

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: Installation Methods IV

CODE NO. : ELR 243 **SEMESTER:** 4

PROGRAM: Electrical Engineering Technician/Technologist

AUTHOR: S. Gauvreau

DATE: 01/2007 **PREVIOUS OUTLINE DATED:** 12/2005

APPROVED:

	DEAN	DATE
--	------	------

TOTAL CREDITS: 3

PREREQUISITE(S): ELR233

HOURS/WEEK: 3

Copyright ©2007 The Sault College of Applied Arts & Technology

Reproduction of this document by any means, in whole or in part, without prior written permission of Sault College of Applied Arts & Technology is prohibited.

*For additional information, please contact Colin, Kirkwood, Dean
School of Technology, Skilled Trades, Natural Resources & Business
(705) 759-2554, Ext.2688*

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. ELR243 is a continuation of Installation Methods I, II and III and will be used to complete activities missed in the previous courses.

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 Canadian Building Code to determine the installation requirements for fire alarm systems and related equipment.
 - Demonstrate the installation, troubleshooting and testing of initiation and supervisory circuits and devices including two stage initiator wiring.
 - 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 communications 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 nurse call systems.
- Describe the wiring and operation of paging and communications systems.
- 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:

- Ontario Electrical Safety Code (current edition) or Canadian Electrical Code Part 1 (Current Edition)
- Electrical Wiring Commercial (Current Canadian Edition published by Delmar)
- Electrical Wiring Residential (Current Canadian Edition published by Delmar)
- Safety glasses, multimeter and hand tools

V. EVALUATION PROCESS/GRADING SYSTEM:

Quizzes (may be unannounced) 1% each to a maximum of 10% 0 to 10%

3 Tests 60 to 70%

Shop activities and associated reports: 30%

While marks are not given for attendance, marks may be deducted for classes missed. See Special Notes section.

The following semester grades will be assigned to students in postsecondary courses:

Grade	<u>Definition</u>	<i>Grade Point Equivalent</i>
A+	90 – 100%	4.00
A	80 – 89%	3.00
B	70 - 79%	2.00
C	60 - 69%	1.00
D	50 – 59%	0.00
F (Fail)	49% and below	
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:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 493 so that support services can be arranged for you.

Retention of Course Outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Plagiarism:

Students should refer to the definition of "academic dishonesty" in *Student Rights and Responsibilities*. Students who engage in "academic dishonesty" will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course Outline Amendments:

The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

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.

Attendance to shop activities is compulsory, unless discussed with the instructor in advance of the absence and the absence is for a medical or family emergency. Any student that is absent for any shop class will be required to provide a doctor's note immediately upon returning. Failing to do so will result in a grade of 0% being assigned to the missed shop activity. At the instructor's discretion a deduction of 5% may be made from the student's final mark for each shop class or portion thereof missed

Students are required to bring safety glasses and hand tools to all shop classes.

Although attendance of the lectures is not mandatory it is strongly encouraged. Quizzes may be used as an incentive to attend classes and as an indicator of class participation and attendance. As such there will be no makeup of missed quizzes.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.

IX. LAB REQUIREMENTS:

1. All lab reports are to be computer generated. Hand written reports will not be accepted.
2. All lab reports are to include a title page with the following information:
 - Lab title and number
 - Due date
 - Date submitted
 - Course number
 - Names of group members
 - Instructor's name
3. Lab reports are to include all procedures and observations listed in the order they were performed/taken and numbered to match the lab handout.
4. One lab report submission per group. Maximum 2 members per group. Working in groups only if necessary.
5. Lab reports submitted with grammatical and/or spelling errors will receive a grade of 0. Word processors have spell check, it is expected students will use it.
6. Lab reports are due at the beginning of class 1 week after the scheduled period in which it was done. Late submissions will receive a grade of 0.
7. Students are not permitted to work on live equipment outside of regular class time. If a student misses all or part of a lab class he/she will not be permitted to submit the corresponding lab report.
8. Students must supply their own hand tools and safety glasses. Students will not be permitted in the lab without safety glasses and must wear the safety glasses whenever working on or around live equipment. Students must never work alone in the lab. Unsafe work habits will not be tolerated.