

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.

Approved by:

Department Chair:

College Curriculum Chair:

College Dean:

UGPC Chair:

Graduate College Dean:

Jamad H. Alai

Date:

2-29-12

ATTACHMENT CHECKLIST

• Syllabus (see guidelines for requirements: <http://www.fau.edu/graduate/facultyandstaff/programscommittee/index.php>)

• Written consent from all departments affected by new course

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.

DEPARTMENT OF OCEAN AND MECHANICAL ENGINEERING
Common Course Syllabus

EML 6715 – Fluid Dynamics I --- 3 CREDITS

Prerequisites:

1. OME Graduate Standing or Permission of Instructor

Instructor Contact Information:

Name: Dr. Tsung-chow Su
Office Address: Engineering West (EG-36), Room 180
Office Hours: TBA
Telephone Number: (561)297-3896
Email Address: su@fau.edu

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.

Course Objectives:

This course introduces fluid dynamics to incoming graduate students and serves as a common core course for graduate students in mechanical engineering.

Student Learning Outcomes:

1. 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.
2. The students will learn basic formulations of fluid dynamics and various approximations and methods which will lead to useful solutions.
3. The students will know how to solve practical problems in fluid dynamics.

Course Evaluation Method:

Homework	40%
Mid term Exam	30%
Final Examination	30%

The minimum grade to pass the course is C.

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.

Disability Policy Statement:

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

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.

Textbook:

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

Course Topics (Each lecture period is 75 minutes)

1. Basic Concepts in Fluid Dynamics (8 Lectures)
Conservation of mass; inviscid flow; conservation of momentum, vorticity; irrotational flow; flow with gravity.
2. Further Studies in Fluid Dynamics (12 Lectures)
Laminar viscous flow; boundary layer; turbulent flow.
3. Conservation of Energy and Compressible Flow (4 Lectures)
4. Dimensional Analysis, Modeling and Practical Problems in Thermal and Fluid Dynamics (3 Lectures)

Test Dates:

Mid term Exam: October 11, 2012

Final Exam: per university schedule



COLLEGE OF ENGINEERING & COMPUTER SCIENCE
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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 printed name in the 'From:' field.

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.