

**Ogden College of Science and Engineering
Department of Engineering
Proposal to Create a Temporary Course
(Information Item)**

Contact Person: Joel Lenoir, joel.lenoir@wku.edu, 270-745-6858

1. Identification of proposed course

- 1.1 Course prefix (subject area) and number: ME332
- 1.2 Course title: Fluid Mechanics Laboratory
- 1.3 Abbreviated course title: Fluid Mechanics Laboratory
- 1.4 Credit hours: 1
- 1.5 Schedule type: B, Lab
- 1.6 Corequisites: ME330
- 1.7 Course description:
An applied laboratory in the modeling, prediction, and measurement of fluid mechanics components and systems. Emphasis will be placed on the preparation of engineering reports, uncertainty analysis, and the experimental design plan process. System level experiments will include fluid property measurements, pipe flow and turbomachinery characteristics.

2. Rationale

- 2.1 Reason for offering this course on a temporary basis:
- 2.2 This course divides of the topical coverage of the existing ME440 into two labs coupled to their respective engineering science courses. ME332 will be coupled in the spring semester to ME330. It will also retain some of the Design of Experiments Plan material from ME440. The offering provides the student with a direct linkage with ME330 and creates a more integrated and streamlined ME junior year in engineering laboratory practices. The course focuses on fluid mechanics and supports the ABET requirement of a balance to both stems of the curriculum.
- 2.3 Relationship of the proposed course to courses offered in other academic units:
Similar laboratory course are offered at numerous institutions as standalone fluid mechanics laboratories. Other institutions couple a discrete laboratory course with a specific fluid mechanics engineering science lecture course. The structure of ME332 provides the latter with ample coverage of fluid mechanics applications and measurement systems in a controlled laboratory environment coupled with reinforcing lectures on laboratory relevant engineering science topics coincident with ME330. Additionally, it is unique in that instruction on the ME Program Design of Experiments plan is deployed which supports design validation activities in the student's senior capstone design experience.

3. Description of proposed course

- 3.1 Course content outline
Design of Experiments Plan Topics:

- Experimental Planning
- Methods of Measurement
- Selection of Instrumentation
- Prediction of Uncertainty
- Analysis of Data and Results
- Estimation of Error
- Reporting of Experimental Results

List of Selected Experiments:

- Viscosity of a Fluid
- Fluid Flow Measurements
- Fluid Bernoulli Test Bed – Conservation of Energy
- Impact of a Jet – Momentum Transfer
- Hydrostatic Forces on Planar and Curved Surfaces
- Viscous Internal Flow – Laminar and Turbulent Regimes
- Pump Characteristics and Similarity
- Wind Tunnel (External Flow) - Lift and Drag Forces

3.2 Tentative text(s):

No required textbook. Laboratory handouts will be provided. Textbooks used in ME310 and ME330 will serve as reference sources for the course.

4. Second offering of a temporary course (if applicable)

- 4.1 Reason for offering this course a second time on a temporary basis:
 4.2 Term course was first offered:
 4.3 Enrollment in first offering:

5. Term of Implementation:

6. Dates of review/approvals:

<u>X</u> Department/Division:	<u>11/8/11</u>
_____ Curriculum Committee	_____
<u>X</u> Dean	<u>10-10-11</u>
UCC Chair	_____
Provost:	_____

Attachment: Course Inventory Form

Office of the Registrar

COURSE INVENTORY FORM

Check One

☐

Create New Course

☒

Temporary Course Offering

1. Has this course previously been offered on a temporary basis? ☐ Yes ☒ No If yes, indicate the term offered

2. Subject Area Course Number Course Title (as it should appear on the transcript; maximum of 30 letters & spaces)

3. Term for Implementation (e.g., Spring 2012=201210, Fall 2012=201230) 4. Official Course Title 5. Offering Unit (See Table of Code Values.) College Department 6. Credit Hours Fixed Credit Hours: Variable Credit Hours 7. Repeat Limit (See instructions.) Total Maximum Hours (See instructions.)

8. Grading (Check all that apply.) ☒ Standard Letter Grading ☐ Pass/Fail Only ☐ No Grade
☐ In Progress – IP (Course is intended to span more than one term.)

9. Schedule Type (See Table of Schedule Types.)

10. Corequisites (courses required to be taken concurrently with this course)

Subject Area	Course Number	Subject Area	Course Number	Subject Area	Course Number
<input type="text" value="ME"/>	<input type="text" value="330"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

11. Equivalent Courses (Include Commonwealth School courses and other equivalent courses.)

Subject Area	Course Number	Subject Area	Course Number	Subject Area	Course Number
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

12. Prerequisites (See instructions.)

Subject Area	Course Number	Subject Area	Course Number	Subject Area	Course Number
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

☐ Other 13. Course Attribute ☐ Honors Course ☐ Developmental Course14. Course Restrictions ☐ Include/☐ Exclude College College Major Major Classification

15. Course Description (Indicate exactly as it should appear in the University Catalog. Include pertinent special information, e.g., course fees, pass/fail grading, field trips, transportation requirements, etc.)

An applied laboratory in the modeling, prediction, and measurement of fluid mechanics components and systems. Emphasis will be placed on the preparation of engineering reports, uncertainty analysis, and the experimental design plan process. System level experiments will include fluid property measurements, pipe flow and turbomachinery characteristics.

16. Approvals: Department Head Julie R. Egan Date 09 Nov 11
 Temporary course: College Dean Blas Fumal Date 11-10-11
 Graduate Dean _____ Date _____
 Undergraduate Curriculum Committee _____ University Senate _____
 Graduate Council _____

Office of the Registrar Use

CIP

Banner Data _____

Course Description _____

Evaluate _____