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|  FLORIDA ATLANTIC UNIVERSITY | COURSE CHANGE REQUEST Undergraduate Programs | UUPC Approval <u>11-8-21</u> UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner Posted _____ Catalog _____ |
| | Department _____ College _____ | |
| Current Course Prefix and Number | | Current Course Title |
| <i>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.</i> | | |
| 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 <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: 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 Date (TERM & YEAR) | | Terminate course List final active term |
| Faculty Contact/Email/Phone | | |
| Approved by Department Chair <u>Manhar Chahal</u> College Curriculum Chair <u>[Signature]</u> College Dean <u>[Signature]</u> UUPC Chair <u>[Signature]</u> Undergraduate Studies Dean <u>Edward Pratt</u> UFS President _____ Provost _____ | | Date <u>10-25-21</u> <u>11-8-21</u> <u>11-8-21</u> <u>11-9-21</u> <u>11-9-21</u> _____ _____ |

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**

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| 1. Course title/number, number of credit hours | |
| <u>EOC 4124 – Ship Hydrodynamics</u> <u>EOC 6515 – Hydrodynamic Aspects of Ship Design</u> | 3 credit hours |
| 2. Course prerequisites, corequisites, and where the course fits in the program of study | |
| Prerequisites: EOC 3123 (Ocean Engineering Fluid Mechanics) (with a grade of C or above). | |
| 3. Course logistics | |
| <i>Term:</i> Spring 2021 | |
| This is a hybrid live-classroom + live-online lecture course <i>Class location and time:</i> SeaTech 209 Wednesday & Friday 09:30am-10:50am | |
| 4. Instructional Method | |
| This class consists of classroom lectures which will be conducted live using Webex or Zoom, and recorded so students can watch the lectures at a later time and date. Students will be accommodated as much as possible with their needs during the pandemic. <u>You will need to have a computer, a reliable WIFI access, and a webcam and microphone connected to your computer for this course.</u> | |
| In the event you might not have a computer, there is a Laptop Loaner Program at FAU for first-generation, low-income students. https://www.fau.edu/newsdesk/articles/fau-announces-laptop-loaner-program.php | |
| In the event you might not have reliable internet access remotely, you may use the internet connection on campus. You may use the classroom (ST 209) during the live course times for watching lectures, and taking quizzes and exams. Note that there are reduced seating capacities in 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: https://fau.edu/oit/instructional/support/files/seatReservationTool_student.pdf | |
| 5. COVID 19 Statement | |
| 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). | |
| 6. Instructor contact information | |
| <i>Instructor's name</i> | Siddhartha Verma |
| <i>Office address</i> | Seatech 235 |
| <i>Office Hours</i> | Online by Appointment |
| <i>Contact telephone number</i> | 954.924.7202 |
| <i>Email address</i> | vermas@fau.edu |

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| 7. TA contact information | |
| <i>TA's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i> | N/A |
| 8. Course description | |
| The course deals with incompressible-fluid flow and its application to ocean engineering with emphasis on: fluid properties, hydrostatic forces, buoyancy and stability of floating bodies, fluid dynamics, dimensional analysis, modeling, real flows in closed conduits and open channels, boundary-layers, lift and drag, turbo-machines, computational and experimental methods, resistance and propulsion of marine vehicles, and design problems. | |
| 9. Course objectives/student learning outcomes/program outcomes | |
| <i>Course objectives</i> | The objective of the course is to provide the students with a basic and applied knowledge of fluid mechanics as required in the design of efficient ocean vehicles. |
| <i>Student learning outcomes & relationship to ABET 1-7 objectives</i> | <ol style="list-style-type: none"> 1. An ability to solve the wide range of problems in fluid mechanics that are encountered as a working ocean engineer. (1) 2. A thorough knowledge of the basic principles of fluid mechanics to provide a basis for the solution of advanced problems as encountered in graduate school or as a working ocean engineer. (1) 3. An ability to formulate creative design solutions in the area of fluid mechanics. (2) 4. A basic knowledge of numerical algorithms and an ability to utilize software packages for the solution of complex flow problems. (6) 5. Recognition of the need for, and an ability to engage in life-long learning. (7) 6. Knowledge of contemporary issues. (4) |
| 10. Course evaluation method | |
| Homework 15% Quizzes 20% Midterm 20% Group Project 20% Final Exam 25% | <u>Note:</u> The minimum grade required to pass the course is C. Weekly homework to be submitted online on Canvas, graded on a scale of 0 to 2. Short in-class quizzes will be administered approximately every three weeks (announced in advance). There will be a mid-term exam halfway through the course. A group project involving numerical analysis of an unconventional ocean vehicle design will be due before the final exam. Part of the project grade will be based on peer-evaluation. |
| 11. Course grading scale | |
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| A | > 95% | C+ | 70 – 74.9 |
| A- | 90 – 94.9 | C | 65 – 69.9 |
| B+ | 85 – 89.9 | C- | 60 – 64.9 |
| B | 80 – 84.9 | D | 50 – 59.9 |
| B- | 75 – 79.9 | F | < 50 |

In case the final class average is lower than a 'B-', all grades will be adjusted upward.

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

Late work will not be accepted unless there is solid evidence of a medical or otherwise serious emergency that prevented the student from completing the assignments on time. 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.

13. Special course requirements

Special instructions due to hybrid teaching restrictions:

1. Canvas registration is required.
2. The instructor will regularly post materials/announcements on Canvas. It is student's responsibility to regularly check Canvas and their FAU email for the most recent information.
3. No hard-copy handouts will be provided. Copies will be posted in files on Canvas
4. Attendance is required. All classes will be hybrid, with the live-remote session delivered via Webex in Canvas. You are expected to participate in all sessions and keep up with the material.
5. Students need a reliable internet condition capable of streaming Webex lectures, taking exams on Canvas, etc. Recommended: Broadband Internet connection with a speed of 4 Mbps or higher. To function properly, Canvas requires a high-speed Internet connection (cable modem, DSL, satellite broadband, T1, etc.). The minimum Internet connection speed to access Canvas is a consistent 1.5 Mbps (megabits per second) or higher
6. Students should have an operational computer system equipped with Windows 10 or macOS Sierra (or higher), Microsoft Office, web browser, a webcam, speakers, and microphone, which should be compatible with the most recent version of LockDown Browser, Respondus Monitor, Cisco Webex, etc.
7. All exams will be held using either LockDown Browser and Respondus Monitor, or live via Zoom/Webex, as determined by the instructor. More information will be provided as we get closer to exams. You must be able to scan answers and upload them to Canvas during tests. Please test this BEFORE the exam.
8. These are the links where you can find the steps to use your cell phone as a webcam.

For Android:

<https://helpdesk.fau.edu/TDClient/2061/Portal/KB/ArticleDet?ID=104057>

For iPhone or iPad

<https://helpdesk.fau.edu/TDClient/2061/Portal/KB/ArticleDet?ID=104056>

More details will be announced throughout the semester. It is the students' responsibility to review and follow communications posted by the instructor.

14. Classroom etiquette policy

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| 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. |
| 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)—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. |
| 16. 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 |
| 17. 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/ |
| 18. Required texts/reading |
| <i>Introduction to naval architecture</i> , by E.C. Tupper, Butterworth-Heinemann, 4 th edition Available as free ebook from the FAU library: https://fau.catalog.fcla.edu/fa.jsp?st=036764685&ix=pm&I=0&V=D&pm=1&fl=ba |
| 19. Supplementary/recommended readings |
| None |

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

Topics:

1. Categorization of marine vehicles
2. Geometry of ships
3. Irregular shapes and numerical methods
4. Buoyancy and stability
5. List and ballast, free-surface and density effects
6. Stability at large angles of inclination
7. Longitudinal stability, trim, and hydrostatic curves
8. Dry docking and grounding
9. Stability in damaged condition (or bilging)
10. Dimensional analysis and similitude
11. Drag and Lift; Ship resistance
12. Dynamics of marine vehicles – directional stability and maneuverability
13. Response of marine vehicles to surface waves – sea keeping
14. Marine Propellers

Exam dates:

Mid-term Exam: February 24th, 2021 (09:30am-10:50am) – Online/In-class
Final Exam: April 28th, 2021 (7:45am – 10:15am) – Online/In-class