

I. COURSE DESCRIPTION:

This is an introductory soil mechanics course. Topics covered include: rock/soil origins, landform analysis, soil identification and classification system, site investigation, laboratory testing, movement of water through soils and compaction control.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. *Identify soil types, origins and properties.*

Potential Elements of the Performance:

- Outline the geological and weathering processes that resulted in rock formations and soil deposits.
- Describe the characteristics of common soil deposits in Ontario.
- Review soil and geological maps for probable site conditions.

2. *Solve applied problems in soils mechanics*

Potential Elements of the Performance:

- Calculate mass/volume relationships for given units of soil.
- Solve compaction problems

3. *Use the Unified Classification System and assess the capabilities and limitations of soil groups in engineering applications.***4. *Conduct laboratory tests***

Potential Elements of the Performance:

- Perform a mass-volume relationship test.
- Perform a sieve analysis.
- Perform a hydrometer analysis.
- Perform an Atterberg Limits test.
- Perform a constant head permeability test.

5. *Describe the manner in which water moves through soils such as permeability and capillary action and the effect that water movement has on drainage and frost heave.*

Potential Elements of the Performance:

- Describe the process of water movement through soil particles.
- Outline and illustrate the types of water found in soils
- Explain the mechanics of capillarity.
- Solve permeability problems using Darcy's law of flow.
- Construct simple flow nets for various soil-water conditions.
- Explain and illustrate dewatering systems for construction sites.
- Explain the mechanics of frost heave.

6. Research, schedule and execute a procedure for performing a field investigation.

Potential Elements of the Performance:

- Describe what information should be sought in a preliminary soil reconnaissance investigation.
- Outline the equipment and techniques used in soil sampling and testing in the field.
- Describe methods used to identify location of water table.
- Prepare site plans showing borehole locations.
- Document borehole logs.
- Draw profiles from given borehole logs.

III. TOPICS:

1. Rock/Soil Origins
2. Soil Mechanics Problems
3. Soil Classification Systems
4. Laboratory Testing of Soils
5. Movement of Water Through Soils
6. Site Investigation

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Essential of Soil Mechanics and Foundations, 7th edition
David F. McCarthy

V. EVALUATION PROCESS/GRADING SYSTEM:

You will be assigned a final grade on successful completion of laboratories assignments, and tests, weighted as follows:

Lab work and reports	25%
Tests	55%
Quiz & assignments	20%
TOTAL	100%

Late lab reports submittals receive only a maximum grade of 50%. However, laboratories or assignments handed in later than one week will receive a grade of 0%.

An average of 50% on laboratories/assignments and 60% on tests is required for successful completion of this course.

The following semester grades will be assigned to students:

Grade	Definition	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	
X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.	
NR	Grade not reported to Registrar's office.	
W	Student has withdrawn from the course without academic penalty.	

VI. SPECIAL NOTES:

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Prior Learning Assessment:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question. Please refer to the Student Academic Calendar of Events for the deadline date by which application must be made for advance standing.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.

Substitute course information is available in the Registrar's office.

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

Communication:

The College considers **WebCT/LMS** as the primary channel of communication for each course. Regularly checking this software platform is critical as it will keep you directly connected with faculty and current course information. Success in this course may be directly related to your willingness to take advantage of the **Learning Management System** communication tool.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. A professor/instructor may assign a sanction as defined below, or make recommendations to the Academic Chair for disposition of the matter. The professor/instructor may (i) issue a verbal reprimand, (ii) make an assignment of a lower grade with explanation, (iii) require additional academic assignments and issue a lower grade upon completion to the maximum grade “C”, (iv) make an automatic assignment of a failing grade, (v) recommend to the Chair dismissal from the course with the assignment of a failing grade. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Student Portal:

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations. Announcements, news, the academic calendar of events, class cancellations, your learning management system (LMS), and much more are also accessible through the student portal. Go to <https://my.saultcollege.ca>.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

Attendance:

Sault College is committed to student success. There is a direct correlation between academic performance and class attendance; therefore, for the benefit of all its constituents, all students are encouraged to attend all of their scheduled learning and evaluation sessions. This implies arriving on time and remaining for the duration of the scheduled session.