COURSE OUTLINE: ELR233 - INSTALL METHODS III

Prepared: Chris Kelly
Approved: Corey Meunier, Chair, Technology and Skilled Trades

Course Code: Title	ELR233: INSTALLATION METHODS III
Program Number: Name	4127: ELECTRICAL TN-TRADES
Department:	ELECT./INSTRUMENTATION PS
Semesters/Terms:	22W
Course Description:	This course introduces the student to electrical installation methods for commercial applications. The Canadian Electrical Code is covered in conjunction with interpretation of construction drawings and specifications for a small commercial installation. ELR233 is a continuation of Installation Methods I and II, which dealt primarily with residential wiring practices.
Total Credits:	5
Hours/Week:	2
Total Hours:	30
Prerequisites:	ELR113
Corequisites:	There are no co-requisites for this course.
Vocational Learning Outcomes (VLO's) addressed in this course: **Please refer to program web page for a complete listing of program outcomes where applicable.**	**4127 - ELECTRICAL TN-TRADES** VLO 1 Interpret and produce electrical and electronic drawings including other related documents and graphics. VLO 2 Analyze and solve routine technical problems related to electrical systems by applying mathematics and science principles. VLO 3 Use, verify, and maintain instrumentation equipment and systems. VLO 4 Assemble, test, modify and maintain electrical circuits and equipment to fulfill requirements and specifications under the supervision of a qualified person. VLO 5 Install and troubleshoot static and rotating electrical machines and associated control systems under the supervision of a qualified person. VLO 6 Verify acceptable functionality and apply troubleshooting techniques for electrical and electronic circuits, components, equipment, and systems under the supervision of a qualified person. VLO 7 Analyze, assemble and troubleshoot control systems under the supervision of a qualified person. VLO 8 Use computer skills and tools to solve routine electrical related problems. VLO 9 Assist in creating and conducting quality assurance procedures under the supervision of a qualified person. VLO 10 Prepare and maintain records and documentation systems. VLO 11 Install, test and troubleshoot telecommunication systems under the supervision of a qualified person. VLO 12 Apply health and safety standards and best practices to workplaces.

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	VLO 13	Perform tasks in accordance with relevant legislation, policies, procedures, standards, regulations, and ethical principles.
	VLO 14	Configure installation and apply electrical cabling requirements and system grounding and bonding requirements for a variety of applications under the supervision of a qualified person.
	VLO 15	Assist in commissioning, testing and troubleshooting electrical power systems under the supervision of a qualified person.
	VLO 16	Select electrical equipment, systems and components to fulfill the requirements and specifications under the supervision of a qualified person.
	VLO 17	Apply project management principles to assist in the implementation of projects.
Essential Employability Skills (EES) addressed in this course:	EES 1	Communicate clearly, concisely and correctly in the written, spoken, and visual form that fulfills the purpose and meets the needs of the audience.
	EES 2	Respond to written, spoken, or visual messages in a manner that ensures effective communication.
	EES 3	Execute mathematical operations accurately.
	EES 4	Apply a systematic approach to solve problems.
	EES 5	Use a variety of thinking skills to anticipate and solve problems.
	EES 6	Locate, select, organize, and document information using appropriate technology and information systems.
	EES 7	Analyze, evaluate, and apply relevant information from a variety of sources.
	EES 8	Show respect for the diverse opinions, values, belief systems, and contributions of others.
	EES 9	Interact with others in groups or teams that contribute to effective working relationships and the achievement of goals.
	EES 10	Manage the use of time and other resources to complete projects.
	EES 11	Take responsibility for ones own actions, decisions, and consequences.
Course Evaluation:	Passing Grade: 50%, D A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.	
Other Course Evaluation & Assessment Requirements:	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.	

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	W Student has withdrawn from the course without academic penalty.
Books and Required Resources:	Electrical Wiring - Commercial Publisher: Delmar Edition: Seventh Canadian Edition

Course Outcomes and Learning Objectives:

Course Outcome 1	Learning Objectives for Course Outcome 1
1. Interpret the Canadian Electrical Code (CEC) requirements pertaining to commercial installations.	1.1 Calculate the minimum ampacity of feeder conductors and overcurrent devices for commercial occupancies as listed in Table 14. 1.2 Interpret the CEC installation requirements as applicable to branch circuits, feeders and overcurrent protection required for common commercial installations. 1.3 Interpret the CEC installation requirements as applicable to branch circuits, feeders, overload, and overcurrent protection for continuous duty service motors (Section 28). 1.4 Interpret the CEC regulations as applicable to interior and exterior lighting equipment (Section 30).
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Interpret specifications and drawings for a small commercial construction project.	2.1 Determine utility location and site features that affect electrical installations through the use of site drawings. 2.2 Use architectural and structural drawings to determine methods of construction as they affect electrical installation. 2.3 Use architectural and structural drawings to determine dimensions and elevations as they affect electrical installation. 2.4 Use mechanical drawings to determine the electrical characteristics of mechanical equipment and systems. 2.5 Use mechanical drawings to determine the layout of mechanical equipment and systems as they affect electrical installation. 2.6 Select the correct wiring methods and electrical equipment for a commercial installation. 2.7 Use a complete set of drawings and specifications to lay out commercial distribution and service equipment and wiring. 2.8 Describe common lighting systems and their applications. 2.9 Describe the purpose, operation and major components of a commercial fire alarm system. 2.10 List and describe the codes and standards relating to the installation, verification and inspection and testing of fire alarm systems. 2.11 Use a complete set of drawings, specifications, manufacturer` s drawings, and the CEC to prepare a material take off. 2.12 Read and develop basic single line, schematic, and wiring diagrams. 2.13 Perform basic short circuit calculations and associated coordination studies for a commercial power distribution system

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Assignments	25%

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	Tests (3)	75%
Date:	January 6, 2022	
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.	

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