SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	Canadian Electrical Code I		
CODE NO. :	ELR623	**APP LEVEL:**	ONE
PROGRAM:	Construction & Maintenance Electrician – Level 1		
AUTHOR:	Sean Hager		
DATE:	August 2015	**PREVIOUS OUTLINE DATED:**	August 2014
APPROVED:	*"Corey Meunier"* **CHAIR**		
TOTAL CREDITS:			
PREREQUISITE(S):	None		
HOURS/WEEK:	4		

I. COURSE DESCRIPTION:

This course introduces the student to the Canadian Electrical Code. The primary focus will be on code sections relating to 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. ***State the purpose of the Canadian Electrical Code and identify which sections apply to a given electrical installation.***

   Potential Elements of the Performance:

   - State the objectives, scope, and general arrangement of the Canadian Electrical Code. (CEC)
   - Identify the method used to indicate code regulation changes in new editions of the CEC.
   - Identify installation requirements for electrical equipment (other than heating) installed in residential occupancies as specified in the Installation of Electrical Equipment section of the CEC.
   - Explain terms as listed in the "Object, Scope and Definitions" section and the Special Terminology section of other sections of the CEC.
   - Interpret general rules (Section 2) of the CEC.

2. ***Interpret rules of the Canadian Electrical Code which apply to residential installations.***

   Potential Elements of the Performance:

   - Explain the CEC regulations regarding grounding and bonding (Section 10) of electrical systems and circuits operating at 750 volts or less.
   - Interpret the regulations of the CEC regarding wiring methods (Section 12) for installations operating at 750 volts or less.
   - Explain the general regulations regarding Class 1 and Class 2 signal and remote control Circuits (Section 16) of the CEC.
   - Interpret the CEC regulations for Pools, Tubs, Spas (Section 68).
   - Identify temporary wiring installation requirements for buildings or projects under construction or demolition (Section 76) of the CEC.
   - Calculate conduit fill where all conductors are the same size and have the same insulation type.
   - Calculate conduit fill where the conductors have different sizes and/or different insulation types.
   - Calculate raceway fill for the raceway types listed in Section 12 where all conductors are the same size and have the same insulation type.

Potential Elements of the Performance:

- Explain the CEC regulations regarding grounding and bonding (Section 10) of electrical systems and circuits operating at 750 volts or less.
- Interpret the regulations of the CEC regarding wiring methods (Section 12) for installations operating at 750 volts or less.
- Explain the general regulations regarding Class 1 and Class 2 signal and remote control circuits (Section 16) of the CEC.
- Interpret the CEC regulations for Pools, Tubs, Spas (Section 68).
- Identify temporary wiring installation requirements for buildings or projects under construction or demolition (Section 76) of the CEC.
- Calculate conduit fill where all conductors are the same size and have the same insulation type.
- Calculate conduit fill where the conductors have different sizes and/or different insulation types.
- Calculate raceway fill for the raceway types listed in Section 12 where all conductors are the same size and have the same insulation type.
- Calculate raceway fill for the raceway types listed in Section 12 where the conductors have different sizes and/or different insulation types.
- Calculate the maximum number of conductors sized #14 to #6 that are permitted in a box.
- Calculate the minimum size of pull boxes for straight, angle and u-pulls for conductors larger than #6.
- Calculate ampacity and apply correction factors for single conductors in free air, including conductors in parallel.
- Calculate ampacity and apply correction factors for conductors in a raceway or multi-conductor cable, including conductors in parallel.
- Calculate ampacity and apply correction factors for flexible cords and equipment wires.
- Calculate ampacity and apply correction factors for underground conductor installations using IEEE Standard 835.
- Calculate the size of service equipment for single dwelling units.
- Identify installation requirements for electrical equipment (other than electric heating) including: lighting, receptacles, heating, and appliances installed in single dwelling occupancies as specified in the Installation of Electrical Equipment Section 26 and 30 of the CEC.
- Interpret the CEC regulations regarding the installation of fire alarms located in dwelling units.
- Explain requirements for the installation and wiring of Fixed Electric Surface and Space Heating Systems located in residential occupancies.

III. TOPICS:

1. Canadian Electrical Code, Layout and General Rules
2. Canadian Electrical Code, Residential Rules

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Ontario Electrical Safety Code current version

V. EVALUATION PROCESS/GRADING SYSTEM:

Tests worth 100%
Unannounced quizzes 5% each of the above 100%

- There will likely be 2 tests during the intake and dates will be identified in class.
- The professor reserves the right to adjust the number of tests as warranted. Any modifications will be discussed in class.
- Attendance is mandatory and quizzes will only be marked when completed in class.
- Tests will not be returned but will be available for review.

***See special notes.**

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.

If a faculty member determines that a student is at risk of not being successful in their academic pursuits and has exhausted all strategies available to faculty, student contact information may be confidentially provided to Student Services in an effort to offer even more assistance with options for success. Any student wishing to restrict the sharing of such information should make their wishes known to the coordinator or faculty member.

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.*

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.

There are no make-up tests, assignments or extra work allowed for any reason.

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

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

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.

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. 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.

VII. COURSE OUTLINE ADDENDUM:

The provisions contained in the addendum located in D2L and on the portal form part of this course outline.