

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



COURSE OUTLINE

COURSE TITLE: Installation Methods IV

CODE NO. : ELR243 **SEMESTER:** 4

PROGRAM: Electrical Engineering Technician
– Process Automation & Trades

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

APPROVED: *“Corey Meunier”* Jan 2016
DATE

TOTAL CREDITS: 3

PREREQUISITE(S): ELR233

HOURS/WEEK: 3

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I. COURSE DESCRIPTION:

This course introduces the student to electrical installation methods for Monitoring and Communication Systems. Corresponding sections of the Canadian Electrical Code and the Canadian Building Code are covered in conjunction with ULC Standards relating to installation, inspection, testing and verification of Fire Alarm Systems. Nurse call systems, intrusion alarm systems, institutional clocks and home automation will also be covered.

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), National Building Code and ULC requirements pertaining to Fire Alarm Systems.*

Potential Elements of the Performance:

Describe the principles of operation and installation requirements of single stage, two stage, initiation and supervisory circuits.

Describe the principles of operation and installation requirements for pull stations, detectors, flow switches, bells, speakers, addressable initiating devices and sprinkler supervisory devices.

Describe the principles of operation and installation requirements of speaker and ancillary relay circuits, annunciators and emergency phones.

Describe the basic operation of wet and dry sprinkler systems.

Describe the uses and dangers of fire suppression agents, the components and systems used for their installation in suppression systems

List the ULC standard for the installation, inspection, testing and verification of Fire Alarm Systems.

Use the building code to determine the installation requirements for fire alarm systems and related equipment.

Demonstrate the installation, troubleshooting and testing of speaker and ancillary relay circuits, annunciators and emergency phones.

Demonstrate the installation, operation and testing of alarm panels with respect to lights and lamps, power supplies, overcurrent devices, ground fault indicators, annunciator panels and common trouble functions.

2. *Describe the principles of operation of various commercial and residential monitoring and communication systems.*

Potential Elements of the Performance:

Describe the principles of operation of institutional clock systems.

Describe the wiring and operation of intrusion systems and devices.

Describe the wiring and operation of paging and communication systems.

Describe the wiring and operation of nurse call stations.

Describe the principles of operation and installation requirements for common home automation systems.

Describe the methods used to install, terminate and test fibre optic cables.

III. TOPICS:

1. Fire Alarm Systems
2. Monitoring and Communication Systems

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Canadian Electrical Code Part 1 (Current Edition)
- Electrical Wiring Commercial (Current Edition)
- Electrical Wiring Residential (Current Edition)
- Safety glasses, multimeter and hand tools.

V. EVALUATION PROCESS/GRADING SYSTEM:

Tests	40%
Homework Assignments	40%
Shop activities and associated reports	20%

The following semester grades will be assigned to students:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	
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.	

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.

Additional Information:

If a student misses a test he/she must have a valid reason (i.e. medical or family emergency – documentation such as a Doctor's note or death certificate may be required). A flat tire or vehicle problems are not a valid reason. 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.

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

Students may not wear earphones of any kind (i.e. for play back of recorded music/voice) during lab activities or test sittings. This does not include hearing aids required for hearing impaired.

Students must continuously wear all Sault College required personal protective equipment (PPE) during lab activities.

Failure to do this will result in expulsion from the lab activity and a grade of zero being assigned.

Students are expected to be wearing their required PPE prior to entering the lab.

The instructor will advise what specific PPE is required. If a student repeatedly neglects to wear PPE as required he/she will be considered to be in violation of the Sault College Academic Code of Conduct and may be sanctioned accordingly (see Student Code of Conduct & Appeal Guidelines).

For instance, first violation – verbal warning, second violation written warning, third violation suspension from lab activities.

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