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Courses | Request Tracking

Course Change Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Open in full window to print or save

Attachments:

Browse...

	ID	Attachment
Delete	846	CE 541 DL new2.pdf

First 1 Last

Select saved project to retrieve...

NOTE: Start form entry by choosing the Current Prefix and Number
(*denotes required fields)

	Current Prefix and Number:	CE - Civil Engineering CE 541 - INTERMEDIATE FLUID MECHANICS	*Proposed Prefix & Number:*	

*	What type of change is being proposed?	☑ Major Change ☐ Major – Add Distance Learning ○ Minor - change in number within the same hundred series, exception 600-799 is the same "hundred series" ○ Minor - editorial change in course title or description which does not imply change in content or emphasis ○ Minor - a change in prerequisite(s) which does not imply a change in course content or emphasis, or which is made necessary by the elimination or significant alteration of the prerequisite(s) ○ Minor - a cross listing of a course as described above

Should this course be a UK Core Course? ○ Yes ◉ No

If YES, check the areas that apply:

☐ Inquiry - Arts & Creativity	☐ Composition & Communications - II
☐ Inquiry - Humanities	☐ Quantitative Foundations
☐ Inquiry - Nat/Math/Phys Sci	☐ Statistical Inferential Reasoning
☐ Inquiry - Social Sciences	☐ U.S. Citizenship, Community, Diversity
☐ Composition & Communications - I	☐ Global Dynamics

1.	General Information				
a.	Submitted by the College of:	College of Engineering	Today's Date:	11/19/2012	
b.	Department/Division:	Civil Engineering			
c.*	Is there a change in "ownership" of the course?				
	○ Yes ◉ No If YES, what college/department will offer the course instead?	Select...			
e.*	* Contact Person Name:	Scott Yost	Email: yostsa@engr.uky.edu	Phone:	7-4816
	* Responsible Faculty ID (if different from Contact)		Email:	Phone:	
f.*	Requested Effective Date:	☑ Semester Following Approval	OR	Specific Term: [2]	
2.	**Designation and Description of Proposed Course.**				

a.	Current Distance Learning(DL) Status:	○ N/A ○ Already approved for DL* ◉ Please Add ○ Please Drop

*If already approved for DL, the Distance Learning Form must also be submitted unless the department affirms (by checking this box) that the proposed changes do not affect DL delivery.

b.	**Full Title:**	INTERMEDIATE FLUID MECHANICS	*Proposed Title: **	same
c.	**Current Transcript Title** (if full title is more than 40 characters):	INTERMEDIATE FLUID MECHANICS		
c.	*Proposed Transcript Title (if full title is more than 40 characters):*	same		

d.	**Current Cross-listing:**	☐ N/A	OR	Currently[3] Cross-listed with (Prefix & Number):	none
	Proposed – ADD[3] Cross-listing (Prefix & Number):			BAE 541	

	Proposed -- REMOVE [3,4] Cross-listing (Prefix & Number):					
e.	**Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours [5] for each meeting pattern type.**					
Current:	Lecture 3	Laboratory[5]	Recitation	Discussion	Indep. Study	
	Clinical	Colloquium	Practicum	Research	Residency	
	Seminar	Studio	Other	Please explain:		
Proposed: *	Lecture 3	Laboratory[5]	Recitation	Discussion	Indep. Study	
	Clinical	Colloquium	Practicum	Research	Residency	
	Seminar	Studio	Other	Please explain:		
f.	**Current Grading System:**	ABC Letter Grade Scale				
	*Proposed Grading System:**	◉ *Letter (A, B, C, etc.)* ○ *Pass/Fail*				
g.	**Current number of credit hours:**	3	*Proposed number of credit hours:**	3		
h.*	**Currently, is this course repeatable for additional credit?**	○ Yes ◉ No				
*	*Proposed to be repeatable for additional credit?*	○ Yes ◉ No				
	If YES:	*Maximum number of credit hours:*				
	If YES:	*Will this course allow multiple registrations during the same semester?*	○ Yes ○ No			
i.	**Current Course Description for Bulletin:**					
	Application of basic fluid mechanics to problems of importance to civil engineering practice. This includes flow measuring, closed conduit flow and pipe networks, open channel flow, turbomachinery (pumps), hydraulic structures, culvert flow.					
*	*Proposed Course Description for Bulletin:*					
	Same					
j.	**Current Prerequisites, if any:**					
	Prereq: CE 341, CS programming course, and engineering standing or consent of instructor.					
*	*Proposed Prerequisites, if any:*					
*	Same					
k.	**Current Supplementary Teaching Component, if any:**	○ Community-Based Experience ○ Service Learning ○ Both				
	Proposed Supplementary Teaching Component:	○ Community-Based Experience ○ Service Learning ○ Both ○ No Change				
3.	**Currently, is this course taught off campus?**	○ Yes ◉ No				
*	*Proposed to be taught off campus?*	○ Yes ◉ No				
	If YES, enter the off campus address:					
4.*	**Are significant changes in content/student learning outcomes of the course being proposed?**	○ Yes ◉ No				

	If YES, explain and offer brief rationale:	
5.	**Course Relationship to Program(s).**	
a.*	**Are there other depts and/or pgms that could be affected by the proposed change?**	○ Yes ◉ No
	If YES, identify the depts. and/or pgms:	
b.*	**Will modifying this course result in a new requirement[7] for ANY program?**	○ Yes ◉ No
	If YES[7], list the program(s) here:	
6.	**Information to be Placed on Syllabus.**	
a.	☐ Check box if changed to 400G or 500.	If changed to 400G- or 500-level course you must send in a syllabus and *you must include the differentiation* between undergraduate and graduate students by: (i) requiring additional assignments by the graduate students; and/or (ii) establishing different grading criteria in the course for graduate students. (See *SR 3.1.4.*)

[1] See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "not minor," the form will be sent to appropriate academic Council for normal processing and contact person is informed.
[2] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.
[3] Signature of the chair of the cross-listing department is required on the Signature Routing Log.
[4] Removing a cross-listing does not drop the other course – it merely unlinks the two courses.
[5] Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting. Lab meeting generally represents at least two hrs per wk for a semester for 1 credit hour. (See *SR 5.2.1.*)
[6] You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.
[7] In order to change a program, a program change form must also be submitted.

Submit as New Proposal | Save Current Changes | Delete Form Data and Attachments

NEW COURSE FORM

1. General Information.

a. Submitted by the College of: Engineering Today's Date: May 5, 2011

b. Department/Division: Civil Engineering

c. Contact person name: Scott Yost Email: yostsa@engr.uky.edu Phone: 7-4816

d. Requested Effective Date: ☒ Semester following approval OR ☐ Specific Term/Year[1] :

2. Designation and Description of Proposed Course.

a. Prefix and Number: CE 541

b. Full Title: Intermediate Fluid Mechanics

c. Transcript Title (if full title is more than 40 characters): _____

d. To be Cross-Listed[2] with (Prefix and Number): BAE 541

e. Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[3] for each meeting pattern type.

3 Lecture _____ Laboratory[1] _____ Recitation _____ Discussion _____ Indep. Study

_____ Clinical _____ Colloquium _____ Practicum _____ Research _____ Residency

_____ Seminar _____ Studio _____ Other – Please explain: _____

f. Identify a grading system: ☒ Letter (A, B, C, etc.) ☐ Pass/Fail

g. Number of credits: 3

h. Is this course repeatable for additional credit? YES ☐ NO ☒

If YES: Maximum number of credit hours: _____

If YES: Will this course allow multiple registrations during the same semester? YES ☐ NO ☐

i. Course Description for Bulletin: Application of basic fluid mechanics to problems of importance to civil engineering practice. This includes flow measuring, closed conduit flow and pipe networks, open channel flow, turbomachinery (pumps), hydraulic structures, culvert flow.

j. Prerequisites, if any: CE 341, CS programming course, and engineering standing; or consent of instructor

k. Will this course also be offered through Distance Learning? YES[4] ☒ NO ☐

l. Supplementary teaching component, if any: ☐ Community-Based Experience ☐ Service Learning ☐ Both

3. Will this course be taught off campus? YES ☐ NO ☒

4. Frequency of Course Offering.

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[1] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

[2] The chair of the cross-listing department must sign off on the Signature Routing Log.

[3] In general, undergraduate courses are developed on the principle that one semester hour of credit represents one hour of classroom meeting per week for a semester, exclusive of any laboratory meeting. Laboratory meeting, generally, represent at least two hours per week for a semester for one credit hour. (from *SR 5.2.1*)

[4] You must *also* submit the Distance Learning Form in order for the proposed course to be considered for DL delivery.

NEW COURSE FORM

a. Course will be offered (check all that apply): ☒ Fall ☐ Spring ☐ Summer

b. Will the course be offered every year? YES ☒ NO ☐

If NO, explain: _____

5. Are facilities and personnel necessary for the proposed new course available? YES ☒ NO ☐

If NO, explain: _____

6. What enrollment (per section per semester) may reasonably be expected? 10

7. Anticipated Student Demand.

a. Will this course serve students primarily within the degree program? YES ☒ NO ☐

b. Will it be of interest to a significant number of students outside the degree pgm? YES ☐ NO ☒

If YES, explain: _____

8. Check the category most applicable to this course:

☒ Traditional – Offered in Corresponding Departments at Universities Elsewhere

☐ Relatively New – Now Being Widely Established

☐ Not Yet Found in Many (or Any) Other Universities

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program? YES ☐ NO ☒

If YES, name the proposed new program: _____

b. Will this course be a new requirement[5] for ANY program? YES ☐ NO ☒

If YES[5], list affected programs: _____

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500? YES ☒ NO ☐

If YES, the *differentiation for undergraduate and graduate students must be included* in the information required in ***10.b***. You must include: (i) identification of additional assignments by the graduate students; and/or (ii) establishment of different grading criteria in the course for graduate students. (See *SR 3.1.4.*)

b. ☒ The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from ***10.a*** above) are attached.

[5] In order to change a program, a program change form must also be submitted.

NEW COURSE FORM

Signature Routing Log

General Information:

Course Prefix and Number: CE 541

Proposal Contact Person Name: Scott Yost Phone: 7-4816 Email: yostsa@engr.uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
BAE	9/24/12	Sue Nokes 7-3000 snokes@uky.edu	Sue E. Nokes
Civil Engineering	9/24/12	George Blandford 7-1855 gebland@engr.uky.edu	GE Blandford
College of Engineering	9/27/12	Rick Sweigard 7-8827 rick.sweigard@uky.edu	Richard D Sweigard
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision[6]
Undergraduate Council			
Graduate Council			
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

The application is to make CE 541 a Distance Learning COurse to support the joint UK-WKU program, specifically now that WKU students can join UKCE scholars program.

Aproved in Spring 2012, new signature log.

[6] Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

Distance Learning Form

This form must accompany every submission of a new/change course form that requests distance learning delivery. This form may be required when changing a course already approved for DL delivery. **All fields are required!**

Introduction/Definition: For the purposes of the Commission on Colleges Southern Association of Colleges and Schools accreditation review, *distance learning* is defined as a formal educational process in which the majority of the instruction (interaction between students and instructors and among students) in a course occurs when students and instructors are not in the same place. Instruction may be synchronous or asynchronous. A distance learning (DL) course may employ correspondence study, or audio, video, or computer technologies.

A number of specific requirements are listed for DL courses. **The *department* proposing the change in delivery method is responsible for ensuring that the requirements below are satisfied at the individual course level.** It is the responsibility of the instructor to have read and understood the university-level assurances regarding an equivalent experience for students utilizing DL (available at http: '/www.uky.edu/USC/New/forms.htm).

Course Number and Prefix: CE 541	Date: March 1, 2012
Instructor Name: Scott Yost	Instructor Email: yostsa@engr.uky.edu

Check the method below that best reflects how the majority of course of the course content will be delivered.

Internet/Web-based ☐ Interactive Video ☒ Hybrid ☐

	Curriculum and Instruction
1.	How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations? The class is an ITV (Interactive Video) course. This is an additional course to the many that we offer to Western Kentucky University as part of our joint program. Being an ITV (realtime) course there is ongoing interaction in every class period. There is also an additional 15 minutes scheduled for the ITV link at the end of each class to provide students extended Q&A time. Having said that, the instructor will travel to the remote site (WKU) to hold office hours and conduct review sessions before each scheduled exam. While there, the instructor will proctor the exam, complete grading, and then allow distant learning students to review the graded exam before returning. Thus ample opportunities exist for interactions between students and faculty, and among students. The attached course syllabus includes considerations for distance learning.
2.	How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc. Based on student past evaulations of ITV instructors, you can not make the experience identical, but ITV comes about as close as you can. It is live, interactive, with the same requirements, learning outcomes, grading criteria, etc. Other than sitting in the same room as the students, the course is identical for oncampus as well as remote students.
3.	How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc. All exams will be proctored by either the professor, the TA or the remote site coordinator. It is planned that the Instructor will procotor the exam at the remote site, but if for some reason the instructor is not availale, there are built in contingencies. All course work (ie, weekly homework) at the remote site will be collected by the remote site coordinator (a full time employee of UK, but working at the remote site to coordinate all the ITV courses offered through the College of Engineering in our UK-WKU joint program) when it is due. The

Distance Learning Form

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	coordinator will also take attendance. The academic offense policy and other relavent information are specified in the syllabus.
4.	Will offering this course via DL result in at least 25% or at least 50%* (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above? No. If yes, which percentage, and which program(s)? *As a general rule, if approval of a course for DL delivery results in 50% or more of a program being delivered through DL, the effective date of the course's DL delivery will be six months from the date of approval.
5.	How are students taking the course via DL assured of equivalent access to student services, similar to th at of a student taking the class in a traditional classroom setting? This program is well established (been offered for about 10 yrs). WHile UK has a full-time DL coordinator working at the remoted site (to ensure continuity and security of the student's work), The remote site, WKU , offers their own student services.
	Library and Learning Resources
6.	How do course requirements ensure that students make appropriate use of learning resources? Course note, any supplemental materials, and assignments will be downloadable from the course webpage and/or blackboard.
7.	Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program. As this class is discussion/lecture style, there is no specific need for access to our labs, facilities, or equipment.
	Student Services
8.	How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Teaching and Academic Support Center (http://www.uky.edu/TASC/index.php) and the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)? As specified in the course syllabus, students experience any difficulty with delivery of course material in the classroom, can contact the ITV support personnel on location (the person normally attends the classes), or in the event that the coordinator is out, students inform the instructor.
9.	Will the course be delivered via services available through the Teaching and Academic Support Center? Yes ☒ No ☐ If no, explain how students enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

Abbreviations: TASC = Teaching and Academic Support Center DL = distance learning DLP = Distance Learning Programs

Distance Learning Form

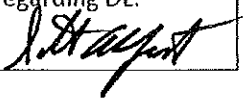
This form must accompany every submission of a new/change course form that requests distance learning delivery. This form may be required when changing a course already approved for DL delivery. **All fields are required!**

10.	Does the syllabus contain all the required components, below? ☒ Yes ☐ Instructor's *virtual* office hours, if any. ☐ The technological requirements for the course. ☐ Contact information for TASC (http://www.uky.edu/TASC/; 859-257-8272) and Information Technology Customer Service Center (http://www.uky.edu/UKIT/; 859-257-1300). ☐ Procedure for resolving technical complaints. ☐ Preferred method for reaching instructor, e.g. email, phone, text message. ☐ Maximum timeframe for responding to student communications. ☐ Language pertaining academic accommodations: o "If you have a documented disability that requires academic accommodations in this course, please make your request to the University Disability Resource Center. The Center will require current disability documentation. When accommodations are approved, the Center will provide me with a Letter of Accommodation which details the recommended accommodations. Contact the Disability Resource Center, Jake Karnes, Director at 859-257-2754 or jkarnes@email.uky.edu." ☐ Information on Distance Learning Library Services (http://www.uky.edu/Libraries/DLLS) o Carla Cantagallo, DL Librarian o Local phone number: 859 257-0500, ext. 2171; long-distance phone number: (800) 828-0439 (option #6) o Email: dllservice@email.uky.edu o DL Interlibrary Loan Service: http://www.uky.edu/Libraries/libpage.php?lweb_id=253&llib_id=16
11.	I, the instructor of record, have read and understood all of the university-level statements regarding DL. Instructor Name: Scott A. Yost Instructor Signature:

Abbreviations: TASC = Teaching and Academic Support Center DL = distance learning DLP = Distance Learning Programs

Distance Learning Form

This form must accompany every submission of a new/change course form that requests distance learning delivery. This form may be required when changing a course already approved for DL delivery. **All fields are required!**

10.	Does the syllabus contain all the required components, below? ☒ Yes ☐ Instructor's *virtual* office hours, if any. ☐ The technological requirements for the course. ☐ Contact information for TASC (http://www.uky.edu/TASC/; 859-257-8272) and Information Technology Customer Service Center (http://www.uky.edu/UKIT/; 859-257-1300). ☐ Procedure for resolving technical complaints. ☐ Preferred method for reaching instructor, e.g. email, phone, text message. ☐ Maximum timeframe for responding to student communications. ☐ Language pertaining academic accommodations: o "If you have a documented disability that requires academic accommodations in this course, please make your request to the University Disability Resource Center. The Center will require current disability documentation. When accommodations are approved, the Center will provide me with a Letter of Accommodation which details the recommended accommodations. Contact the Disability Resource Center, Jake Karnes, Director at 859-257-2754 or jkarnes@email.uky.edu." ☐ Information on Distance Learning Library Services (http://www.uky.edu/Libraries/DLLS) o Carla Cantagallo, DL Librarian o Local phone number: 859 257-0500, ext. 2171; long-distance phone number: (800) 828-0439 (option #6) o Email: dllservice@email.uky.edu o DL Interlibrary Loan Service: http://www.uky.edu/Libraries/libpage.php?lweb_id=253&llib_id=16
11.	I, the instructor of record, have read and understood all of the university-level statements regarding DL. Instructor Name: Scott A. Yost Instructor Signature: 

Abbreviations: TASC = Teaching and Academic Support Center DL = distance learning DLP = Distance Learning Programs

CE/BAE 541
Intermediate Fluid Mechanics– Interactive Television Class with UK and WKU
Credits: 3.0

Instructors: Scott A. Yost 859-257-4816 yostsa@engr.uky.edu

Office Hours: Instructor: Open door policy, as long as door is open; email 24 hours a day. WKU students are encouraged to take advantage of the extended ITV time for Q&A, but email is the preferred method for contacting the professor. The professor will respond within 24 hours during non-business hours, and within 4 hours during normal business hours, unless otherwise notified.

Class website: http://courses.engr.uky.edu/CE/ce341/

Prerequisites: CE 341, CS programming course, and engineering standing; or consent of instructor

Course Texts: Munson, Young, and Okiishi, **Fundamentals of Fluid Mechanics** (6th Edition), John Wiley & Sons, Inc., or equivalent.

Introduction:
Welcome to CE541 and welcome to the Fall 2012 semester. As your instructor, it's my job to present and explain technical information which will help make you competent Water Resource engineers, but it's also my job to help you develop and refine the communication skills to integrate this technical information into real-world engineering situations. To that end, I am continuing to find ways of delivering technical information in contexts which concurrently promote learning and application of engineering content. I look forward to a great semester. I am honored to be your instructor, and I hope you can use this class as a spring board as you anticipate your professional career.

Course Overview:
This intermediate course in Fluid Mechanics-Hydraulics stresses applications and will cover topics such as hydrostatics, flow metering devices, channel flow analysis, pipeline and pipeline network analysis, turbomachinery (pumps), culvert design, and transient analysis. At the beginning of the course, students should have a basic understanding of the principles and theories developed in the first fluid mechanics course and a basic knowledge of calculus and physics. At the end of the course, students should be able to apply the theories and principles of both courses to authentic engineering situations.

Student Learning Outcomes:
Students will be evaluated on submitted material, presentations, exams on their ability to accomplish the following course learning outcomes. Upon successful completion of this class student will:

1. compute hydrostatic forces on submerged objects
2. use and calibrate flow-metering devices (weirs, orifice and venturi meters).
3. perform a simple experimental error analysis to quantify error in measurements and how these error affects final results.
4. analyze simple pipe systems using fundamental conservation laws (energy, mass).
5. describe the characteristics of pumps and use these characteristics to determine pump sizes and placements within pipe systems.
6. relate the basic concepts of open channel flow to channel analysis and design.
7. design the most efficient open channel cross-section.
8. compute channel profiles for 1D subcritical and supercritical flow.
9. explain the basic principles of transient flow.
10. modify and use simple computer programs.
11. write brief professional reports using the consultant-client model.
12. orally present your technical analysis and designs to general audiences.
13. work together in teams to fulfill engineering objects (analysis, design, presentation).

Course Grading:
The grade for the course will be based on the following distribution:

	Undergraduate	Graduate
Homework	20%	10%
Projects*	25%	35%
Class Participation	10%	10%
Exam I	15%	15%
Exam II	15%	15%
Final Exam	15%	15%

*For those who are taking this course for graduate credit, you will be required to do the three projects individually. All undergraduate will work in groups on the projects.

Please note: Undergraduate Students will be provided with a Midterm Evaluation (by the midterm date) of course performance based on the grades earned and the criteria in syllabus.

Grading Details/Tips:
The dates for all exams are stated below in the course syllabus. The final exam will be given at the end of the semester at the time designated by the University Schedules.

Come to class and take notes because some of the material is not covered explicitly in the text. The class participation grade will be based on attendance, in-class assignments, quizzes, scholarly work, and collegiality.

At the end of the semester, the University grade system, as defined in the general school catalog (generally known as a straight scale), will be applied to determine the corresponding final letter grade.

Homework:
There are weekly assignments that will consist of computer labs and homework (problem solving) labs throughout the semester. Homework is due on the date requested to receive a grade. All work must be turned in before the l st day of class to preserve your class participation grade. Some assignments will be performed in groups in order to offer students a more authentic Civil Engineering education. Assignments will be designed to coordinate textual knowledge and applications with authentic engineering situations, and formal technical documents will be submitted at the conclusion of each project. While these reports are relatively short, it is important that groups plan together and work closely together to present a unified, professional document and presentation. More information about these assignments will be available during the semester.

Any assignments which might require a graphic presentation must be done on computer (i.e., NO hand generated graphs/plots will be accepted). Occasionally the homework assignments will require short narrative and/or descriptive essays. Your responses must be typed. This will not only give a professional look to your work, but it will aid the grader in assigning grades based on the quality of your work and not on its readability.

Some assignments require the use of the microcomputer lab. Programming assignments may be satisfied using mathematical spreadsheets, personally developed FORTRAN/C++/VISUAL BASIC computer programs, or other available software packages, as specified. Optional sessions regarding use of these programs may be offered throughout the semester.

Tentative Exam Schedule:		
	Exam I	week of October 10
	Exam II	week of November 14
	Final Exam	Exam Week

Accommodations:
(UK) If the student has a documented disability that requires academic accommodations, please contact the instructor within the first two weeks of class. To receive accommodations in this course, you must provide a Let'er of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, jkarnes@uky.edu) .or coordination of campus disability services available to students with disabilities.

(WKU) In compliance with university policy, students with disabilities who require accommodations (academic adjustments, and/or auxiliary aids or services) for this course must contact the Office for Student Disability Services in Downing University Center A-200. The phone number is 270-745-5004; TTY is 270-745-3030. Per university policy, please DO NOT request accommodations directly from the professor or instructor without a letter of accommodation from the OFSDS.

UK students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Technical difficulties:
At times in the past, there have been technical difficulties such as students have a hard time hearing the instructor, seeing an item on the projector screen or televisions, or freezing of the handwritten slides. If technical difficulties occur, please stop the instructor immediately, and contact the ITV Coordinator, in order that the problem can be resolved and class content is not missed.

ITV Coordinator: Ralph Irwin email:Ralph.Irwin@wku.edu
Engineering Department 1906 College Heights Blvd #21082 phone: (270) 745-2464

Cautions, Dangers, and Warnings:
While team work among students is strongly encouraged, remember that the work you do must be performed through your own volition and based on your own knowledge and understanding. Working together can be a rich source for learning, gaining understanding and insight. It can also be a hindrance to your understanding of the subject matter by relying too much on others. Turning in an assignment states that you agree to be bound by the University's plagiarism rules and the punishments that might result if you are found to be in violation. Note that the **minimum** punishment is receiving an "E" for the assignment. Because of the student reports of widespread "cheating" that occur, you have a simple choice to make. Either you are part of the solution or part of the problem. We hope you will become part of the solution by adopting a zero-tolerance policy. We will work together and we must work together to stop this harmful practice.
There is a zero tolerance policy concerning plagiarism and cheating. Information about plagiarism and the penalties for offenses are provided by the Academic Omnibus's office at http://www.uky.edu/Ombud/Plagiarism.pdf. For additional cheating and plagiarism guidelines please see UK's Student Rights and Responsibilities Handbook or at http://www.uky.edu/StudentAffairs/Code/part2.html

Things that are acceptable: You may discuss solution procedures, problem solving strategies, data needs, assignment requirements, document layout and presentation style, etc, without violation. As a rule, ***all work that is performed for the class and turned in must be a product of your own labor and understanding.*** Besides, using someone else's knowledge or work as a crutch in your own work will not help you reach your highest potential (and will show on the exams).

And finally, something to think about:
"Work like you do not need the money; Love like you have never been hurt.
Sing as if no one can hear you; And dance like there is no one to see." *Unknown*

"Life is not defined by accomplishments, but rather how we live between them."

CE541 Topics and Detailed Outcomes

Non Technical: General Professional Learning outcomes:

1. To be able to plan an effective oral presentation, either on your own or with several people.
2. To be able to deliver an effective presentation with several people.
3. To be able to work with others to analyze and solve a problem.
4. To be able to work with others to plan and prepare a technical written report.

UNIT 1: Review of Hydrostatics and Flow Meter Devices

OUTCOMES:

1. To be able to define the following:
   a) hydrostatic force (or pressure).
   b) Piezometric head.
2. To be able convert between pressure and head.
3. To be able to compute the pressure anywhere in a hydrostatic fluid system.
4. To be able to compute the 2^{nd} moment of area (moment of inertia) for simple geometrical objects.
5. To be able to calculate the forces/pressure on a submerged body/surface.
6. To be able to perform a dimensional analysis using similitude properties.
7. To be able to define what a weir is and what it does. Also to be able to distinguish between the different types of weirs and where they are used.
8. To be able to define a discharge coefficient and how it is determined for different flow measuring devices.
9. To be able to explain the difference between open channel measuring devices and close conduit measuring devices.
10. To be able to define and know in what context they are used:
    a) Manometer
    b) Pressure Transducers
    c) Pitot Tube
    d) Propeller Anemometer
    e) Venturi Meter
    f) Orifice Meter

g) Broad Crested Weir
h) Sharp Crested Weir

11. To be able to explain the similarities and differences between a venturi meter and orifice meter.

12. To be able to Analyze and Design a simple Outfall diffuser.

13. Given experimental data, be able to compute the discharge coefficient for venturi and orifice meters.

14. To be able to determine the time needed to drain a tank in an unsteady flow analysis.

15. To know how to write and apply the following conservation equations:
    a) Conservation of mass (continuity).
    b) Conservation of energy.
    c) Conservation of momentum.

UNIT 2: OPEN CHANNEL FLOW

OUTCOMES:

1) To know what Uniform Flow is and how it applies to open channels.

2) To be able to calculate Uniform Flow conditions with the Manning Equation.

3) To be able to define the following terms:
    a) Steady Uniform Flow
    b) Normal Depth
    c) Steady Non-Uniform Flow
    d) Unsteady Uniform Flow
    e) Unsteady Non-Uniform Flow
    f) Gradually Varied Flow
    g) Rapidly Varied Flow
    h) Specific Energy

4) To be able to calculate Critical Depth and know what is means.

5) To know how to classify flow configurations in Open Channels (i.e. subcritical)

6) To know how to calculate conjugate and alternate depths and know the difference between the two.

7) To know how and when the three conservation laws apply to open channel flows.

14. To know how to use the Hydraulic Grade Line and Energy Grade Line in determining the placement of pumps.

UNIT 5: Unsteady Flow (as time allows)

OUTCOMES:

1. To be able to differentiate between steady flow and unsteady flow.

2. To be able to define the waterhammer effect (referred to as transient analysis or unsteady flow analysis).

3. To understand causes and effects of waterhammer in pipelines.

4. To know various methods and devices that are used to suppress waterhammer effects.

5. To understand the significance of calibration with respect to transient analysis.

6. To understand the basis equations (Jowkoski's Equation) that govern the transient flow.

7. To understand the basic closure characteristics of different types valves and how they impact the transient event.

8. To be able to distinguish between slow valve closure and rapid valve closure.

8) To be able to design channels of different cross sectional shapes to carry a desired flow and to know which channel shapes are most efficient.

9) To understand the notion of 'Control' in open channel flows.

10) To be able to use Gradually Varied Flow Theory to compute water surface profiles.

11) To be able to define the following types of channel slopes:
a) Mild b) Steep c) Critical d) Adverse e) Horizontal

12) To know how to find the location of a hydraulic jump.

UNIT 3: Steady Closed Conduit Flow -- Pipe Flow

OUTCOMES:

1. To be able to identify the three major components of the energy equation.
2. To be able to identify what contributes to the head loss term in the energy equation.
3. To be able to differentiate between laminar, turbulent and transitional flow.
4. To know how to read the Moody Diagram.
5. To be able to apply the Darcy-Weisbach equation, the Hazen-Williams equation and the Manning equation to determine the head loss. To know the differences between each one.
6. To be able to use the Moody diagram, the Colebrook-White Equation, and Woods equation to determine a friction factor for the Darcy-Weisbach equation.
7. To know how to apply the conservation principles (energy and continuity) to a single pipe system in order to determine one of the following given the other two: flow, head loss, or pipe diameter.
8. To know the difference between friction losses and Minor losses.
9. To know how to convert between Minor losses and frictional losses using equivalent lengths of pipe.
10. To know how Minor loss coefficients are determined for pipe fittings and attachments.
11. To be able to calculate the hydraulic radius for both circular and noncircular pipes.
12. To know how to construct an Energy Grade Line and Hydraulic Grade Line, and know the difference between the two.
13. To know the characteristics of pipes in parallel and pipes in series.
14. To be able to solve the three reservoir branching problem.
15. To be able to compute the number of unknowns in a general branching problem.

16. To be able to apply the Hardy-Cross method to solve pipe network problems.

17. To be able to use/modify a simple computer program utilizing the Hardy-Cross method to solve pipe network problems.

UNIT 4: Turbomachinery: Pumps and Turbines

OUTCOMES:

1. To know the difference between pumps and turbines.

2. To be able to distinguish between radial flow, axial flow and mixed flow pumps.

3. To be able to identify the basic pump components.

4. To be able to construct performance curves for pumps:
   a) Head - Discharge relations
   b) Brake Power - Discharge relations
   c) Efficiency - Discharge relations
   d) Net Positive Suction Head (NPSH) - Discharge relations

5. To be able to define the following
   a) Brake Horse-Power
   b) Water Power
   c) Efficiency
   d) Positive displacement pump
   e) Specific Speed

6. To know the difference between the theoretical and actual Head-Discharge curves.

7. To be able to apply homologous pump theory.

8. To be able to define and apply the following concepts.
   a) Homologous Pumps
   b) Cavitation
   c) Parallel pumps
   d) Series pumps
   e) Pump curve
   f) Demand or System curve

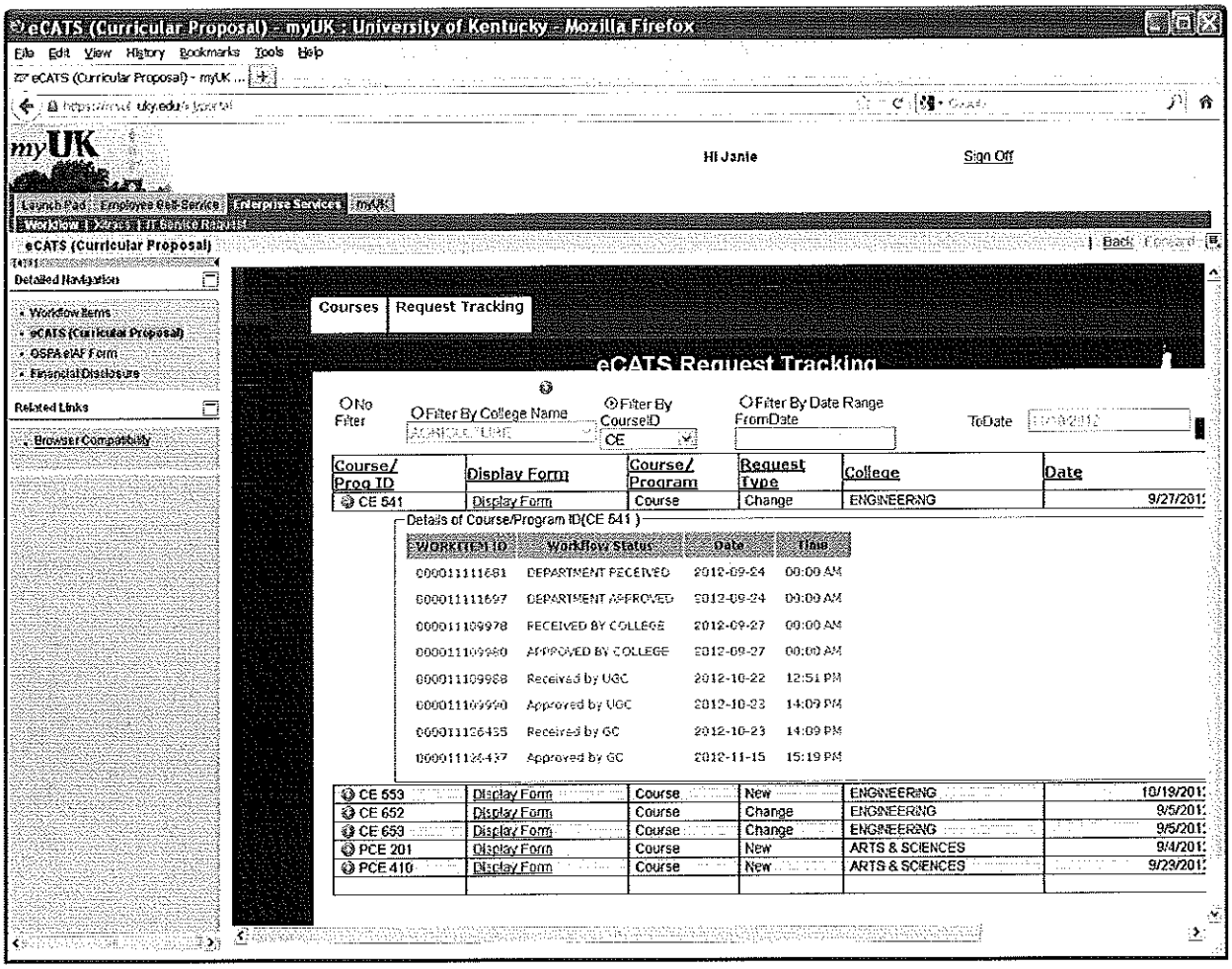
9. To be able to determine if a pump will cavitate.

10. To be able to read and understand Manufacturer Pump Characteristic Curves and know how to choose a pump for a given application.

11. To be able to combine pumps in series and parallel and to determine the resulting pump curve.

12. To be able to determine the size and placement of a pump for a pipe system.

13. To know how the pump curve changes as the rotational speed changes.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