

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>COURSE CHANGE REQUEST</b> <b>Undergraduate Programs</b>		UUPC Approval <u>2/27/23</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____
	Department Ocean & Mechanical Engineering College Engineering & Computer Science		
<b>Current Course Prefix and Number</b> EOC 3130L		<b>Current Course Title</b> Ocean Engineering Lab	
Syllabus must be attached for <b>ANY</b> changes to current course details. See <a href="#">Checklist</a> . Please consult and list departments that may be affected by the changes; attach documentation.			
<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 <input type="checkbox"/> Remove <input type="checkbox"/> <b>Change General Education Requirements***</b> Add <input type="checkbox"/> Remove <input type="checkbox"/>		<b>Change description to:</b>  <b>Change prerequisites/minimum grades to:</b> CHM 2045, CHM 2045L, PHY 2044, PHY 2049L, EGN 2213 (all with a grade of C or above)  <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> Fall 2023		<b>Terminate course? Effective Term/Year for Termination:</b>	
<b>Faculty Contact/Email/Phone</b> P. Edgar An/pan@fau.edu/561-297-2792			
<b>Approved by</b> 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 _____		<b>Date</b> <u>1/30/2023</u> <u>02/09/2023</u> <u>2/9/23</u> <u>2/27/23</u> <u>2/27/23</u> _____ _____	

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

<b>1. Course title/number, number of credit hours</b>	
EOC 3130L-Ocean Engineering Lab	3 credit hours
<b>2. Instructional Method</b>	
<p><b><u>You will need to have a computer (or laptop), a reliable WIFI access, and a webcam and microphone connected to your computer for this course.</u></b> This class consists of lectures and labs, which are conducted in-class and/or live using Webex or Zoom, and recorded so students can watch the lectures and do the labs at a later time and date. The in-class delivery might be converted to fully online subject to the COVID 19 situations as the semester progresses. Students will be accommodated as much as possible with their needs during the pandemic. After two full weeks of face to face instruction with consecutive 'no show' of any students in person in the classroom, the modality of this course may be changed to remote instruction only at the discretion of the university.</p> <p>In the event you might not have a computer, there is a Laptop Loaner Program at FAU for first-generation, low-income students.  <a href="https://www.fau.edu/newsdesk/articles/fau-announces-laptop-loaner-program.php">https://www.fau.edu/newsdesk/articles/fau-announces-laptop-loaner-program.php</a></p> <p>In the event you might not have reliable internet access remotely, you may use the internet connection on campus. You may use the designated classroom during the live course times for watching lectures, doing labs, and take quizzes and exams. Note that there are only reduced seating capacities in the classroom, and only those who do not have reliable internet access should use the classroom. Social distancing must be strictly followed in the classroom at all times. You will need to make reservation for your seating every week on Canvas. The instructions for the reservation are provided at the following link:  <a href="https://fau.edu/oit/instructional/support/files/seatReservationTool_student.pdf">https://fau.edu/oit/instructional/support/files/seatReservationTool_student.pdf</a></p> <p><b><u>Quiz/Exam Proctoring</u></b>  All the quizzes and exams will be proctored using Canvas's Lockdown Browser and Respondus Monitor. <b><u>You will need to have a computer (or laptop), a reliable WIFI access, and a webcam and microphone connected to your computer during every quiz and exam.</u></b> Detailed test taking procedures are provided at the end of this document. A video demonstration about how to take a quiz / exam using the Lockdown Browser and monitor can be found at the following YouTube link:  <a href="https://www.youtube.com/watch?v=kksvaYfT2no&amp;feature=youtu.be">https://www.youtube.com/watch?v=kksvaYfT2no&amp;feature=youtu.be</a></p> <p><b><u>Study Habits</u></b></p> <ul style="list-style-type: none"> <li>• Budget 3 hours to study outside the classroom per week for each credit hour. That is, 9 hours of study per week outside the classroom.</li> <li>• Take notes when watching recorded or live lectures, and summarize/organize the notes afterwards</li> <li>• Spend 20 minutes to review the notes and refresh your memory before any new lecture</li> <li>• Do ALL the homework problems and practice quizzes by yourself</li> <li>• Take advantage of office hours available on webex</li> <li>• Form study groups</li> </ul>	
<b>3. COVID 19 Statement</b>	
All students in face-to-face classes are required to wear masks during class, and students must sanitize their own workstations upon entering the classroom. Taking these measures supports the safety and protection of the FAU community. Students who do not adhere to these rules will be asked to leave the classroom and/or be removed from the course. Students experiencing flu-like symptoms (fever, cough, shortness of breath), or students who have come in contact with an infected person should immediately contact FAU Student Health Services (561-297-3512).	

<b>4. Course prerequisites, corequisites, and where the course fits in the program of study</b>	
Prerequisites: CHM 2045, 2045L (General Chemistry I and Lab), PHY 2044, 2049L (Physics for Engineers II and Lab), EGN 2213 (Comp Apps in Engineering I), all with a grade of C or better.	
<b>5. Course logistics</b>	
<i>Term:</i>	Spring 2024
<i>Lecture location:</i>	EW 162
<i>Time and Days:</i>	Tuesdays and Thursdays 9:30-10:50am
<b>6. Instructor contact information</b>	
<i>Instructor's name:</i>	Dr. Jim Van Zwieten
<i>Office address:</i>	
<i>Office Hours:</i>	
<i>Phone number:</i>	
<i>Email address:</i>	
<b>7. TA contact information</b>	
<i>TA's name:</i>	N/A
<i>Office address:</i>	
<i>Office Hours:</i>	
<i>Email address:</i>	
<b>8. Course description</b>	
The course deals with basic engineering laboratory methods and techniques with experiences in measurements, experiment planning, data recording, and laboratory report preparation. Five major lab experiences, including at sea experiences, are included.	
<b>9. Course objectives/student learning outcomes/program outcomes</b>	
<i>Course objectives:</i>	The objective of the course is to provide a basic background in engineering laboratory techniques including: basic measurement theory, experimental purpose and planning, microcontroller data acquisition techniques, introductory level data analysis, and technical memo preparation; an introduction to Matlab for analyzing and presenting experimental data; and prepare students for laboratories associated with subsequent engineering courses in Ocean Engineering.
<i>Student learning outcomes &amp; relationship to ABET 1-7 objectives:</i>	Student Learning Outcomes: (letters in parentheses indicate correlation of the outcome with the appropriate program assessment outcomes 1-7) 1. An ability to conduct engineering experiments with proper consideration of the type and amount of data to be acquired, the accuracy of the measurements to be made, a plan to reduce and analyze the data, and the quantification of the uncertainty of the outcome. (6) 2. An ability to function in teams. (5) 3. An ability to present the results of an experiment in a professional manner. (3) 4. An ability to analyze measurement uncertainties and propagation of uncertainties. (1)

## 10. Course evaluation method

Quiz:	20%
Lab:	30%
Report:	20%
Peer evaluation:	5%
Post-lab work:	5%
Exam 1:	25%
Exam 2:	25%
Final Exam:	25% (can only replace Exam 1 or Exam 2)

### Bonus Points

- Webcam test (0.5pt of the course grade)
- Practice quiz (0.5 pt of the course grade)

The lowest quiz score will be dropped. If the overall grade by the last week of semester is maintained at 70% or above, the final exam can be waived. 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 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 far from completing the problem:	40%
5) no steps included other than the answer is correct:	10%
6) blank, no steps:	0%

## 11. Course grading scale

### Grading Scale:

> 90	A
86.7–90	A–
83.3–86.7	B+
80–83.3	B
76.7–80	B–
73.3–76.7	C+
70–73.3	C
66.7–70	C–
63.3–66.7	D+
60–63.3	D
56.7–60	D–
<56.7	F

## 12. 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

<p><b>Late work without verifiable justification will NOT be graded.</b></p> <p><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.</p>
<p><b>13. Special course requirements</b></p>
<p>N/A</p>
<p><b>14. Classroom etiquette policy</b></p>
<p>University policy requires that in order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular phones, are to be turned off in class sessions.</p>
<p><b>15. Attendance Policy Statement</b></p>
<p><i>Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.</i></p> <p><i>Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, 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 prior to 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.</i></p>
<p><b>16. Disability policy statement</b></p>
<p>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)—in Boca Raton, SU 133 (561-297-3880); in Davie, LA 203 (954-236-1222); or in Jupiter, SR 110 (561-799-8585)—and follow all SAS procedures.</p>
<p><b>17. Counseling and Psychological Services Center</b></p>
<p>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></p>
<p><b>18. Code of Academic Integrity Policy Statement</b></p>
<p>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</p>

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)

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

### 19. Required texts/reading/Lab kits

#### **Textbook:**

Physical Data Analysis (A Primer), Frank Rice (available on Canvas)

#### **Multi-Meter (Required for Labs)**

- Neoteck Auto Ranging Digital Multimeter AC/DC Voltage Current Ohm Capacitance Frequency Diode Transistor Audible Continuity, Multi Tester with Backlit LCD (\$21.99)

[https://www.amazon.com/gp/product/B01NAVATqS/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_001\\_soo?ie=UTF8&pSC=1](https://www.amazon.com/gp/product/B01NAVATqS/ref=ppx_yo_dt_b_asin_title_001_soo?ie=UTF8&pSC=1)

#### **Starter Kit (Required for Labs)**

- ELEGOO UNO Project Super Starter Kit with Tutorial and UNO R3 Compatible with Arduino IDE (\$36.99)

[https://www.amazon.com/gp/product/B01D8KOZF4/ref=ppx\\_yo\\_dt\\_b\\_asin\\_title\\_004\\_soi?ie=UTF8&pSC=1](https://www.amazon.com/gp/product/B01D8KOZF4/ref=ppx_yo_dt_b_asin_title_004_soi?ie=UTF8&pSC=1)

#### **Useful References:**

Matlab online tutorial: <http://www.engin.umich.edu/group/ctm/basic/basic.html>

C programming online tutorial: <https://www.lysator.liu.se/c/bwk-tutor.html>

### 20. Supplementary/recommended readings

<i>Title:</i>	Experimental Methods for Engineers, 8 <sup>th</sup> Edition (online version available)
<i>Authors:</i>	J.P. Holman
<i>Publisher:</i>	McGraw-Hill
<i>Year and Edition:</i>	2012
<i>ISBN:</i>	978-0-07-352930-1

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

#### **Tentative Course Topics:**

1. Basic measurement theory
2. Uncertainty Analysis
3. Basic analog to digital conversion
4. Basic microcontroller tutorial
5. Basic calibration
6. Data fitting
7. Oceanographic measurements

#### **Tentative Labs:**

1. Micro-controller and digital I/O
2. Micro-controller and ADC
3. Strain gauge calibration
4. Corrosion in a galvanic cell

5. Wind tunnel measurements
6. CTD
7. Design of experiments

**Quizzes:** Thursdays unless otherwise stated

**Labs:** Tuesdays unless otherwise stated

**Exam #1:** Feb 25, 2021 (Thursday)

**Exam #2:** Apr 15, 2021 (Thursday)

**Final Exam:** Apr 22, 2021 (Thursday) 7:45-10:15am

**The last day to drop the course without receiving an F in the course:** Mar 19, 2021 (Friday)

## **Quiz/Exam Instruction**

### **Instruction before Quiz/Exam**

1. Do not wear sunglasses or a cap
2. Do not wear any head-set
3. Sharpen your pencil and have a spare one just in case
4. Use the restroom before you start since you may not be out of camera view during the quiz
5. Make sure you have a calculator, a pencil, eraser, the quiz instruction paper, and enough blank papers with you before starting the quiz
6. Set up an alarm using your cell phone so that it goes off 5 minutes before the end of the quiz.
7. Make sure your camera and mic are working, and the camera has enough resolution to show your work clearly (part of the Webcam test)
8. Find a location where your face (together with the blank papers, desk, and a calculator) can be seen by the camera during the entire quiz time. That means, the camera might be 3-4 feet in front or on the side of you



9. Start the lock-down browser
10. Show to the camera all the papers (both sides) that you have are blank
11. Show your calculator to the camera so I know it is a scientific calculator instead of a cell phone

### **Instruction during Quiz/Exam**

1. Show to the camera your face, papers, and calculator during the entire quiz. Do not just show your face to the camera
2. Write down all the steps legibly so that they can be scanned clearly later on
3. When the alarm goes off, show all your work to the camera. Place each paper 4 inches in front of the camera. Show the top part while holding it in place for 5 seconds, then the middle part, and finally the bottom part. Repeat this process if you have more than 1 page of work.

### **Instruction after Quiz/Exam**

1. Scan all your work (black and white) using your cell phone or a scanner if you have one. Scan all the pages into a SINGLE pdf file. There are many apps that provide this function. An example is Notebloc for both Apple and Android phones.
2. Upload the single pdf file to the Assignment folder on Canvas by the due time



3. Image file (e.g. jpg) or Word documents will not be graded

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