

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>COURSE CHANGE REQUEST</b> <b>Undergraduate Programs</b>		UUPC Approval <u>11-03-25</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	<b>Department</b> Ocean & Mechanical Engineering  <b>College</b> COECS		
<b>Current Course Prefix and Number</b> EML 4534		<b>Current Course Title</b> Computer Applications in ME 2	
Syllabus must be attached for <b>ANY</b> changes to current course details. See <a href="#">Template</a> . Please consult and list departments that may be affected by the changes; attach documentation.			
<b>Change title to:</b>  <b>Change prefix</b> <b>From:</b> <b>To:</b> <b>Change course number</b> <b>From:</b> <b>To:</b> <b>Change credits*</b> <b>From:</b> <b>To:</b> <b>Change grading</b> <b>From:</b> <b>To:</b> <b>Change WAC/Gordon Rule status**</b> Add <input type="checkbox"/> Remove <input type="checkbox"/> <b>Change General Education Requirements***</b> Add <input type="checkbox"/> Remove <input type="checkbox"/> <small>*See <a href="#">Definition of a Credit Hour</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>***GE criteria must be indicated in syllabus and approval attached to this form. See <a href="#">Intellectual Foundations Guidelines</a>.</small>		<b>Change description to:</b>   <b>Change prerequisites/minimum grades to:</b> EGN 3311, MAP 3305 or MAP 2302, and EGN 2213 or COP 2220C), each with a minimum grade of C  <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 Term/Year for Changes:</b> Summer 2026		<b>Terminate course? Effective Term/Year for Termination:</b>	
<b>Faculty Contact/Email/Phone</b> Dr. P. Edgar An/pan@fau.edu/561-297-2792			
<b>Approved by</b> Department Chair <u>Pierre Philipps Beaujean</u> College Curriculum Chair <u>Galan Liu</u> College Dean <u>[Signature]</u> UUPC Chair <u>Korey Sorge</u> Undergraduate Studies Dean <u>Dan Meeroff</u> UFS President _____ Provost _____			<b>Date</b> <u>2/25/25</u> <u>10/21/25</u> <u>10/23/25</u> <u>11-03-25</u> <u>11-03-25</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 4534 Computer Applications in Mechanical Engineering 2	3 credit hours
<b>2. Course prerequisites, corequisites, and where the course fits in the program of study</b>	
Prerequisites: <ol style="list-style-type: none"> <li>1. EGN 2213 Computer Applications 1 (or COP 2220C Intro to C Programming)</li> <li>2. MAP 3305 Eng Math 1 (or MAP 2302 Differential Equations)</li> <li>3. EGN 3311 (Statics)</li> </ol> <p>All with a grade C above.</p>	
<b>3. Course logistics</b>	
<p><i>Term:</i> Fall 2025</p> <p><i>Class location and time:</i> TBD</p> <p>All homework assignments are required to be submitted online using Canvas.</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. Sarah Du Building 36, Room 175  561-297-3441 edu@fau.edu
<b>5. TA contact information</b>	
<i>TA's name</i> <i>Office Hours</i> <i>Email address</i>	<b>TBA</b>
<b>6. Course description</b>	
Review of MATLAB language, numerical methods utilized in solving mechanical engineering problems, projects related to solid body mechanics and thermal systems.	
<b>7. Course objectives/student learning outcomes/program outcomes</b>	

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<i>Course objectives</i>	The objective of the course is to provide students with a basic knowledge of using computer for the solution of engineering problems.
<i>Student learning outcomes &amp; relationship to ABET a-k objectives</i>	<p>Outcome 1: Students should be capable of programming engineering type problems in MATLAB.</p> <p>Outcome 2: Students should be able to utilize built in solvers in MATLAB.</p> <p>Outcome 3: Students should be capable of simulating dynamic systems.</p> <p>Outcome 4: Students should be able to use different optimization techniques.</p>

### 8. Course evaluation method

Assignments (6)	40%
Midterm	30%
Final exam	30%

### 9. Course grading scale

Range	Grade
> = 90-94	A
85-89	A-
80-84	B+
75-79	B
70-74	B-
65-69	C+
60-64	C
55-59	C-
52-54	D+
49-51	D
46-48	D-
<= 45	F

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

#### Submission Deadline

Submission is ALWAYS due on or before the end of the due date (11:59 pm).  
Homework will be submitted on Canvas\*\*.

\*\*In terms of any emergency that may lead to delay for failure in online submission, submit to Dr. Du's email address: [edu@fau.edu](mailto:edu@fau.edu) before the due date (11:59 pm).

#### Late Submissions

Late submission will carry penalty of 10% per day.

#### Make-up Exam Policy

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Make-up exams or homework assignments will be permitted only under extenuating circumstances and only with notification and documentation (original funeral notice, original doctor note, jury summons, police report, military orders, etc. See the current FAU College Catalog for a more comprehensive description of what is acceptable in allowing make up exams).

The instructor reserves the right to create alternate make-up exams for students who are not able to take the scheduled exam.

### **11. Special course requirements**

Access to COECS computer system.

### **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](http://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**

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EW. Bober, C.T. Tsai, O. Masory, "Numerical and Analytical Methods with Matlab", CRC Press (ISBN 978-1-4200-9356-8).

**17. Supplementary/recommended readings**

**18. Artificial Intelligence Preamble**

FAU recognizes the value of generative AI in facilitating learning. However, output generated by artificial intelligence (AI), such as written words, computations, code, artwork, images, music, etc., for example, is drawn from previously published materials and is not your own original work. FAU students are not permitted to use AI for any course work unless explicitly allowed to do so by the instructor of the class for a specific assignment. [\[Policy 12.16 Artificial Intelligence\]](#).

Class policies related to AI use are decided by the individual faculty. Some faculty may permit the use of AI in some assignments but not others, and some faculty may prohibit the use of AI in their course entirely. In the case that an instructor permits the use of AI for some assignments, the assignment instructions will indicate when and how the use of AI is permitted in that specific assignment. It is the student's responsibility to comply with the instructor's expectations for each assignment in each course. When AI is authorized, the student is also responsible and accountable for the content of the work. AI may generate inaccurate, false, or exaggerated information. Users should approach any generated content with skepticism and review any information generated by AI before using generated content as-is.

If you are unclear about whether or not the use of AI is permitted, ask your instructor before starting the assignment.

Failure to comply with the requirements related to the use of AI may constitute a violation of the Florida Atlantic Code of Academic Integrity, [Regulation 4.001](#).

**Proper Citation:** If the use of AI is permitted for a specific assignment, then use of the AI tool must be properly documented and cited. For more information on how to properly cite the use of AI tools, visit <https://fau.edu/ai/citation>

**AI Prohibited Policy:**

The use of AI to assist in any work assigned in this specific course is prohibited.

**19. Course topical outline, including dates for exams, papers, completion of reading**

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Course Syllabus**

Course Topics:

1. A review of MATLAB concepts
  - a) MATLAB windows
  - b) MATLAB scripts, variables, operations, functions
  - c) Input/Output commands
  - d) Loops, flow control
  - e) Plotting, visualization
- a) System of Linear Equations
- b) Gauss elimination
- c) The Gauss-Jordan Method
- d) Inverse Matrix
2. Numerical Integration and Ordinary Differential Equations
  - a) Simpson's rule
  - b) Improper integrals
  - c) MATLAB *quadl* function
  - d) Runge – Kutta method for a system of ordinary differential equations
  - e) Use of MATLAB *ode45* function
3. Simulation of Dynamic Systems
  - a) Review of Laplace Transforms
  - b) Simulation using Simulink
4. Optimization
  - a) Unconstrained optimization, method of deepest descent
  - b) Constrained optimization, Lagrange multipliers
  - c) Matlab *fmincon* function
5. Curve Fitting
  - a) Method of Least squares
  - b) Exponential Functions
  - c) Cubic Splines
  - d) MATLAB curve fitting functions
6. Advanced topics

Test Dates:

Midterm exam: TBD

Final Exam: Per University Schedule