CE 234A: ADVANCED ENGINEERING HYDRAULICS

In Workflow

1. CE Committee Chair (fogarty@csus.edu)
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10. Registrar's Office (wlindsey@csus.edu)
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Approval Path

1. Thu, 17 Sep 2020 21:41:30 GMT
   Julie Fogarty (fogarty): Approved for CE Committee Chair
2. Fri, 18 Sep 2020 15:27:17 GMT
   Benjamin Fell (fellb): Approved for CE Chair
3. Fri, 16 Oct 2020 17:57:21 GMT
   Gareth Figgess (figgess): Approved for ECS College Committee Chair
4. Mon, 19 Oct 2020 15:54:23 GMT
   Kevan Shafizadeh (kevan): Approved for ECS Dean

New Course Proposal

Date Submitted: Thu, 17 Sep 2020 21:35:42 GMT

Viewing: CE 234A : Advanced Engineering Hydraulics

Last edit: Mon, 19 Oct 2020 15:53:22 GMT

Changes proposed by: Julie Fogarty (218645519)

Contact(s):

Name (First Last)	Email	Phone 999-999-9999
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Catalog Title:
Advanced Engineering Hydraulics

Class Schedule Title:
Adv Engineer Hydraulics

Academic Group: (College)
ECS - Engineering & Computer Science

Academic Organization: (Department)
Civil Engineering

Will this course be offered through the College of Continuing Education (CCE)?
No

Catalog Year Effective:
Fall 2021 (2021/2022 Catalog)

Subject Area: (prefix)
CE - Civil Engineering

Catalog Number: (course number)
234A

Course ID: (For administrative use only.)
107731

Units:
3

In what term(s) will this course typically be offered?
Spring term only - even years

Does this course require a room for its final exam?
Yes, final exam requires a room

Does this course replace an existing experimental course?
No

This course complies with the credit hour policy:
Yes

Justification for course proposal:
Graduate CE courses are being renumbered to clarify course topic areas to help students plan their path to graduation and be consistent with the undergraduate CE course numbers. Prerequisites numbers (not courses) are being changed to reflect course number changes that occurred in the undergraduate program in 2019-2020.

This is not a new course. It is being proposed as a new course so that the existing number can be reused for another course. There is no change to the content (course description, ELOs, assessment) for this course. It is simply a number change.

When coding this course for the catalog, please drop the A on this course so it is simply the number CE 234 (another course using CE 234 is being changed concurrently to a different number).

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)
Steady uniform and non-uniform open channel flows including gradually, rapid and spatially varied flows; analysis of supercritical flow in transition; basic principles of unsteady flows; long wave theory; Saint-Venant Equations and their solutions including method of characteristics, explicit and implicit finite difference numerical methods.

Are one or more field trips required with this course?
No

Fee Course?
No

Is this course designated as Service Learning?
No

Does this course require safety training?
No

Does this course require personal protective equipment (PPE)?
No

Does this course have prerequisites?
Yes

Prerequisite:
CE 130 or equivalent, or instructor approval.

Prerequisites Enforced at Registration?
Yes

Does this course have corequisites?
No

Graded:
Letter

Approval required for enrollment?
No Approval Required

Course Component(s) and Classification(s):
Seminar

Seminar Classification
CS#05 - Seminar (K-factor=1 WTU per unit)
Seminar Units
3

Is this a paired course?
No

Is this course crosslisted?
No

Can this course be repeated for credit?
No

Can the course be taken for credit more than once during the same term?
No

Description of the Expected Learning Outcomes: Describe outcomes using the following format: 'Students will be able to: 1), 2), etc.'
1) Explain the force balances that govern flow in rivers and other environments
2) Use vector and index notation to state and manipulate equations in hydraulics
3) Explain the components of the Navier-Stokes Equations
4) Apply the Navier-Stokes Equations to solve laminar flow problems
5) Scale and simplify the governing equations for various environmental flows
6) Apply Reynolds averaging to the Navier-Stokes Equations and explain the effects of turbulence
7) Derive the St. Venant Equations and explain their components
8) Evaluate the advantages and disadvantages of different types of hydraulic models

Attach a list of the required/recommended course readings and activities:
CE 234.docx

Assessment Strategies: A description of the assessment strategies (e.g., portfolios, examinations, performances, pre-and post-tests, conferences with students, student papers) which will be used by the instructor to determine the extent to which students have achieved the learning outcomes noted above.
Homework (ELOs 1-7)
Quizzes (ELOS 1-6)
Exams (ELOs 1-6)
Project/Presentation (ELO 8)

For whom is this course being developed?
Majors in the Dept

Is this course required in a degree program (major, minor, graduate degree, certificate?)
No

Does the proposed change or addition cause a significant increase in the use of College or University resources (lab room, computer)?
No

Will there be any departments affected by this proposed course?
Yes

Indicate which department(s) will be affected by the proposed course:

Department(s)
Civil Engineering

I/we as the author(s) of this course proposal agree to provide a new or updated accessibility checklist to the Dean's office prior to the semester when this course is taught utilizing the changes proposed here.

I/we agree

University Learning Goals

Graduate (Masters) Learning Goals:

Critical thinking/analysis
Disciplinary knowledge

Is this course required as part of a teaching credential program, a single subject, or multiple subject waiver program (e.g., Liberal Studies, Biology) or other school personnel preparation program (e.g., School of Nursing)?

No

Is this a Graduate Writing Intensive (GWI) course?

No

Key: 14314