36), Room 113  (561)297-3478 <a href="mailto:salivar@fau.edu">salivar@fau.edu</a>
<b>5. TA contact information</b>	
<i>TA's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	
<b>6. Course description</b>	
<p>Course Description:</p> <p>The design process, including decision theory, creativity concepts, human factors, optimization techniques, reliability, statistics, professional ethics, engineering economy and incorporation of engineering standards and codes, and multiple constraints. Material selection and testing. Fatigue and fracture design.</p> <p>This is a research-intensive (RI) course.</p>	

**Department of Ocean and Mechanical Engineering  
Florida Atlantic University  
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*This course contains multiple assignments designed to help students conduct research and inquiry at an intensive level. If this class is selected to participate in the university-wide assessment program, students will be asked to complete a consent form and submit electronically some of their research assignments for review. Visit the Office of Undergraduate Research and Inquiry (OURI) for additional opportunities and information at <http://www.fau.edu/our>.*

**7. Course objectives/student learning outcomes/program outcomes**

<i>Course objectives</i>	This course is designed to have the students work in a team environment to design an engineering system. It will foster creative thinking, diversified background exposure, teamwork, and communication and collaboration skills.
<i>Student learning outcomes &amp; relationship to ABET a-k objectives</i>	<p>Student Learning Outcomes: (letters in parentheses indicate correlation of the outcome with the appropriate program assessment outcomes a-k)</p> <ol style="list-style-type: none"> <li>1. The students will be able to formulate and analyze problems, and synthesize and develop solutions based on fundamental principles. (1,2,6)</li> <li>2. The students will design basic mechanical components or processes to meet desired specifications using appropriate engineering tools and techniques. (1,2,6)</li> <li>3. The students will demonstrate an understanding of professional, societal and ethical responsibility. (4)</li> <li>4. The students will function effectively in teams and communicate their ideas to their peers. (3,5)</li> <li>5. The students will recognize the need to engage in life-long professional development and learning. (4,7)</li> </ol>

**8. Course evaluation method**

<p>Course Evaluation Method: Homework – 10% Presentations – 25% Project Proposal reports – 40% Final Examination – 25%</p>	<p><i>Note:</i> The minimum grade required to pass the course is C.</p>
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**9. Course grading scale**

Grading Scale:		
A 92.5-100	C+ 77.5-80	D- 60-62.5
A- 90-92.5	C 72.5-77.5	F <60
B+ 87.5-90	C- 70-72.5	
B 82.5-87.5	D+ 67.5-70	
B- 80-82.5	D 62.5-67.5	

**10. Policy on makeup tests, late work, and incompletes**

**11. Special course requirements**

- *Projects are expected to achieve all six of the following OURI Student Learning Outcomes (SLOs):*

**Department of Ocean and Mechanical Engineering  
Florida Atlantic University  
Course Syllabus**

- *SLO 1: Knowledge. Students are expected to demonstrate content knowledge, and knowledge of core principles and skills.*
- *SLO 2: Formulate Questions. Students are required to formulate research questions, scholarly or creative problems in a manner appropriate to the planning discipline.*
- *SLO 3: Plan of Action. Students are expected to develop and implement a plan of action to address research and inquiry questions or scholarly problems.*
- *SLO 4: Critical Thinking. Students are expected to apply critical thinking skills to evaluate information, their own work, and the work of others.*
- *SLO 5: Ethical Conduct. Students are expected to identify significant ethical issues in research and inquiry and/or address them in practice.*
- *SLO 6: Communication. Students will convey all aspects of their research and inquiry (processes and/or products) in appropriate formats, venues, and delivery modes.*

OURI Student Learning Outcomes (SLO)	Description of Assignment Requirements and Assessments
<b>SLO 1: Knowledge</b>	Students will demonstrate a fundamental basis of discipline-specific knowledge required for effective professional practice in the fields of computer and electrical engineering. Students will also demonstrate working knowledge of tools and practical skills needed to analyze engineering design problems related to multiple realistic constraints, such as environmental issues, engineering economics, design codes, ethics, and/or other contemporary design issues.
<b>SLO 2: Formulate Questions</b>	Students will develop and refine a problem statement in which they specifically address their research questions. Students are expected to articulate the scope of the problem to be able to address the research question with an engineering solution. When appropriate, students should be able to create additional (albeit related) questions for smaller subsections of the overall design project.
<b>SLO 3: Plan of Action</b>	Students will create a plan of action that will include the problem statement (or research question), scope of work, literature review and background context, methodology or approach to the solution, analysis plan, conclusion and design documents. Students will develop a hypothesis if needed, identify research methods and alternative designs, and select appropriate statistical techniques, if warranted.
<b>SLO 4: Critical Thinking</b>	Students will demonstrate critical thinking skills by taking into consideration multiple perspectives and examining implications and consequences of design decisions or engineering alternatives. Students will also demonstrate an ability to use evidence and reasoning to objectively justify decisions and an ability to apply codes and design standards to make reasonable engineering judgments. Students are asked to peer review student work and provide feedback during the juried presentations.
<b>SLO 5: Ethical Conduct</b>	Students will familiarize themselves with the Code of Ethics of their engineering discipline. All work is held to the standards established by the governing professional societies of computer and electrical engineering disciplines.

**Department of Ocean and Mechanical Engineering  
Florida Atlantic University  
Course Syllabus**

<b>SLO 6: Communication</b>	Students will present and defend their work in written and oral formats (interim and final). All deliverables are expected to be of professional quality. Students are expected to demonstrate knowledge of technical report writing, graphical visualization, and persuasive presentation skills.
<b>12. Classroom etiquette policy</b>	
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.	
<b>13. Disability policy statement</b>	
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.	
<b>14. Honor code policy</b>	
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 <a href="http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf">www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf</a>	
<b>15. Counseling and Psychological Services Center</b>	
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 <a href="http://www.fau.edu/counseling/">http://www.fau.edu/counseling/</a>	
<b>16. Required texts/reading</b>	
Textbook: Dieter, G. E. and Schmidt, L. C., Engineering Design, 5 <sup>th</sup> Edition, McGraw-Hill, 2013.	
<b>17. Supplementary/recommended readings</b>	
<b>18. Course topical outline, including dates for exams/quizzes, papers, completion of reading</b>	

**Department of Ocean and Mechanical Engineering  
Florida Atlantic University  
Course Syllabus**

Course Topics:

1. Design process
2. Creativity, and problem solving
3. Team building
4. Proposal preparation
5. Communication skills (report, proposal writing, oral presentation)
6. Project planning and management
7. Engineering ethics
8. Safety, hazard, environmental consideration
9. Engineering economics and marketability

Test Dates:

1. Exam: TBD
2. Final Presentation: TBD