CM 135: SOILS AND FOUNDATIONS

In Workflow

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Approval Path

1. Thu, 21 Oct 2021 20:05:23 GMT
   Mikael Anderson (mikael): Approved for CM Committee Chair
2. Thu, 21 Oct 2021 20:06:29 GMT
   Mikael Anderson (mikael): Approved for CM Chair
3. Fri, 22 Oct 2021 18:19:29 GMT
   Mohammed Eltayeb (mohammed.eltayeb): Approved for ECS College Committee Chair
4. Fri, 22 Oct 2021 18:30:41 GMT
   Behnam Arad (arad): Approved for ECS Dean

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Viewing: CM 135 : Soils and Foundations

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Changes proposed by: Gareth Figgess (204959824)

Contact(s):

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Catalog Title:
Soils and Foundations

Class Schedule Title:
Soils+Foundations

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

Academic Organization: (Department)
Construction Management

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

Catalog Year Effective:
Fall 2022 (2022/2023 Catalog)

Subject Area: (prefix)
CM - Construction Management

Catalog Number: (course number)
135

Course ID: (For administrative use only.)
109436

Units:
3

Is the primary purpose of this change to update the term typically offered or the enforcement of requisites at registration?
No

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

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:
Update to syllabus and identification as upper-division area B5 GE course

Course Description: (Not to exceed 80 words and language should conform to catalog copy.)
Quantitative analysis of the properties and behaviors of soils used as materials in construction. Index and physical properties of soils including compaction; permeability, compressibility, and shear strength. Methods of laboratory and field tests. Principles of foundation design, pavements, embankments and temporary soil support systems for trenches and cuts. Lecture two hours; laboratory three hours.

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?
Yes

Does this course require personal protective equipment (PPE)?
Yes

Course Note: (Note must be a single sentence; do not include field trip or fee course notations.)
This course requires safety training this; course requires personal protective equipment (PPE).

Does this course have prerequisites?
Yes

Prerequisite:
CM 130.

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):

Discussion
Laboratory

Discussion Classification

CS#04 - Lecture /Recitation (K-factor=1 WTU per unit)

Discussion Units

2

Laboratory Classification

CS#16 - Science Laboratory (K-factor=2 WTU per unit)

Laboratory Units

1

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. Classify soils by inspection and laboratory tests
2. Determine the engineering properties of soils using laboratory and field tests
3. Analyze the engineering properties of soils to determine strength and compressibility
4. Determine the stability of slopes and cuts/trenches in soils and rock
5. Design shallow and deep foundations and retaining structures from a construction practitioner’s perspective
6. Discuss methods and materials used for ground modification
7. Describe the engineering properties of rock as applied to excavations and tunneling
8. Cite critical observations, underlying assumptions and limitations to explain and apply important ideas and models in one or more of the following: physical science, life science, mathematics, or computer science.
9. Recognize evidence-based conclusions and form reasoned opinions about science-related matters of personal, public and ethical concern

Attach a list of the required/recommended course readings and activities:

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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.

Lab Assignments (ELO's 1-4)
Homework assignments (ELO's 4-7)
Exams (ELO's 1-7)
Written Report 1500 word minimum (ELO's 8,9)

Is this course required in a degree program (major, minor, graduate degree, certificate?)

Yes

Has a corresponding Program Change been submitted to Workflow?

No

Identify the program(s) in which this course is required:

Programs:
BS in Construction Management

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
Knowledge of human cultures and the physical and natural world

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?

Yes

In which GE area(s) does this apply?

B5. Further Studies in Physical Science, Life Forms and Quantitative Reasoning (Upper Division Only)

Which GE objective(s) does this course satisfy?

Use mathematical ideas to accomplish a variety of tasks.
Gain a general understanding of current theory, concepts, knowledge, and scientific methods pertaining to the nature of the physical universe, ecosystems, and life on this planet.

Attach Course Syllabus with Detailed Outline of Weekly Topics:

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Syllabi must include: GE area outcomes listed verbatim; catalog description of the course; prerequisites, if any; student learning objectives; assignments; texts; reading lists; materials; grading system; exams and other methods of evaluation.

Will more than one section of this course be offered?

No

General Education Details - Area B5: Further Studies in Physical Science, Life Forms and Quantitative Reasoning

Section 1.

Indicate in written statements how the course meets the following criteria for Category B5. Relate the statements to the course syllabus and outline. Be as succinct as possible.

Course type:

Quantitative Reasoning

For courses in quantitative reasoning:

Develops basic mathematical or logical concepts, quantitative reasoning skills, and has general applicability in solving problems.

Students will conduct laboratory tests on soil samples. Mathematical concepts will be used to evaluate quantitative data to classify soil samples and make recommendations for suitability for use as an engineering/construction material.

Develops computational skills or competence in the analysis of arguments.

Quantitative analysis of soil samples will be used to classify and determine suitability of various soil types for use as an engineering/construction material. Arguments for/against suitability of use must be substantiated by data collected from laboratory tests.

Please Note: Courses listed in this category:
1) Need not be introductory courses and need not be as broad in scope as courses included in B1, B2, B3 or B4 i.e.; they may deal with a specialized topic.

2) These courses may have prerequisites or build on or apply concepts and knowledge covered in Areas B1, B2 and B4. For math courses, there must be an intermediate algebra prerequisite.

Addresses the specific GE student learning outcomes for area B5. A student should be able to do one or more of the following:

Cite critical observations, underlying assumptions and limitations to explain and apply important ideas and models in one or more of the following: physical science, life science, mathematics, or computer science.

Students will perform laboratory tests on a variety of soil samples. Students will cite critical observations made during testing, identify underlying assumptions and limitations to explain and apply design criteria to determine suitability of use as an engineering/ construction material.

Recognize evidence-based conclusions and form reasoned opinions about science-related matters of personal, public and ethical concern.

Through the testing and analysis of soil samples, students will form evidence-based conclusions and form reasoned opinions of public concern - the engineering and construction of soils and foundations is a critical component of any construction project.

Discuss historical or philosophical perspectives pertaining to the practice of science or mathematics.

N/A

Includes a writing component described on course syllabus

l) If course is lower division, formal and/or informal writing assignments encouraging students to think through course concepts using at least one of the following: periodic lab reports, exams which include essay questions, periodic formal writing assignments, periodic journals, reading logs, other. Writing in lower division courses need not be graded, but must, at a minimum, be evaluated for clarity and proper handling of terms, phrases, and concepts related to the course.
2) If course is upper division, a minimum of 1500 words of formal, graded writing. [Preferably there should be more than one formal writing assignment and each writing assignment (e.g. periodic lab reports, exams which include essay questions, a research/term paper etc.) should be due in stages throughout the semester to allow the writer to revise after receiving feedback from the instructor. Include an indication of how writing is to be evaluated and entered into course grade determination.]

Students will perform weekly lab reports. One early lab will require and individual response of a minimum 500 words. Additionally, students will be required to write a 1500 word (minimum) report analyzing a geotechnical engineering failure of public concern. Students will be prompted to provide an overview of the failure, provide evidence-based analysis of the cause of failure, and identify measures that can be taken to prevent such failure in the future.

Section 2.

If you would like, you may provide further information that might help the G.E. Course Review Committee understand how this course meets these criteria and/or the G.E. Program Objectives found in the CSUS Policy Manual, General Education Program, Section I.B.

N/A

Key: 729