

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



**SAULT
COLLEGE**

COURSE OUTLINE

COURSE TITLE:	HIGHWAY ENGINEERING		
CODE NO. :	CIV216	SEMESTER:	FOUR
PROGRAM:	Civil Engineering Technician		
AUTHOR:	MONTE LUCAS		
DATE:	JANUARY 2013	PREVIOUS OUTLINE DATED:	JANUARY 2012
APPROVED:	<i>“Corey Meunier”</i>		
	CHAIR		<hr/> DATE
TOTAL CREDITS:	FOUR		
PREREQUISITE(S):	NONE		
HOURS/WEEK:	FOUR		

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School of Technology & Skilled Trades
(705) 759-2554, Ext.2610

I. COURSE DESCRIPTION:

This course introduces the student to fundamental concepts in the field of transportation engineering. The student develops a working knowledge of road classification, level of service, traffic study, highway geometrics and intersection design. Computer and survey applications will be discussed when appropriate.

II. LEARNING OUTCOME:

- 1. *Demonstrate relevant mathematical, computer and technical problem solving skills as it relates to civil engineering / construction projects.***
- 2. *Demonstrate an understanding of the working roles and inter-relationships required to adhere to the objectives of the project and work in accordance to labour-management principles and practices.***
- 3. *Apply sound environmental practices and policies in civil engineering and construction projects.***

VI. TOPIC OUTLINE

Outcome	Topic and Content	Reading	Week
1,2,3	1. Overview of Highway Engineering and Transportation Design 1.1. Real Life Examples of Transportation Concepts 1.2. Fundamental Concepts of Highway Engineering 1.3. Fundamental Concepts of Transportation Design 1.4. Summarize Topic 1.5. In Class Problem Set / Assignments	TAC Manual Handout	1
1,2,3	2. Classification and Capacity 2.1. Real Life Examples of Road Classification 2.2. Conditions 2.3. Level of service 2.4. Safety 2.5. In Class Problem Set / Assignments	TAC Manual Handout	2

1,2,3	3. Basic Traffic Study 3.1. Real Life Examples of Traffic Study 3.2. Traffic study 3.3. Traffic Flow Models 3.4. In Class Problem Set / Assignments	TAC Manual Handout	3
1,2,3	4. Highway Geometrics and Design 4.1. Real Life Examples of Highway Geometrics 4.2. Design Elements 4.3. Horizontal Alignment 4.4. Vertical Alignment 4.5. Review and Mid-term Test 4.6. Spiral Curves 4.7. Superelevation 4.8. Cross Section Elements 4.9. Sight Distances 4.10. Drainage 4.11. Pavement Design 4.12. Traffic Barriers 4.13. In Class Problem Sets / Assignments	TAC Manual Handout	4-12
1,2,3	5. Intersections 5.1. Real Life Examples of Intersections 5.2. Types of intersections 5.3. Controls 5.4. At-grade Intersections 5.5. In Class Problem Sets / Assignments	TAC Manual Handout	13-14
	6. Review and Final Test <ul style="list-style-type: none"> • Review and Final Test 		15

III. REQUIRED RESOURCES/TEXTS/MATERIALS:

Geometric Design for Canadian Roads

Transportation Association of Canada

Design Manuals

Ontario Ministry of Transportation

IV. EVALUATION PROCESS/GRADING SYSTEM:

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

Assignments	40%
Mid Term Test	30%
Final Test	<u>30%</u>
TOTAL	100%

Each assignment carries equal weight. Late submittals receive only a maximum grade of 60%. However, assignments handed in later than one week will receive a grade of 0%.

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

The following semester grades will be assigned::

<u>Grade</u>	<u>Definition</u>	<u>Grade Point Equivalent</u>
A+	90 - 100%	4.00
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.	

Assignments and Examination Policy:

If a student is unable to write a test or exam at the scheduled time the following procedure shall apply:

- The student shall provide the professor with advance notice (in writing) of the need to miss the test
- The student shall provide documentation as to the reason for the absence and the make-up will be at the discretion of the professor.
- Upon return the student is responsible to make arrangements for the writing of the test. This arrangement shall be made prior to the next schedule class.
- In the event of an emergency, the student shall telephone the professor as soon as possible at 759-2554, to notify of the absence. If the professor is not available, the college has a 24 hour voice mail system.
- In the event of a test missed due to emergency, the student shall provide documentation from a professional such as doctor or lawyer.

All late assignments (without documentation) will receive a maximum grade of C (60%).

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.

VII. COURSE OUTLINE ADDENDUM:

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