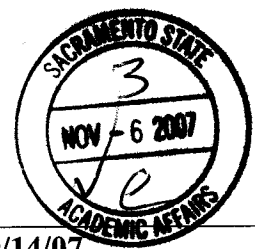




SACRAMENTO
STATE

Course Change Proposal Form A



Academic Group (College): Engineering & Computer Science	Academic Organization (Department): Civil Engineering	Date: 9/14/07
Type of Course Proposal: New <input checked="" type="checkbox"/> Change <input type="checkbox"/> Deletion <input type="checkbox"/>	Department Chair: Dr. Ramzi Mahmood	Submitted by: Dr. Ramzi Mahmood
Does this course fulfill a requirement for single-subject or multiple subject credential students? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	For Catalog Copy: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> CCE (Extension): Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Semester Effective: Fall <input checked="" type="checkbox"/> Spring <input type="checkbox"/> , 2008

This course replaces experimental course Subject Area (prefix) and Catalog Nbr (course number):

Change from:

Subject Area (prefix) & Catalog Nbr (course no.):	Title:	Units:
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Change to:

Subject Area (prefix) & Catalog Nbr (course no.): CE 199E	Title: Independent Study Technical Elective	Units: 3
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JUSTIFICATION:

Course allows students to use faculty-directed experience in research or design projects to substitute for one of the required technical electives in the program. Accordingly, the requirements are more stringent than those for normal independent study.

NEW COURSE DESCRIPTION: (Not to exceed 80 words, and language should conform to catalog copy. See <http://www.csus.edu/acaf/univmanual/crpspl.htm> - Guidelines for Catalog Course Description)

CE 199E. Special Problems Technical Elective. Individual project, research, or directed reading on an advanced topic. Open to only those students prepared and capable of carrying out independent work. Admission requires departmental approval and sponsorship of a supervising faculty member. Can be used as a technical elective in the major. May not be repeated for credit. Consult the CE Department for admission procedures and other requirements. 1-3 units.

Note:

Prerequisite: GPA of 2.5 or greater in the upper division courses of the major; grade of "B" or better in the required major course associated with the proposed area of study (CE 137 or CE 146 or CE 147 or CE 161 or CE 170 or CE 171A)

Enforced at Registration: Yes No

Corequisite:

Enforced at Registration: Yes No

CAN (California Articulation Number):

Graded: Letter <input checked="" type="checkbox"/> Credit/No Credit <input type="checkbox"/>	Instructor Approval Required? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Course Classification (e.g., lecture, lab, seminar, discussion): Independent Study S-36	Title for CMS (not more than 30 characters): Special Problems Tech Elect
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Cross Listed? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	If yes, do they meet together and fulfill the same requirement, and what is the other course.
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How Many Times Can This Course be Taken for Credit? To a maximum of 3 units

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

FOR NEW COURSE PROPOSALS OR SUBSTANTIVE CHANGES ONLY:

Description of the Expected Learning Outcomes: Describe outcomes using the following format: "Students will be able to: 1), 2), etc." See the example at <http://www.csus.edu/acaf/example.htm>

Course goals and approval procedures are attached. Outcomes will vary by project. The most common outcomes will be:

- (1) Students will be able to research and apply technical skills to solve technical problems, and/or
- (2) Students will be able to apply realistic design criteria and constraints, including economic and social constraints in the solution of technical problems, and /or
- (3) Students will be able to design, execute, and analyze the results of engineering experiments.

****Attach a list of the required/recommended course readings and activities [Note: it is understood that these are updated and modified as needed by the instructor(s).] This attachment should be forwarded only to your Dean's office, not Academic Affairs.**

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:

Will vary by project, but all projects will include a written product. The most common formats will be a technical report or a portfolio with a summary report.

For whom is this course being developed?

Majors in the Dept Majors of other Depts Minors in the Dept General Education Other

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

If yes, identify program(s):

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

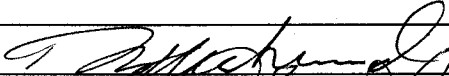
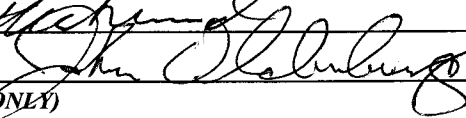
If yes, attach a description of resources needed and verify that resources are available.

Indicate which department or programs will be affected by the proposed course (if any). _____

The Department Chair's signature below indicates that affected programs have been sent a copy of this proposal form.

Approvals: If proposed change, new course or deletion is approved, sign and date below. If not approved, forward without signing to the next reviewing authority, and attach an explanatory memorandum to the original copy.

Signatures:

	Date
Department Chair: 	9/28/07
College Dean or Associate Dean: 	11/1/07
CPSP (for school personnel courses ONLY)	
Associate Vice President and Dean for Academic Programs	

Distribution: Academic Affairs (original), Department Chair and College Dean. Dean's office to send original after approval to Academic Affairs, at mail zip 6016. An electronic copy must also be sent.

Department Policies and Procedures for CE 199E, Independent Study Technical Elective

Adopted: March 9, 2007 Effective date: Fall 2007

Application of this Policy

This policy applies to CE 199E, Independent Study Technical Elective. They do not apply to CE 199, Special Problems.

Purpose and Intent

The civil engineering faculty recognizes that under the right circumstances, independent technical work near the end of a student's degree program can be as valuable an educational experience as a technical elective class. In addition, such experiences can encourage undergraduate students to participation in research and foster their skills at designing and conducting experiments, as well as analyzing and interpreting data.

It is the intent of the faculty that a project proposed to be substituted for a technical elective would possess scope, breadth, and level of sophistication equivalent to those found in the classroom-based technical electives in the program. For this reason, subject-matter prerequisites are established for CE 199E.

Examples of the kinds of projects contemplated under this policy include the following:

- Experimental work to test a theory or fill a data gap in the literature. Such a project would be expected to include a substantial literature review.
- Experimental work that establishes parameters or data on which a design is executed.
- A multi-faceted or in-depth design project that requires mastery of some body of knowledge or technique not covered in the required classes. A summary of the new material would be expected as part of the project report in addition to descriptions of the design process.
- Creating or revising software. In addition to the code, the project report would include descriptions of the theory and logic plus results from sufficient test cases to demonstrate that code does what is intended.
- Application of existing software to model an engineering problem and provide a solution. The project report would be expected to include descriptions of the theory and logic of the software as well as the problem and its solution.

In CE 199E projects, it is desirable to (1) tie the specific project work to fundamental theory and the engineering knowledge base, (2) apply realistic design criteria and constraints, including economic and social constraints, and/or (3) participate in the design and analysis of experiments in addition to their execution. Although CE 199E projects may have features similar to those of CE 500, the culminating experience in the MSCE degree, the faculty recognizes that CE 199E students are undergraduates. It is expected that CE 199E projects would be less sophisticated than MS projects and that faculty

would give CE 199E students more direction and assistance than they would give MS students.

It is the faculty's opinion that not all students are prepared to do independent work at the level of sophistication contemplated here. Consequently, certain grade requirements have been established to identify those students most likely to succeed.

The faculty also recognizes the need to establish procedures for accountability, quality control and oversight. In the procedures that follow are requirements for prior approval of projects and individual scopes of work. These procedures are intended to: (1) assure that the proposed work is appropriate in technical breadth and sophistication, (2) assure that there is parity across different sections of CE 199E, (3) make the class requirements explicit to all parties, and (3) allow the Chair to exercise control over faculty work assignments and class offerings.

Prerequisites

1. A student shall have a cumulative GPA of 2.5 or better in the upper division classes of the major completed at the time of registration in CE 199E.
2. A student shall have completed, with a grade of "B" or better, at least one upper division class required for the major that closely aligns with the subject matter of the proposed CE 199E. The classes eligible to fulfill this requirement are listed below:

- CE 137 Water Resources Engineering
- CE 146 Civil Engineering Practice
- CE 147 Transportation Engineering
- CE 161 Theory of Structures
- CE 170 Principles of Environmental Engineering
- CE 171A Soil Mechanics

Fulfillment of Degree Requirements

3. A maximum of three (3) CE 199E units may be used to substitute for a technical elective to fulfill the requirements of the civil engineering degree. These units do not have to be accomplished in a single semester. Refer to procedures below for approvals and evaluation of multi-semester projects.
4. Unless specifically approved as such, CE 199E units will not fulfill design requirements for the degree.

Approvals

5. Proposed CE 199E sections shall be reviewed and approved by the Chair before students will be allowed to register. A "section" is a project or activity sponsored by a faculty member involving one or more students. Projects or activities that differ in

their subject matter should be proposed as separate sections, even if they are sponsored by the same faculty member.

- a. To facilitate the approval, the sponsoring faculty member shall submit a Section Proposal during the previous semester. The proposal should include the information shown in Table 1 and should be 1-2 pages long.
 - b. Appeals of the Chair's determination shall be decided by the department faculty as a whole.
6. Each enrolled student shall submit a Scope of Work with the information shown in Table 2. The scope should be 1-2 pages long. The Scope must be signed by the student, the faculty sponsor, and the Chair before the student will be enrolled in the class.
 7. Although CE 199E projects are typically expected to last only one semester, some may last longer. Projects proposed to extend more than one semester will be handled on a case-by-case basis. The goal is to produce an appropriate Scope at the beginning of the work and a product that reflects that Scope at the end, regardless of the time involved. Including CE 199 work accomplished in a previous semester in a new Scope (i.e. "grandfathering" work already done outside an approved Scope) will normally not be allowed unless the work is clearly part of a coherent whole and of satisfactory quality. As noted previously, only three (3) CE 199E units may be used to substitute for a technical elective, regardless of the number of units actually accomplished.

Evaluation

8. The sponsoring faculty member shall assign each student a grade at the end of the semester according to university grading standards and policies. Fulfilling the agreed-upon Scope of Work shall also be a criterion in establishing a grade. Grade appeals shall be handled according to existing procedures.
9. Each student shall provide one (1) copy of his/her Scope of Work and final product to the Department. This will be used for program assessment and will be filed for ABET review.

Table 1 Content of the CE 199E Section Proposal to be Submitted by Faculty

Title	
Learning Outcomes	List the outcomes or objectives. The suggested format is "Students will be able to: _____"
Activities	Describe the general activities to be done by students (i.e. lab work, library research, computer programming, design, etc.)
Products	Describe the final product(s). Normally the product would be an individually-written technical report. An appropriate alternative might be a portfolio attached to a summary report. Computer programs should be accompanied by written reports.
Number of students	
Prerequisites	Choose from CE 137, CE 147, CE 161, CE 170, or CE 171A. Concurrent registration would be allowed only when more than one course is required. In that case, one but not all of the prerequisites can be taken concurrently.
Justification for Design Credit	If it desired that this work be counted as a design elective, provide justification addressing why the work and products should be considered a design experience.

Table 2 Content of the CE 199E Scope of Work to be Submitted by Students

Title	
Goals	Description of research questions or design project goals
Prerequisites	State when the prerequisite was taken and what grade was earned
Activities	Describe the activities to be undertaken and include an approximate schedule. This description should have more detail than the faculty proposal (see Table 1). If the work is to be accomplished by a group, describe to the extent possible, each student's individual responsibilities. If the work can't be specified exactly because of unanswered questions, describe the questions and directions the work would likely go, given potential answers to these questions.
Products	Describe the written products that will be provided at the end of the course. Even if the project is a group activity, each student is required to submit an individual report.
Design Activities	Identify which activities qualify this project to serve as a design elective.
Signature block for student, faculty sponsor, and Chair	