Course Material Submission Form
OAN Match Definition Form

Today's Date:	11/19/2007

Use this table to specify institutional data	
College/University:	Miami University
Name and title of individual submitting on behalf of the college/university	
Name:	Carol Jones
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Indicate the reason for this submission:

☒ New Course Match
☐ Course Renumbering Only (do not use for calendar changes)
☐ Revised Materials - Faculty review panel requested clarification
☐ Revised Materials - Institution submitting additional information
☐ Revised Materials - Course content revised by institution, including situations of both content and credit hour change
☐ Revised Materials – Other

Describe specific revisions being made for "Revised Materials" submissions:

Institutional Notes to Faculty Panel (the institution is encouraged to add any additional clarifications for this submission):

Table 1 – Use this table to describe the course match for which materials are being submitted for the first time or revised.				
Proposed effective year and term of match (Final effective date will depend on actual approval of match by faculty panel. Effective Year and Term is the first term in which students taking the course will receive matching credit.) Semester institutions complete this row: 2000 Academic Year ☐ Summer ☒ Autumn ☐ Spring Quarter institutions complete this row: 2000 Academic Year ☐ Summer ☒ Autumn ☐ Winter ☐ Spring				
Ohio Articulation Number (OAN) (Use a separate form for each OAN.):	**OET009**			
Number of courses in the match:	1 (up to 10)			
Current status of match:	☒ First time submission			
	☐ Approved ☐ Error ☐ Error with enrollment	☐ Submitted ☐ Resubmitted	☐ Disapproved ☐ Pending ☐ Not submitted	
Course or Courses being matched to or currently matched to the OAN listed above. (Course Numbers must be exactly what will appear on a student's transcript.):	**Course Number**			
	1.			
	2.			
	3.			
	4.			
	5.			
	6.			
	7.			
	8.			
	9.			
	10.			

Table 2 - Use this table to submit course materials for the first time or to revise previously submitted course materials. You must submit each course in a separate form, repeating the match definition information in Table 1 above for each form submitted.

Course Number. **(Course Numbers must be exactly what will appear on a student's transcript.):**	ENT 310	**Course Title**:	Fluid Mechanics

Hours (be sure that the hours for this course matches the hours in the OAN.) 3

☒ **Semester Hours** ☐ **Quarter Hours**

Total Credit Hours	3	**Lecture Hours**	3	**Laboratory Hours (if applicable)**	3

Course Placement in Major:

☐ Major Requirement
☐ Major Elective
☐ Major Not Offered
☐ Other

Pre-Requisite Course work (if applicable) (Be sure this is consistent with the OAN definition)**:**
See catalog/course description

Catalog/Course Description:
310 Fluid Mechanics (3) The application of fluid statics and fluid dynamics to the solution of fundamental engineering fluid problems. The one dimensional energy and momentum equations are introduced and applied to the solution of fluid flow problems. Prerequisite: ENT 271 and MTH 151. 2 Lec. 1 Lab.

Texts/Outside Readings/Ancillary Materials (Be sure that the text meets performance expectations)**:**
Title: Applied Fluid Mechanics
Author: Mott Robert
Publish Date: 2000
Publisher: Prentice Hall

Other texts:

Course Objectives and/or Plan of Work:
(Provide a clear indication of how the course objectives align with the matched OAN's learning outcomes. This will facilitate the faculty panel course review process.)
OBJECTIVES:
Upon completion of the course, students will have a basic understanding of :
1) the application of fluid statics to the solution of simple fluid mechanics analysis problems.
2) the application of conservation of mass, energy, and momentum equation to the solution of simple fluid mechanics analysis problems.
3) fluid measurement techniques

The student will demonstrate his/her understanding of these basic concepts by the level of performance on written homework, laboratory projects, tests, and examinations.

Description of Assessment and/or Evaluation of Student Learning (The assessment plan needs to be appropriate for the expected rigor of the course) :

METHOD OF EVALUATION:
The following is the distribution of credit for the required tasks:

Classroom participation and homework –	10%
Portfolio –	30%
Three Tests –	45%
Final Examination –	15%

Master Syllabi and Working Syllabi (if both are used):

Miami University
School of Engineering and Applied Science
Department of Engineering Technology

ENT 310	FLUID MECHANICS	3
Course Number	Title	Credit Hours

DESCRIPTION: The course emphasizes the application of fluid statics and fluid dynamics computational methods in the analysis of fundamental engineering fluid mechanics problems. The one-dimensional energy and momentum equations are introduced and used in the analysis of various types of practical fluid flow problems.

PERIODS PER WEEK : 2 lecture, 1 laboratory

PREREQUISITE(S): ENT 271, MTH 151

CO-REQUISITE(S): None

TEXT: Applied Fluid Mechanics, Mott Robert, Prentice Hall, 2000

METHOD OF PRESENTATION: Class room lectures and recitation periods will be presented. In-class tests, laboratory projects, home work portfolio of analysis and design projects will be assigned.

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Portfolio –	30%
Three Tests –	45%
Final Examination –	15%

OBJECTIVES:
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COURSE ASSESSMENT CRITERIA:
Outcome 7 "Fundamental knowledge of fluid mechanics concepts used in the design of fluid and mechanical systems"
Outcome 11"Effective team work skills"
Outcome 13 "Fundamental knowledge of instrumentation used to measure parameters in fluid mechanics, heat transfer, and mechanical vibrations"

OBR ESSENTIAL OUTCOMES:
1. Explain forces on plane and curved boundaries.
2. Define piping systems and the dynamics of pipe flow.
3. Design piping systems involving friction, systems with laminar and turbulent flow.
4. Understand the difference between absolute and gage pressures.
5. Understand the principles of hydraulic power transmission.
6. Understand Pascal's Law.
7. Understand Bernoulli's Equation.
8. Understand the properties of fluids.

ASSESSMENT TOOLS:
Student Evaluations
Lab Assignments and Projects
Tests
Examinations
Employer Surveys
Graduate Surveys

TOPICAL OUTLINE:

Week 1	The Nature of Fluids and Viscosity of Fluids	Chapters 1,2
Week 2	Pressure Measurements	Chapter 3
Week 3	Forces on Submerged Surfaces	Chapter 4
Week 4	Buoyancy and Stability	Chapter 5
Week 5	Test 1	
Week 6	Flow of Fluids and Bernoulli's Equation	Chapter 6
Week 7	General Energy Equation	Chapter 7

Week 8	Reynolds Number, Laminar and Turbulent Flow	Chapter 8
Week 9	Test 2	
Week 10	Energy Loss Due to Friction	Chapter 9
Week 11	Minor Losses and Flow Measurement	Chapters 10,15
Week 12	Series Pipeline Systems	Chapter 11
Week 13 `	Test 3	
Week 14	Pump Selection and Application	Chapter 13
Week 15	Forces Due to Fluids in Motion, Drag and Lift	Chapter 16, 17
Week 16	Final Examination	

LABORATORY PROJECTS:
1) Determination of Fluid Viscosity
2) Observation and Measurement of Hydrostatic Forces
3) Floatation Stability
4) Flow Losses Within a Closed System
5) Measurement of Lift and Drag Coefficients

Prepared by: Professor Ron Earley, May 17, 2005

Additional Documentation:

OBR Use

Approved-Effective Date	
Pending (i.e. Additional Information Requested)	
Disapproved	
Today's Date	