SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

Sault College

COURSE OUTLINE

COURSE TITLE:	CONSTRUCTION BASICS		
CODE NO. :	CTT 140	**SEMESTER:**	II
PROGRAM:	PRE-TRADES AND TECHNOLOGY		
AUTHOR:	**T. MOODY & D. MOODY**		
DATE:	JAN-09	**PREVIOUS OUTLINE DATED:**	JAN-08
APPROVED:	**"Corey Meunier"** **CHAIR**		_____ **DATE**
TOTAL CREDITS:	3		
PREREQUISITE(S):	NONE		
HOURS/WEEK:	16 WEEKS		

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 a team project. Field trips make up the other component of this course.

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

Develop 2D and 3D CAD models by completing a tutorial

2. Use Microsoft Project to create a network diagram

Potential Elements of the Performance:

- Create a task list for a small project
- Identify task relationships and their effect on project duration
- Define a critical activity
- Create a network diagram and identify the critical path using Microsoft Project

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 surveying methods in relation to 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 and sizes of concrete aggregates
- Identify types of concrete admixtures and describe their uses
- Identify concrete curing methods and materials
- Identify concrete testing methods
- demonstrate sampling methods used for testing of concrete
- perform slump testing of concrete
- perform casting of specimens for strength testing of concrete
- perform a compressive strength test on concrete cylinder

5. Describe the use of survey measurement devises 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 quantities for earthwork using the average elevation method with Microsoft Excel
- Prepare an estimate of concrete volume given a construction drawing

7. Working in groups of three students construct a scaled concrete shell dome used to protect an egg. Adapted from "ACI Egg Protection Device Competition."

Potential Elements of the Performance:

- plan the project
- estimate cost and materials required
- schedule time required for completion
- assign tasks for each group member
- construct the concrete dome

III. TOPICS:

1. CAD
2. Scheduling - Microsoft Project
3. Scaffolding
4. Portland Cement Concrete
5. Leveling
6. Estimating
7. Independent Group Project

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- No resources, textbooks or materials required
- WebCT Handouts

V. EVALUATION PROCESS/GRADING SYSTEM:

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

Quizzes	30%
Assignments	35%
Attendance	20%
Project	15%
TOTAL	**100%**

Each quiz carries equal weight. They are surprise quizzes given in a random fashion during class hours. The content of each quiz is relevant to one or two week's stretch of lectures. You are not permitted to write a missed quiz unless you present the instructor with a written letter explaining the extenuating circumstance why you were unable to write the quiz.
Each assignment carries equal weight. Late submittals receive only a maximum grade of 50%. However, laboratories handed in later that one week will receive a grade of 0%.

The following semester grades will be assigned to students:

Grade	**Definition**	*Grade Point Equivalent*
A+	90 – 100%	4.00
A	80 – 89%	
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:

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.

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.

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*. Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. 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.

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.

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

COURSE GUIDELINES/EXPECTATIONS

Attendance

CTT-104 is intended to be a practical, hand on course. Theory sessions and lengthy note taking classes will be kept to a minimum. As a result, ATTENDANCE is extremely important. Attendance will be taken at the beginning of each class. As indicated in the course outline, a large percentage of your grade is based on your attendance.

In the event you have a medical/personal reason for missing multiple classes, be sure to contact one of your instructor's.

Notes and handouts that are missed as the result of an absence are YOUR responsibility. Each student is responsible for obtaining notes/handouts from a classmate.

As this course is primarily delivered via the LMS system, it is your responsibility to check it daily.

Equipment/Supplies

There is no text book required for this class. All instruction/tutorials will be delivered to you through LMS or by way of a handout.

You will be required to have some basic PPE (Personal Protective Equipment) before entering the shop. That PPE includes:

-CSA certified steel toe safety boots with green tag
-CSA certified safety glasses with side shield
-CSA certified Hard Hat

Anyone showing up to class without all 3 pieces of gear will not be permitted entry to the shop, and therefore will receive an absent for that day.

As part of a group project later in the semester, the class will be divided into groups. Each group will need to design a structure to protect an item (details to follow later!!). As part of the design, each group will need to obtain a plastic/metal dome shaped object(s) to act as concrete formwork. These items can either be purchased new, or obtained from around the house. The financial outlay per student will likely be less than $2.00. If any student is unable to afford this expense, please speak to one of your instructor's in private.

Year End Project

The class will be assigned a group project, to be completed in the Month of April. This will essentially be "INDEPENDENTLY DRIVEN". This project is intended to allow you to demonstrate some/all of the skills you have learned throughout the semester. The mark will be assigned based on several factors:

-the preparation
-the design
-the implementation of the design
-neatness
-professional conduct

ATTENDANCE: Your instructors will be in attendance each class, but will be there only to provide assistance/answer questions as directed by the student. Each class will be 100% available for you to complete the project. Any absence from these classes will result in a failing grade. Any absence will need to be previously authorized or be explained by a note from an employer or doctor.

VII. 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.

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