

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: CANADIAN ELECTRICAL CODE, LEVEL III

CODE NO. : ELR823 **SEMESTER:**

PROGRAM: CONSTRUCTION & MAINTENANCE ELECTRICIAN
APPRENTICESHIP

AUTHOR: S. Hager/R. McTaggart

DATE: January 2016 **PREVIOUS OUTLINE DATED:** January 2015

APPROVED: *"Corey Meunier"*
CHAIR DATE

TOTAL CREDITS: 3

PREREQUISITE(S): N/A

HOURS/WEEK: 3

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For additional information, please contact Corey Meunier, Chair
School of Technology & Skilled Trades
(705) 759-2554, Ext. 2610

I. COURSE DESCRIPTION:

This course is a continuation of ELR623 and ELR723, Canadian Electrical Code Level I and II. The primary focus will be on code sections relating to industrial 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 industrial installations.***Potential Elements of the Performance**

- Interpret the CEC regulations associated with the installation of two or more continuous and non-continuous duty service motors on a branch circuit or feeder including conductor size and overcurrent device sizes (Section 28).
- Interpret the CEC regulations associated with the installation of a hermetic refrigerant motor-compressor on a branch circuit including conductor size, overload size, and overcurrent device size (Section 28).
- Interpret the CEC regulations regarding the installation of reduced voltage starters including overload size, and overcurrent device size.
- Calculate tap conductor size for motor and compressor branch circuits.
- Interpret the CEC regulations associated with the installation of transformers including dry type and liquid-filled (Section 26).
- Calculate minimum conductor size and maximum overcurrent protection for individual power and distribution transformers including dry-type, liquid-filled, high-voltage and low-voltage on a circuit (Section 26).
- Calculate minimum conductor size and maximum overcurrent for more than one power and distribution transformer including dry-type, liquid-filled, high-voltage and low-voltage on a feeder or branch circuit (Section 26).
- Interpret the CEC regulations regarding welders (Section 42).

- Calculate the minimum conductor size and the maximum overcurrent protection for individual resistance and transformer type welders (Section 42).
- Calculate the minimum conductor size and the maximum overcurrent protection for more than one resistance and/or transformer type welder on a circuit (Section 42).
- Interpret the CEC regulations for the installation of capacitors (Section 26).
- Calculate the minimum conductor size, maximum overcurrent device size and disconnecting means size for capacitors (Section 26).
- Interpret the CEC regulations for placing capacitors in motor circuits (Section 26).
- Select overcurrent devices based on voltage, continuous load, and maximum current interrupting ratings as per manufacturer's specifications, CEC and customer's requirements.
- Interpret the CEC regulations associated with high voltage installations including wiring methods, grounding and bonding (Section 36)

III. TOPICS:

1. Canadian Electrical Code, Industrial Rules

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Canadian Electrical Code, Part 1, 21th Edition/2012 or equivalent Ontario Electrical Safety Code.

V. EVALUATION PROCESS/GRADING SYSTEM:

3 or 4 equally weighted tests: 100%

*See special notes.

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.

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.

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. Any material covered during any absence legitimate or not is the responsibility of the student.

For this course **D2L/LMS** is considered 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

Deadlines will be specified for submission of assignments for grading. Late assignments will not be accepted and a grade of 0 will be assigned.

Required text is to be 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 code book is concerned. 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 or lab time is strictly prohibited. **Cell phones/PDAs must be silenced during regular class and lab times 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 lab activities or test sittings. This does not include hearing aids required for the hearing impaired.

VII. COURSE OUTLINE ADDENDUM:

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