

FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL

UGPC APPROVAL _____
 UFS APPROVAL _____
 SCNS SUBMITTAL _____
 CONFIRMED _____
 BANNER POSTED _____
 CATALOG _____

DEPARTMENT: OCEAN AND MECHANICAL
ENGINEERING

COLLEGE: ENGINEERING AND COMPUTER SCIENCE

RECOMMENDED COURSE IDENTIFICATION:

PREFIX EML COURSE NUMBER 6715 LAB CODE (L or C) _____

(TO OBTAIN A COURSE NUMBER, CONTACT RPOLANSK@FAU.EDU)

COMPLETE COURSE TITLE: Fluid Dynamics I

EFFECTIVE DATE

(first term course will be offered)

CREDITS: 3

TEXTBOOK INFORMATION: Introduction to Fluid Mechanics, James A. Fay, MIT Press, 1998.

GRADING (SELECT ONLY ONE GRADING OPTION): REGULAR SATISFACTORY/UNSATISFACTORY _____

COURSE DESCRIPTION, NO MORE THAN 3 LINES:

A survey of fluid dynamics addresses the fundamental principles and their applications in a variety of engineering and science problems. Topics covered include dimensional analysis, kinematics, dynamics, inviscid flow, viscous flow, vorticity, boundary layer, turbulence, compressible flow, flow with gravity, and flow of industrial and natural processes.

PREREQUISITES*:

OME Graduate Standing or Permission of Instructor

COREQUISITES*:

NONE

REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)*:

* PREREQUISITES, COREQUISITES AND REGISTRATION CONTROLS WILL BE ENFORCED FOR ALL COURSE SECTIONS.

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE:

DOCTORATE IN ENGINEERING

Faculty contact, email and complete phone number:

Dr. Tsung-chow Su, su@fau.edu, 561-297-3896

Departments and/or colleges that might be affected by the new course must be consulted and listed here. Please attach comments from each.

<p><i>Approved by:</i></p> <p>Department Chair: <u>Imad Ismail</u></p> <p>College Curriculum Chair: _____</p> <p>College Dean: _____</p> <p>UGPC Chair: _____</p> <p>Graduate College Dean: _____</p>	<p><i>Date:</i></p> <p><u>2-29-12</u></p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>	<p>ATTACHMENT CHECKLIST</p> <p>• Syllabus (see guidelines for requirements: http://www.fau.edu/graduate/facultyandstaff/programscommittee/index.php)</p> <p>• Written consent from all departments affected by new course</p>
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Email this form and syllabus to UGPC@fau.edu one week before the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.



COLLEGE OF ENGINEERING & COMPUTER SCIENCE
Department of Ocean & Mechanical Engineering
777 Glades Road, ENG 190
Boca Raton, FL 33431
tel: 561.297.3430 fax: 561.297.3885

29th February 2012

Subject: Re-Instatement of EML 6715

To: Dr. William Rhodes, Chair College Graduate Committee

From: Stewart Glegg, Chair OME Graduate Committee

A handwritten signature in black ink, appearing to read 'Stewart Glegg', is written over the 'From:' line.

The graduate course EML 6714 Fluid Mechanics 1 was deleted from the university catalog in Summer 2008. On 2/28/12 the OME department faculty voted unanimously to re instate this course so that it can be offered in the 2012-2013 academic year. I am forwarding this request to the College graduate committee for their consideration.

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1. Course title/number, number of credit hours	
Fluid Dynamics I EML 6715	3 credit hours
2. Course prerequisites, corequisites, and where the course fits in the program of study	
1. Prerequisites: OME Graduate Standing or Permission of Instructor	
3. Course logistics	
<p><i>Term:</i> Fall 2012 This is a classroom lecture course <i>Class location and time:</i> M-W-F 10:00 -10:50 AM (Lecture) CM 130</p> <p>This course has no design content.</p>	
4. Instructor contact information	
<i>Instructor's name</i> <i>Office address</i> <i>Office Hours</i> <i>Contact telephone number</i> <i>Email address</i>	Dr. Tsung-chow Su, Professor Engineering West (EG-36) Bldg., Room 180 MWF: 2.00-4.00 PM 561-297-3896 su@fau.edu
5. 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>	
6. Course description	
A survey of fluid dynamics addresses the fundamental principles and their applications in a variety of engineering and science problems. Topics covered include dimensional analysis, kinematics, dynamics, inviscid flow, viscous flow, vorticity, boundary layer, turbulence, compressible flow, flow with gravity, and flow of industrial and natural processes.	
7. Course objectives/student learning outcomes/program outcomes	
<i>Course objectives</i>	This course introduces fluid dynamics to incoming graduate students and serves as a common core course for graduate students in mechanical engineering.
<i>Student learning outcomes & relationship to ABET a-k objectives</i>	<ol style="list-style-type: none"> The students will be familiar with the continuum approximation, the concept of stress and strain, and the modeling of the macroscopic world through the laws of conservation. The students will learn basic formulations of fluid dynamics and

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	<p>various approximations and methods which will lead to useful solutions.</p> <p>3. The students will know how to solve practical problems in fluid dynamics.</p>							
8. Course evaluation method								
<table border="1" style="width: 100%;"> <tr> <td style="width: 30%;">Homework</td> <td style="width: 30%;">40%</td> <td rowspan="3" style="width: 40%; vertical-align: top;"><i>Note: The minimum grade required to pass the course is C.</i></td> </tr> <tr> <td>Mid-term Exam</td> <td>30%</td> </tr> <tr> <td>Final Examination</td> <td>30%</td> </tr> </table>	Homework	40%	<i>Note: The minimum grade required to pass the course is C.</i>	Mid-term Exam	30%	Final Examination	30%	
Homework	40%	<i>Note: The minimum grade required to pass the course is C.</i>						
Mid-term Exam	30%							
Final Examination	30%							
9. Course grading scale								
<p>Grading Scale: 95 and above: "A", 90-95: "A-", 85-90: "B+", 80-85: "B", 75-80: "B-", 70-75: "C+", 65-70: "C", 60-65: "C-", 55-60: "D+", 50-55: "D", 45-50: "D-", 45 and below: "F."</p> <p>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.</p> <p>The instructor reserves the right, in exceptional cases, to raise or lower the final numerically averaged course grade by 2.5% in cases where the instructor does not believe that the average is representative of the student's performance in the class. Normally, the student will receive the numerically-averaged letter grade for the course.</p>								
10. Policy on makeup tests, late work, and incompletes								
<p>Students are expected to attend all classes and complete homework assignments.</p> <p>Any exam, or homework missed will be averaged as a zero. Make-ups will not be given except in the case of illness, or with the prior permission of the instructor.</p> <p>An Incomplete, or an "I", will only be given out if a student, while carrying a passing average, becomes ill and is unable to complete the course on time. An "I" will not be given out to a student failing the course</p>								
11. Special course requirements								
12. Classroom etiquette policy								
<p>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.</p>								
13. Disability policy statement								
<p>In compliance with the Americans with Disabilities Act (ADA), students who require special accommodations due to a disability to properly execute coursework must register with the Office for</p>								

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Students with Disabilities (OSD) located in Boca Raton campus, SU 133 (561) 297-3880 and follow all OSD procedures.

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

15. Required texts/reading

Introduction to Fluid Mechanics, James A. Fay, MIT Press, 1998.

16. Supplementary/recommended readings

1.

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

Course Topics (Each lecture period is 50 minutes)

1. Basic Concepts in Fluid Dynamics (12 Lectures)
Conservation of mass; inviscid flow; conservation of momentum, vorticity; irrotational flow; flow with gravity.
2. Further Studies in Fluid Dynamics (18 Lectures)
Laminar viscous flow; boundary layer; turbulent flow.
3. Conservation of Energy and Compressible Flow (6 Lectures)
4. Dimensional Analysis, Modeling and Practical Problems in Thermal and Fluid Dynamics (5 Lectures)

Homework problems will be assigned on the blackboard prior to classes.

Test Dates:

Midterm Exam: 10/10/2012

Final Exam: December 3rd, 2012 7:45am - 10:15am

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