CE 132: GROUNDWATER ENGINEERING

In Workflow

1. CE Committee Chair (fogarty@csus.edu)
2. CE Chair (fellb@csus.edu)
3. ECS College Committee Chair (troy.topping@csus.edu)
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Approval Path

1. Sat, 12 Oct 2019 03:21:38 GMT
   Julie Fogarty (fogarty): Approved for CE Committee Chair
2. Mon, 14 Oct 2019 17:59:59 GMT
   Benjamin Fell (fellb): Approved for CE Chair
3. Fri, 25 Oct 2019 16:31:11 GMT
   Troy Topping (troy.topping): Approved for ECS College Committee Chair
4. Fri, 25 Oct 2019 16:52:54 GMT
   Kevan Shafizadeh (kevan): Approved for ECS Dean

New Course Proposal

Date Submitted:Sat, 12 Oct 2019 03:18:16 GMT

Viewing:CE 132 : Groundwater Engineering

Last edit:Fri, 25 Oct 2019 14:29:44 GMT

Changes proposed by: Julie Fogarty (218645519)

Contact(s):

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

Class Schedule Title:
Groundwater Engineering

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 2020 (2020/2021 Catalog)

Subject Area: (prefix)
CE - Civil Engineering

Catalog Number: (course number)
132

Course ID: (For administrative use only.)
202832

Units:
3

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

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

Does this course replace an existing experimental course?
Yes

This course replaces the following experimental course:
CE 196M - Groundwater Engineering

This course complies with the credit hour policy:
Yes

Justification for course proposal:
The course was offered two times as an experimental course with enrollments of 28 students (Spring 2018) and 16 students (Spring 2019). With a fourth elective being required for the degree and the importance of groundwater in California, the Civil Engineering department wants to make this a permanent elective course.

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)
Occurrence and movement of groundwater. Groundwater principles, groundwater flow, Darcy's Law, solutions of steady and unsteady flow problems. Confined and unconfined aquifers, leaky aquifers, pumping test design, and groundwater management.

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 and CE 130L. Not currently enrolled in CE 132.

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):
Lecture

Lecture Classification
CS#02 - Lecture/Discussion (K-factor=1WTU per unit)
Lecture 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. Discuss basic principles of groundwater
2. Explain theory of groundwater flow in the saturated zone
3. Solve problems of groundwater flow in the unsaturated zone
4. Describe and summarize regional groundwater flow
5. Solve problems related to confined, unconfined, and leaky aquifers
6. Evaluate management of groundwater resources

Attach a list of the required/recommended course readings and activities:
CE 132 (F19).doc

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 assignments (ELO 1-6)
Individual and group projects (ELO 1-6)
In-class activity assignment (ELO 1-6)
Exams (ELO 1-6)

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?
No

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

Undergraduate Learning Goals:
Competence in the disciplines
Intellectual and practical skills

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

GE Course and GE Goal(s)

Is this a General Education (GE) course or is it being considered for GE?
No

Key: 14152