**PURDUE UNIVERSITY**

**REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF AN UNDERGRADUATE COURSE (100-400 LEVEL)**

**DEPARTMENT** Engineering  
**EFFECTIVE SESSION** Fall 2010

**INSTRUCTIONS:** Please check the items below which describe the purpose of this request:

- New course with supporting documents
- Add existing course offered at another campus
- Expiration of a course
- Change in course number
- Change in course title
- Change in course credit/type
- Change in course attributes (department head signature only)
- Change in instructional hours
- Change in course description
- Change in course requisites
- Change in semesters offered (department head signature only)
- Transfer from one department to another

**PROPOSED:**

- Subject Abbreviation: CE  
- Course Number: 38100
- Long Title: Soil Mechanics Laboratory
- Short Title: Soil Mechanics Lab

Abbreviated title will be entered by the Office of the Registrar if omitted. (22 CHARACTERS ONLY)

**EXISTING:**

- Subject Abbreviation
- Course Number
- Course Title

**TERMS OFFERED:**

- Check All That Apply:
  - Summer
  - Fall
  - Spring

- Campus(es) Involved:
  - Calumet
  - Cont Ed
  - Ft. Wayne
  - Indianapolis
  - N. Central
  - Tech Statewide
  - W. Lafayette

**CREDIT TYPE**

- Fixed Credit: Cr. Hrs.
- Variable Credit Range: Minimum Cr. Hrs.
- (Check One) To
- Or
- Maximum Cr. Hrs.
- Equivalent Credit: Yes
- No
- Thesis Credit: Yes
- No

**COURSE ATTRIBUTES:** Check All That Apply

- Pass/Not Pass Only
- Satisfactory/Unsatisfactory Only
- Repeatable
- Maximum Repeatable Credit:
- Credit by Examination
- Honors
- Designator Required
- Full Time Privilege
- Off Campus Experience
- Registration Approval Type

**INSTRUCTIONAL TYPE**

- Lecture
- Recitation
- Presentation
- Laboratory
- Lab Prep
- Studio
- Distance
- Clinic
- Experiential
- Research
- Ind. Study
- Pract/Observ

- Minutes Per Mtg
- Meetings Per Week
- Weeks Offered
- % of Credit Allocated
- Delivery Method (Asyn. Or Syn.)
- Delivery Medium (Audio, Internet, Live, Text-Based, Video)
- Cross-Listed Courses

**COURSE DESCRIPTION (INCLUDE REQUISITES):**

C. CE 380: Performing various laboratory tests to determine the characteristics and mechanical properties of soil according to the procedures and standards set by the American Society for Testing and Materials (ASTM).

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**Signatures:**

- Calumet Department Head: 4/9/10
- Calumet School Dean: 4/9/10
- Ft. Wayne Department Head: 4/9/10
- Ft. Wayne School Dean: 4/9/10
- Indianapolis Department Head: 4/9/10
- Indianapolis School Dean: 4/9/10
- North Central Department Head: 4/9/10
- North Central Chancellor: 4/9/10
- West Lafayette Department Head: 4/9/10
- West Lafayette College/School Dean: 4/9/10
- West Lafayette Registrar: 4/9/10

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**OFFICE OF THE REGISTRAR**
Required Course: CE 381 – Soil Mechanics Laboratory
Offered each spring

Catalog Data: Class: 1. Credits: 1.
Performing various laboratory tests to determine the characteristics and mechanical properties of soil according to the procedures and standards set by the American Society for Testing and Materials (ASTM).

Prerequisites: CE 380 – Soil Mechanics

Corequisite: N/A

Required Textbook: None


Course Objectives: Students will able to identify physical and mechanical properties of soil in the field and laboratory settings. Student will be familiar with ASTM laboratory test standards and procedures. This include preparing soil samples for testing, performing the test, collecting and analyzing data, interpreting the results and writing technical reports.

Schedule: One 150-minute class per week.

Laboratory Topics
1. Orientation, introduction, lab safety, sampling procedure 1 lab
2. Experiment 1: Moisture Content Determination 1 lab
3. Experiment 2: Organic Matter (Content) 1 lab
4. Experiment 3: Unit Weight (Density) 1 lab
5. Experiment 4: Specific Gravity of Soil Solids 1 lab
6. Experiment 5: Atterberg Limits 1 lab
7. Experiment 6: Grain Size Distribution- Sieve Analysis 1 lab
8. Experiment 7: Grain Size Distribution- Hydrometer Analysis 1 lab
9. Experiment 8: Moisture-Density Relationship (Compaction Test) 1 lab
10. Experiment 9: Hydraulic Conductivity- Constant Head Method 1 lab
11. Experiment 10: In-Place Soil Density 1 lab
12. Experiment 11: Demonstration of other lab such as Boring Logs and Soil Profiles Preparation. 1 lab
13. Final Exam 1 lab

Course Outcomes Upon successful completion of this course, students shall be able to:

1. perform common soil tests to identify physical and mechanical properties of soils. [a (1), b (3), e (2)]
2. be familiar with soil mechanics tests and determines which test is needed in designing civil engineering projects and/or solving engineering problems. [b (3), c (4), e (2)]

3. prepare soil samples for testing, performing the test, collecting and analyzing data according to ASTM. [b (3), f (7), k (6)]

4. apply the laboratory results to problem identification, quantification, and basic soil mechanics related design problem. [e (2)]

5. demonstrate the ability to write clear technical lab reports. [g (8)]

6. use word processors and other modern software packages in writing and finishing the report. [g (8), i (9)]

7. demonstrate the ability to work in groups. [d (5), g (8)]

8. understand and apply ethical issues associated with decision making and professional conduct in the lab and field environment. [f (7)]

Letters and numbers in parentheses refer to ABET outcomes and their correspondence BSCE program Outcomes.

**ABET category**

Engineering science: 0.75 credits or 75%
Engineering design: 0.25 credits or 25%