

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: INSTALLATION METHODS III

CODE NO. : ELR233 **SEMESTER:** Four

PROGRAM: Electrical Engineering Technician/Technology

AUTHOR: Ron Chartrand/Rob McTaggart

DATE: January 2016 **PREVIOUS OUTLINE DATED:** September 2014

APPROVED:

"Corey Meunier"
CHAIR

TOTAL CREDITS: 5

PREREQUISITE(S): ELR113, ELR123

HOURS/WEEK: 2

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School of Technology & Skilled Trades

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I. COURSE DESCRIPTION:

This course introduces the student to electrical installation methods for commercial applications. The Canadian Electrical Code is covered (utilizing the Ontario Electrical Safety Code) in conjunction with interpretation of construction drawings and specifications for a small commercial installation. ELR233 is a continuation of Installation Methods I and II, which dealt primarily with residential wiring practices.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

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

1. *Interpret the Canadian Electrical Code (CEC) requirements pertaining to commercial installations.***Potential Elements of the Performance:**

- Calculate the minimum ampacity of feeder conductors and overcurrent devices for commercial occupancies as listed in Table 14.
- Interpret the CEC installation requirements as applicable to branch circuits, feeders and overcurrent protection required for common commercial installations.
- Interpret the CEC installation requirements as applicable to branch circuits, feeders, overload, and overcurrent protection for continuous duty service motors (Section 28).
- Interpret the CEC regulations as applicable to interior and exterior lighting equipment (Section 30).
- Interpret CEC regulations governing the installation of Commercial Utility-Interactive Photovoltaic Systems (Sections 64 and 84).

2. *Interpret specifications and drawings for a small commercial construction project.***Potential Elements of the Performance:**

- Determine utility location and site features that affect electrical installations through the use of site drawings.
- Use architectural and structural drawings to determine methods of construction as they affect electrical installation.

- Use architectural and structural drawings to determine dimensions and elevations as they affect electrical installation.
- Use mechanical drawings to determine the electrical characteristics of mechanical equipment and systems.
- Use mechanical drawings to determine the layout of mechanical equipment and systems as they affect electrical installation.
- Select the correct wiring methods and electrical equipment for a commercial installation.
- Use a complete set of drawings and specifications to lay out commercial distribution and service equipment and wiring.
- Describe common lighting systems and their applications.
- Describe the purpose, operation and major components of a commercial fire alarm system.
- List and describe the codes and standards relating to the installation, verification and inspection and testing of fire alarm systems.
- Use a complete set of drawings, specifications, manufacturer's drawings, and the CEC to prepare a material take off.
- Read and develop basic single line, schematic, and wiring diagrams.
- Perform basic short circuit calculations and associated coordination studies for a commercial power distribution system.

III. TOPICS:

1. Canadian Electrical Code.
2. Interpretation of commercial plans and specifications.

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Canadian Electrical Code 2015 Edition (if the Ontario Electrical Safety Code, 2015 is available it may be used as well).
Electrical Wiring Commercial Seventh Canadian Edition

V. EVALUATION PROCESS/GRADING SYSTEM:

3 Tests	75%
Homework assignments	25%

The professor reserves the right to adjust the number of tests as warranted. Total value of tests will remain 75% Any modifications will be discussed in class.

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
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: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.

Other:

If a student misses a test he/she must have a valid reason (i.e. medical or family emergency – documentation may be required). In addition, the instructor must be notified prior to the test sitting. If this procedure is not followed the student will receive a mark of zero on the test with no make-up option.

Homework assignments will have deadlines. Late assignments will be assigned a mark of 0.

If a student misses class time due to sickness, family emergency or other reason beyond his/her control the student must at his/her first opportunity meet with the course faculty to discuss if the missed time has placed the student at an increased risk of failing. The student must follow up the meeting by emailing the faculty with a summary of the meeting's discussions. Documentation validating the missed time may be required.

Required texts are brought to each class. Sections of the course text books may be highlighted however they are not to be written in. Tests will be 'open book' as far as the textbooks are concerned (the code book may be used for code tests, code book and prints text will be permitted for prints tests). However, use of a book containing markings other than the aforementioned highlights is not permitted and will be considered as academic dishonesty. Students are responsible for supplying their own texts for tests. Sharing books during a test is not permitted.

Use of cell phones/PDAs for any form of communication (voice, text...) during class time is strictly prohibited. Cell phones/PDAs must be silenced during regular classes and must be turned off and kept out of sight during test sittings. Failure to follow the latter requirement during a test sitting will result in a grade of 0 being assigned.

Students may not wear earphones of any kind during test sittings. This does not include hearing aids required for the hearing impaired.

Students are expected to maintain an active Sault College email account. They are required to check this email account daily. The instructor may announce details of test requirements and scheduling through the Sault College email system (as well as sharing other important information).

VII. COURSE OUTLINE ADDENDUM:

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