FLORIDA ATLANTIC UNIVERSITY

COURSE CHANGE REQUEST
Undergraduate Programs

Department Ocean & Mechanical Engineering

College Engineering & Computer Science

UUPC Approval 11/7/2022
UFS Approval _____
SCNS Submittal _____
Confirmed _____
Banner Posted _____
Catalog _____

***Current* Course Prefix and Number**	EML 3701	***Current* Course Title**	Fluid Mechanics

*Syllabus must be attached for **ANY** changes to current course details. See Template. 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** ☐

*See Definition of a Credit Hour.

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

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

Change description to:

Change prerequisites/minimum grades to:

EGN 3311 Statics or Equivalent/Min. C grade
EGN 3343 Eng. Thermodynamics or Equiv./Min. C
MAP 3305 Engineering Mathematics 1/Min. C grade

Change corequisites to:

MAP 3305 Engineering Mathematics 1

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:	Spring 2023	**Terminate course? Effective Term/Year for Termination:**	

Faculty Contact/Email/Phone Dr. Davood Moslemian/moslemia@fau.edu/561-297-2652

Approved by		***Date***
Department Chair	Pierre Philippe Beaujean	10/26/2022
College Curriculum Chair	Hongbo Su	
College Dean		10/26/22
UUPC Chair	Ethlyn Williams	11/7/2022
Undergraduate Studies Dean	Dan Messoff	11/7/2022
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

EML 3701 Fluid Mechanics	3 credit hours

2. Instructional Method

This class consists of lectures which will be conducted live, and the lecture notes will be posted on canvas' file area. In addition, the lecture will be pre-recorded so students can watch the lectures prior and be well prepared for the class. All tests will be conducted online. You will need to have a computer (or laptop), a reliable WIFI to access Canvas, for this course

3. Course pre-requisites, co-requisites, and where the course fits in the program of study

Prerequisites:

EGN 3311 – Statics, or equivalent/ Minimum C Grade
EGN 3343 – Engineering Thermodynamics, or equivalent/Minimum C Grade
MAP 3305 – Engineering Mathematics I/Minimum C Grade

Co-requisites:
MAP 3305 – Engineering Mathematics 1

If students have not completed the required prerequisites for the course and do not inform their course instructor and advisor, they will be dropped from the course. If this occurs after the first week of the semester, they will be fee liable to the University.

4. Course logistics

Term: Spring 2023

Time & Location:
Lectures: TR 4pm-5:50pm

5. Instructor contact information

Instructor's Name: Prof. Tsung-chow (Joe) Su
Office address: EW 180
Office Hours: By Appointment Only MWF 9-11
Contact telephone number: 561-297-3896
Email address: su@fau.edu (preferred)

6. TA contact information

TA's name *Office address* *Office Hours* *Contact telephone number* *Email address*	

7. Course description

Characteristics of a fluid, fluid statics, flow fields, fundamental laws, control volume concept, some applications of the fundamental laws in integral form, dimensional analysis and similitude, flow in pipes, single-path pipe line problems, networks and boundary layer concepts.

8. Course objectives/student learning outcomes/program outcomes

Course objectives	The objective of this course is to introduce students to the basic concepts and laws of fluid mechanics and their application to engineering and scientific problems.
Student learning outcomes & Relationship to ABET 1-7 objectives	1. Students will be able to determine the forces on plane and curved submerged surfaces. (1,2,6) 2. Students will be able to analyze fluid flow systems by the control volume approach, such as the power developed by a pump, the flow rate through a pipe using a venturi meter, the drag on an object by measuring the flow field velocity around the object, forces on a plate from an impinging jet. (1,2,6) 3. Students will be able to determine the pressure drop in a pipe resulting from viscous or turbulent effects. (1,2,6) 4. The student will be able to effectively communicate in writing a report. (3)).

9. Course evaluation method

Test 1 - 30%
Test 2 -30%
Final Examination – 40 % TBA
Project on spray due to an object's entry on a liquid surface(optional) (due date TBA)- 20% (bonus)

Note: The minimum grade required to pass the course is C.

10. Course grading scale

Grading Scale:
93 and above: “A”, 90-93: “A- “, 87-90: “B+”, 83-87: “B”, 80-83: “B- “, 77-80:“C+”, 73-77: “C”, 70-73: “C-“, 67-70: “D+”, 63-67: “D”, 60-63: “D-“, 60 and below: “F.”

The final grade for the course will be the numerical average of grades assigned for all work in each of the categories listed above weighted according to the percentages shown.

11. 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 before the tests that prevented the student of participating in the exam. Makeup exams should be administered and proctored by department personnel unless there are other pre-approved arrangements.

Late work without verifiable justification will NOT be graded.
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.

12. Special course requirements

13. 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, are to be turned off in class sessions.

14. Policy on the Recording of Lectures

Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

15. Attendance Policy Statement

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. 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.

16. 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) 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. For more information, please visit the SAS website at *www.fau.edu/sas/*

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. Code of Academic Integrity Policy Statement

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

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

Munson, Young, and Okiishi's Fundamentals of Fluid Mechanics, 8th edition.
Wiley ISBN 978-1-
119-08070-1

20. Supplementary/recommended readings

This is a classic introduction of how to report research result. Writing a Paper By George M. Whitesides (http://www.tulane.edu/~lamp/whiteside.pdf)

The link (http://ocw.mit.edu/courses/mechanical-engineering/2-672-project-laboratory-spring- 2009/reports/) will be useful for preparing research report and oral presentation.

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

Course Topics:
Week 1: Introduction (Chapter 1)
Week 2: Fluid Properties (Chapter 1)
Week 3: Fluid Statics (Chapter 2)
Week 4: The Bernoulli Equation (Chapter 3), (Test 1, Chapters 1-2)
Week 5: The Bernoulli Equation (Chapter 3)
Week 6: Fluid Kinematics (Chapter 4)
Week 7: Finite Control Volume Analysis Chapter (5)

Week 8: Differential Analysis of Fluid Flow (Chapter 6), (Test 2, Chapters 3-5)
Week 9: Dimensional Analysis, Similitude and Modeling (Chapter7)
Week 10: Dimensional Analysis, Similitude and Modeling(Chapter 7)
Week 11: Viscous Flow in Pipes (Chapter 8)
Week 12: Flow over Immersed Bodies (Chapter 9)
Week 13: Open-Channel Flow (Chapter 10)
Week 14: Review

Homework – Problems will be assigned on canvas

Exam Dates TBA
test 1 - 30%
test 2 - 30%

Final TBA - 40%

Project
TBA On liquid spray 20% (Bonus)