COURSE OUTLINE: ELR311 - RESEARCH REPORT

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

Course Code: Title	ELR311: RESEARCH REPORT
Program Number: Name	4029: ELECTRICAL TY-PROCES
Department:	ELECT./INSTRUMENTATION PS
Semesters/Terms:	22W
Course Description:	The Research Report is intended to demonstrate that the student can function at the Engineering Technology level. The course involves research, design, implementation, management and reporting on a project as agreed upon by the faculty advisor.
Total Credits:	3
Hours/Week:	3
Total Hours:	45
Prerequisites:	ELR232, ELR320, MTH577
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.**	**4029 - ELECTRICAL TY-PROCES** VLO 1 Analyze, interpret, and produce electrical and electronics drawings, technical reports including other related documents and graphics. VLO 2 Analyze and solve complex technical problems related to electrical systems by applying mathematics and science principles. VLO 3 Design, use, verify, and maintain instrumentation equipment and systems. VLO 4 Design, assemble, test, modify, maintain and commission electrical equipment and systems to fulfill requirements and specifications under the supervision of a qualified person. VLO 6 Design, assemble, analyze, and troubleshoot electrical and electronic circuits, components, equipment and systems under the supervision of a qualified person. VLO 7 Design, install, analyze, assemble and troubleshoot control systems under the supervision of a qualified person. VLO 8 Use computer skills and tools to solve a range of electrical related problems. VLO 9 Create, conduct and recommend modifications to quality assurance procedures under the supervision of a qualified person. VLO 10 Prepare reports and maintain records and documentation systems. VLO 11 Design, install, test, commission and troubleshoot telecommunication systems under the supervision of a qualified person. VLO 12 Apply and monitor health and safety standards and best practices to workplaces. VLO 13 Perform and monitor tasks in accordance with relevant legislation, policies, procedures, standards, regulations, and ethical principles. VLO 14 Configure installation and apply electrical cabling requirements and system

In response to public health requirements pertaining to the COVID19 pandemic, course delivery and assessment traditionally delivered in-class, may occur remotely either in whole or in part in the 2021-2022 academic year.

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		grounding and bonding requirements for a variety of applications under the supervision of a qualified person.
	VLO 16	Select and recommend 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 contribute to the planning, implementation, and evaluation 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:		
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. W Student has withdrawn from the course without academic penalty.

Course Outcomes and Learning Objectives:		
	Course Outcome 1	**Learning Objectives for Course Outcome 1**
	1. Research and prepare a technical report.	1.1 Utilize common resources (libraries, internet, etc.) to research technical topics/design information. 1.2 Write a technical report to a specified format within specified deadlines.

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	1.3 Appropriately document sources of information to APA (or other suitable) publication standards. 1.4 Provide sufficient documentation to allow an Electrical Technician or Technologist to easily repeat the project.
Course Outcome 2	**Learning Objectives for Course Outcome 2**
2. Demonstrate proficiency in project management and participate in project activities.	2.1 Select, price, order and expedite delivery of material/equipment. 2.2 Organize and schedule construction and commissioning of a project. 2.3 Maintain project logbook documenting project task progression and commissioning/testing processes. 2.4 Participate in accomplishing project goals and interact effectively in a team environment. 2.5 Demonstrate reliability and assume responsibility for one`s own tasks in a team environment. 2.6 Participate effectively in project progress meetings
Course Outcome 3	**Learning Objectives for Course Outcome 3**
3. Construct and demonstrate a technical project.	3.1 Prepare functional specifications for proposed project. 3.2 Prepare drawings as required to construct project. 3.3 Interpret manufacturer drawings and specifications. 3.4 Identify, interpret and apply applicable safety policies and regulations such as lab safety policies, WHMIS, etc. 3.5 Select and utilize appropriate personal protective equipment (PPE) as required for project activities. 3.6 Utilize necessary tools/equipment/materials required to construct project. 3.7 Complete work according to a given schedule. 3.8 Troubleshoot and revise initial design (commissioning) to produce a working project. 3.9 Produce sufficient and accurate documentation to allow repetition of results.

Evaluation Process and Grading System:

Evaluation Type	Evaluation Weight
Individual Contribution to Project and Team Success	20%
Project Demonstration	35%
Project Final Report	35%
Project Proposal and Presentation	10%

Date: July 30, 2021

Addendum: Please refer to the course outline addendum on the Learning Management System for further information.

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