Abilene Christian University

Application for a New Course v10.5

Course ID *Subject and Number*	ENGR 333
Date APPROVED	
Date DENIED	

I. Systems and Catalog Information Complete each item.

1	Course Developer	Timothy Kennedy
2	Course Teacher	A member of the Engineering & Physics Department faculty
3	Course Title	Fluid Mechanics
4	Course Abbreviation (if title is over 30 characters)	Fluid Mechanics
5	College	College of Arts and Sciences
6	Department	Engineering and Physics
7	Number of Credit Hours	3
8	Is the course Fixed Credit or Variable Credit?	Fixed
9	Is the course repeatable?	No
10	Maximum number of times course may be repeated	N/A
11	Maximum number of hours credit	N/A
12	Explanation for variable credit	N/A
13a	Course contact hours - LEC	3
13b	Course contact hours - Lab	0
13c	Course contact hours - Practicum	0
13d	Course contact hours - Seminar	0
13e	Course contact hours - Studio	0
13f	Course contact hours - Online	0
13g	Course contact hours - Colloquium	0
13h	Course contact hours – Field Experience	0
13j	Course contact hours - Internship	0
13k	Course contact hours - Research	0
13m	Course contact hours - Workshop	0
13n	Course contact hours – Other (specify)	0
14	Instructor Workload	3
15	Grade Mode (check all appropriate):	_X_ Standard ___ Credit/No Credit (undergrad only)
16	Maximum Enrollment	40
17	**Catalog Description** (50 words or less)	Overview of fluid static and dynamic properties; principles of conservation of energy and momentum, flow of real fluid; flow of ideal fluid; laminar and turbulent flow regimes. Application

		of fluid mechanic laws to engineering problems and design elements.
18	List any prerequisites (course/s, test scores, class standing, major, etc.)	ENGR 220
19	List any co-requisites	Concurrent enrollment in Math 361
20	If the course is cross listed, specify the Course ID(s) MUST have signature in Section V off all Department Chairs	None
21	Does this course have any special student costs? Yes/No *Attach a completed "Request to Add or Change Course Fees" form.* *Describe in section IV-F.*	None
22a	How often will it be offered? **Fall**	Offered
22b	How often will it be offered? **Spring**	Not Offered
22c	How often will it be offered? **Summer**	Not Offered
23	Frequency? All, odd, or even years?	All
24	First semester this course will be offered *New courses may not be taught under their approved course ID until they appear in the catalog, therefore, no earlier than the coming fall.*	Spring 2015
25	List course/s that should be deleted, include the last semester for course/s being deleted *A course cannot be deleted when it is a requirement in a degree plan in any department.*	None
26	Is this course required for a degree/s? Yes/No *If "Yes," attach a revised degree plan(s) reflecting the placement of the new course.*	Yes. Degree plan is unchanged. Engineering is a new program and this already exists in the engineering and physics degree plans (see attached pages of 2014-15 catalog). This application is to formally add the course to the catalog.
27	Should the addition of this course be retroactively applied to the degree plan it supports? Yes/no and explain	No. Degree plan is unchanged. Engineering is a new program and this already exists in the engineering and physics degree plans (see attached pages of 2014-15 catalog). This application is to formally add the course to the catalog.
28	Has this course been offered as a Special Topics course? Yes/No *If "Yes," specify the Course ID and enrollment for each term it was taught.* *(Note: New courses are NOT required to be taught as Special Topics courses prior to being approved. However, courses may be taught once as Special Topics before it is proposed. See the Course Descriptions section of the Catalog for details.)*	No

29	List any courses in which content overlaps the proposed course. (Course ID and Name) *Attach statement from instructor/dept chair of existing course justifying the new offering in Section IV-D.*	None

II. Curriculum

1	**Degree Plan** Explanation of how this course affects degree requirements.	The course is already included in the catalog degree plans for engineering and physics (see attached pp. 61-62, 2014-15 catalog). This application is simply to formally add the course to the catalog, along with the appropriate content information, prerequisites, etc.
2	**Justification** State the justification for adding this course to the current curriculum. Represent the need.	This course is already a required part of the degree plan. This application is to formally add the course to the catalog.

III. Course Design

1. Audience and Course Goal

1	Describe the intended audience, including prerequisite skills.	This course is required of all engineering majors. It is primarily intended to be taken in the junior year to provide students with the fundamentals of fluid mechanics Prerequisite skills are that students have had (or are currently enrolled in) ENGR 220 as well as skill learned through concurrent enrollment in Math 361 or its equivalent.
2	State the overarching course goal(s) in performance terms.	1) Students will become knowledgeable regarding the properties and law of real and ideal fluids. 2) Students will develop skills in order to formulate and solve engineering problems. 3) Students will understand the governing laws for fluid handling and transport and the importance (and limits) of using these laws to model problems

2. Competencies and Measurements

	Competency	Measurement
1	Identify and apply fluid properties and analyze and solve fluid mechanics problems.	Homework, quizzes, Exams 1,2,3, Final Exam.
2	Interpret conservation laws and apply them to	Homework, Quizzes, Exam 1, Exam 2,

	analyze problems in hydrodynamics.	Final Exam.
3	Properly identify and apply systems and control volume methods based on conservation principles.	Homework, Quizzes, Exam 2 and 3, Final Exam.
4	Analyze pipe flow using associated concepts	Homework, quizzes, Exam 3 and Final Exam.
5	Characterize, analyze, and design open channels for steady one-dimensional flow.	Homework, quizzes, Exam 3 and Final Exam.
6	Differentiate and apply principles of dimensional homogeneity.	Homework, quizzes, Exam 2 and Final Exam.
7	Use Basic Software tools to analyze data and create mathematical models	Homework, quizzes, Exams 1, 2, and 3, Final Exam.
8	Analyze boundary layer flows and drag for hydraulic analysis.	Homework, quizzes, Exam 3, Final Exam.

3. Text and Resources

1. Give the full publication information of the textbook/s and other required resources and outside readings.
   Fundamentals of Fluid Mechanics, 7th , by Munson, Bruce R., Rothmayer, Alric P., Okiishi, Theodore H., and Huebsh, Wade W. Wiley & Sons, 2012, ISBN 978-1-118-11613-5

2. For **combined undergraduate/graduate** courses, make two lists:
   a. full publication information; label **Undergraduate**.
   b. full publication information; label **Graduate**. Indicate number of pages required.

IV. Supporting Documentation

Supporting documents must accompany proposal prior to preliminary approval by chair and dean.

	1	**Library** — Submit new course application and syllabus to the Dean of the Library. Consult with the director and establish a deadline for completion of the library report. **Attach** the signed copy of the Library report.
	2	**Instructional Design** — The application and syllabus must be reviewed by the Adams Center. **Attach** a copy of the Adams Center Review Letter.
	3	**Content Overlap** — Include one document for each course you listed in Section I-I. **Attach** statement from instructor/dept chair of existing course justifying the new offering.
	4	**Departmental Resources** — List the resources that support the course and are available only through the department, if applicable. **Attach** the list of the holdings and the location/s.
	5	**Resources** — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). **Attach** a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.
	6	**Expenses** — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). **Attach** a complete list of all items, the estimated cost of each and the source of the funds.
	7	**Justification** — **Attach** all documents referred to in Section II-2
	8	Syllabus — **Attach** the syllabus for the course based upon the anticipated first-semester offering.
	9	Provide documentation for all additional attachments here

V. Preliminary Approvals

All supporting documentation has been assembled and attached to this application. I believe this course is ready to be presented to appropriate councils. We have a plan to fund this new course.

Course Number and Name ENGR 333

Primary Department

Department Chair

10/10/14
Date

Dean of the College

12-3-14
Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair

Date

Dean of the College

Date

Cross-listing Department *Add more lines if multiple departments are cross-listing*

Department Chair

Date

Dean of the College

Date

VI. Actions *Place all actions on one page.*

Course ID: EAGR 333

Course Title: Fluid Mechanics

1. **College Academic Council**: (for all courses)
   Note: Insert additional lines for College Academic Council action for each college involved in cross-listed courses.

Approved X Denied ___ _____ 12-3-14
College Dean or Director Date

Approved ___ Denied ___ _____ _____
College Dean or Director Date

2. **Graduate Council**: (for graduate level courses)

Approved ___ Denied ___ _____ _____
Dean of Graduate School Date

3. **Teacher Education Council**: (when applicable)

Approved ___ Denied ___ _____ _____
TEC Chair Date

4. **University General Education Council**: (when applicable)

Approved ___ Denied ___ _____ _____
Provost's designee Date

5. **University Undergraduate Academic Council**: (*undergraduate level courses)*

Approved ___ Denied ___ _____ _____
Vice Provost Date

6. **Academic Provost**: (for all courses)

Approved ___ Denied ___ _____ _____
Provost Date

7. **President of the University**: (for all courses)

Approved ___ Denied ___ _____ _____
President Date

Attach notes, comments, or conditions from appropriate councils: