

## Master Syllabus

### CAT 2421 - Soil Mechanics

**Division:** Science, Mathematics and Engineering

**Department:** Civil Engineering Technology

**Credit Hour Total:** 3.0

**Lecture Hrs:** 2.0 **Lab Hrs:** 2.0

**Prerequisite(s):** MAT 1280 AND MET 1131

**Date Revised:** March 2015

---

### Course Description:

Theories of soil mechanics including soil classifications, sampling and testing methods, stress distribution, shearing resistance and strength of soils. Two classroom, two lab hours per week.

### General Education Outcomes:

- Written Communication Competency
- Critical Thinking/Problem Solving Competency
- Computer Literacy Competency
- Information Literacy Competency
- Oral Communication Competency

### Course Outcomes:

#### Report Preparation

Prepare technical reports.

**Assessment Method:** Portfolios

**Performance Criteria:**

Score at least "7" out of 10 based on a performance rubric for written reports

#### Testing Procedures

Demonstrate soil testing procedures.

**Assessment Method:** Behavioral observations

**Performance Criteria:**

70% or higher on performance checklist

**Assessment Method:** Portfolios

**Performance Criteria:**

Score at least "7" out of 10 based on a performance rubric for technical reports

#### Soil Classification

Compare soil classifications.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or higher correct responses on written exams

#### Soil Strength Characteristics

Understand the relationship between soil strength characteristics and design of structures.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or higher correct responses on written exams

#### Subsurface Exploration

Identify subsurface soil exploration.

**Assessment Method:** Locally developed exams

**Performance Criteria:**

70% or higher correct responses on written exams

### Outline:

Introduction and Geologic Overview  
Soil Terminology and Definitions  
Soil Types  
Classification Systems  
Movement of Water Through Soil  
Compaction/Stabilization