

I. COURSE DESCRIPTION:

This course introduces the student to electrical installation methods for industrial applications. The Canadian Electrical Code is covered in conjunction with interpretation of construction drawings and specifications for an industrial installation.

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 requirements pertaining to industrial installations.***Potential Elements of the Performance:**

- Use architectural, electrical, and mechanical drawings and specifications to determine installation requirements for a construction project.
- Read and develop complex single line, schematic and wiring diagrams.
- Identify the standards for IEC, NEMA, and EEMAC rated starters and contactors as per manufacturer's specifications.
- Use plans to design branch circuit layouts for single phase and three phase systems from panels to the points of utilization, employing load balancing techniques.
- Complete a cable pulling calculation to determine the stresses on the conductor/cable during installation.
- Prepare branch circuit, feeder, and bus duct electrical estimates, using the drawings, for construction installations, and transfer the information to material order sheets.
- Complete an electrical system design from the point of utility supply, emergency supplies and transfers, to a panel board and associated loads including transformers, feeders, bus duct, splitters, disconnects, capacitors and motors, applying Code rules.
- Complete the grounding and bonding requirements for a high voltage substation installation including indoor and outdoor substations and electrical vaults.

- State the precautions necessary for the installation of a stress cone.
- Describe the preparation and termination of shielded high voltage cables.
- Describe the preparation and termination of concentric neutral high voltage cables.
- Describe the testing methods for high voltage cables and identify all applicable safety requirements.
- Select overcurrent devices to ensure proper overcurrent coordination as per manufacturer's specifications, CEC and customer's requirements.

III. TOPICS:

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

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

- Canadian Electrical Code Part 1 (Current Edition)
- Electrical Wiring Industrial (Current Canadian Edition published by Delmar)

V. EVALUATION PROCESS/GRADING SYSTEM:

Quizzes (may be unannounced) 1% each to a maximum of 20%
 Completion of Unit Questions 20%
 2 Tests equally weighted 80 to 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:

Disability Services:

If you are a student with a disability (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Disability Services office. Visit Room E1101 or call Extension 2703 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.

Communication:

The College considers **WebCT/LMS** 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.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Code of Conduct*. 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.

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

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. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.

Credit for prior learning will also be given upon successful completion of a challenge exam or portfolio.