

I. COURSE DESCRIPTION:

This course is intended to introduce the student to various activities commonly undertaken in construction and related engineering disciplines. The student will gain understanding in the use of materials, procedures, techniques, tools and equipment commonly encountered in construction engineering projects.

Construction is one of the leading industries in Ontario. It takes teamwork to be successful in this profession. This course introduces you to some of the key skills for success in this field. These skills include AutoCAD, scheduling, scaffolding, concrete testing, surveying, estimating and woodworking.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. Use CAD to create and plot a basic drawing.Potential Elements of the Performance:

- Recognize the hardware and software required for CAD
- Understand the use and value of precision in CAD for engineering and construction
- Use CAD to extract information from a drawing

2. Use basic mathematics to solve problems found in the construction industry.Potential Elements of the Performance:

- Review of basic algebra and geometry
- Review of imperial measurement
- Define perimeter, area and volume related to various geometric shapes
- Review of the Pythagorean Theorem and its practical applications
- Apply basic mathematics to solve construction related problems

3. Describe methods and procedures required for scaffold erection and dismantling.Potential Elements of the Performance:

- list required personal protective equipment
- interpret related occupational health and safety legislation
- interpret material list requirements
- identify scaffolding system and components

Potential Elements of the Performance Continued:

- describe pre-installation inspection procedures for scaffolding system and components
- describe area layout procedures for scaffold base
- describe the procedures to check alignment during installation
- identify hand and power tools used in the erection and dismantlement of scaffolds
- demonstrate basic installation procedures for scaffolding systems

4. Describe the methods and procedures required for selecting and mixing concrete ingredients and testing for slump and strength.

Potential Elements of the Performance:

- Identify various types of cement and describe their use
- Identify types of concrete admixtures and describe their uses
- Identify concrete curing methods and materials
- Identify concrete testing methods
- perform slump testing of concrete

5. Describe the use of survey measurement devices for construction.

Potential Elements of the Performance:

- Identify surveying equipment, including: tripod, level, transit, laser level
- interpret the use of a tripod, level and rod
- define the term bench mark, back sight, foresight and height of instrument
- illustrate the set up of a level on a tripod
- illustrate the use of the instrument in calculating levels and heights
- describe the use of grade through the use of a bench mark.

6. Understand the use of Estimating in construction.

Potential Elements of the Performance:

- Identify different types of estimates
- Recognize the different construction divisions
- Prepare an estimate of concrete volume given a construction drawing

7. Working in groups construct a woodworking project according to specifications provided.

Potential Elements of the Performance:

- plan the project
- estimate cost and materials required
- training of the safe use of tools required to complete the project

III. TOPICS:

1. CAD
2. CONSTRUCTION MATHEMATICS
3. SCAFFOLDING
4. PORTLAND CEMENT CONCRETE
5. LEVELING
6. ESTIMATING
7. WOODWORKING PROJECT

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- One (1) Tape Measure minimum 16'-0" in length
- PPE (CSA hard hat, CSA work boots, CSA safety glass, CSA visi vest)

V. EVALUATION PROCESS/GRADING SYSTEM:

You will be assigned a final grade based on successful completion of quizzes, assignments, project and field trips, weighted as follows:

Assignments and Tests	45%
Attendance	15%
Project	<u>40%</u>
TOTAL	100%

Late submittals receive only a maximum grade of 50%. A mark will be given for participation for each lab.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	
A	80 – 89%	4.00
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
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:

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.

It is the departmental policy that once the classroom door has been closed, the learning process has begun. Late arrivers will not be granted admission to the room.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located on the portal form part of this course outline.