ORIGINAL COURSE IMPLEMENTATION DATE: September 2022

REVISED COURSE IMPLEMENTATION DATE:

COURSE TO BE REVIEWED (six years after UEC approval)**:** January 2028

Course outline form version: 09/08/2021

OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

Note: The University reserves the right to amend course outlines as needed without notice.

Course Code and Number: ELTR 217	**Number of Credits:** 3 Course credit policy (105)
Course Full Title: Robotics **Course Short Title:**	
Faculty: Faculty of Applied and Technical Studies	**Department (or program if no department):** Electronics

Calendar Description:

Students will learn to install, commission, program, and operate a 6-axis robotic arm. This course also covers safety and integration of robotic arms into industrial and automated processes.

Prerequisites (or NONE):	Admission to the Automation and Robotics Technician diploma program or department permission.
Corequisites (if applicable, or NONE):	NONE
Pre/corequisites (if applicable, or NONE):	NONE

Antirequisite Courses *(Cannot be taken for additional credit.)*

Former course code/number:

Cross-listed with:

Equivalent course(s):

(If offered in the previous five years, antirequisite course(s) will be included in the calendar description as a note that students with credit for the antirequisite course(s) cannot take this course for further credit.)

Typical Structure of Instructional Hours

Lecture/seminar	20
Supervised labroratory hours (design lab)	25
Total hours	**45**

Scheduled Laboratory Hours

Labs to be scheduled independent of lecture hours: ☐ No ☒ Yes

Course Details

Special Topics course: **No**

(If yes, the course will be offered under different letter designations representing different topics.)

Directed Study course: **No**

(See policy 207 for more information.)

Grading System: **Letter grades**

Delivery Mode: **May be offered in multiple delivery modes**

Expected frequency: **Winter only**

Maximum enrolment (for information only)**: 24**

Prior Learning Assessment and Recognition (PLAR)

PLAR is available for this course.

Transfer Credit *(See **bctransferguide.ca**.)*

Transfer credit already exists: **No**

Submit outline for (re)articulation: **No**

(If yes, fill in transfer credit form.)

Department approval	**Date of meeting:**	February 2021
Faculty Council approval	**Date of meeting:**	November 18, 2021
Undergraduate Education Committee (UEC) approval	**Date of meeting:**	January 28, 2022

Learning Outcomes *(These should contribute to students' ability to meet program outcomes and thus Institutional Learning Outcomes.)*

Upon successful completion of this course, students will be able to:

1. Explain dynamics and operation parameters of a basic robotic arm up to 7 degrees of freedom.
2. Select and specify robots for specific applications and environment.
3. Install and commission robotic arms.
4. Write new programs and update existing programs for controlling robotic arms.
5. Implement safety measures for robotic arm operation
6. Integrate robotic arms into new or existing automation or industrial process.

Recommended Evaluation Methods and Weighting *(Evaluation should align to learning outcomes.)*

Final exam:	15%	Lab work:	50%		%
Assignments:	35%		%		%

Details:

NOTE: The following sections may vary by instructor. Please see course syllabus available from the instructor.

Texts and Resource Materials *(Include online resources and Indigenous knowledge sources. Open Educational Resources (OER) should be included whenever possible. If more space is required, use the Supplemental Texts and Resource Materials form.)*

	Type	Author or description	Title and publication/access details	Year
1.	No text is required			
2.				
3.				
4.				
5.				

Required Additional Supplies and Materials *(Software, hardware, tools, specialized clothing, etc.)*

Course Content and Topics

- Structure and function of a robot system
- Moving a robot
- Starting up a robot
- Executing robot programs
- Working with program files
- Creating and modifying programmed motions
- Using technology packages
- Configuration of programming of external tools
- Introduction to expert level
- Using logic functions, control functions, variables and declarations