



ORIGINAL COURSE IMPLEMENTATION DATE: September 2015  
 REVISED COURSE IMPLEMENTATION DATE: September 2024  
 COURSE TO BE REVIEWED (six years after UEC approval): December 2020  
 Course outline form version: 28/10/2022

## OFFICIAL UNDERGRADUATE COURSE OUTLINE FORM

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

Course Code and Number: ELTR 216		Number of Credits: <a href="#">Course credit policy (105)</a>													
Course Full Title: Automation and Control Systems Project Course Short Title: Automation Project															
Faculty: Faculty of Applied and Technical Studies		Department (or program if no department): Electronics													
<b>Calendar Description:</b> Apply knowledge gained in the program to design, construct, and demonstrate a fully functional application-based automated system. Projects contain elements and components in pneumatics controls, robotic arm manipulation, PLC programming, sensors, actuators, and microcontrollers.															
Prerequisites (or NONE):		ELTR 190.													
Corequisites (if applicable, or NONE):															
Pre/corequisites (if applicable, or NONE):															
<b>Antirequisite Courses</b> <i>(Cannot be taken for additional credit.)</i> Former course code/number: Cross-listed with: Equivalent course(s): <i>(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.)</i>		<b>Course Details</b> Special Topics course: <b>No</b> <i>(If yes, the course will be offered under different letter designations representing different topics.)</i> Directed Study course: <b>No</b> <i>(See <a href="#">policy 207</a> for more information.)</i> Grading System: <b>Letter grades</b> Delivery Mode: <b>Face-to-face only</b> Expected frequency: <b>Winter only</b> Maximum enrolment (for information only): <b>20</b>													
<b>Typical Structure of Instructional Hours</b> <table border="1"> <tr> <td>Supervised laboratory hours (science lab)</td> <td>60</td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td></td> <td></td> </tr> <tr> <td><b>Total hours</b></td> <td><b>0</b></td> </tr> </table>		Supervised laboratory hours (science lab)	60									<b>Total hours</b>	<b>0</b>	<b>Prior Learning Assessment and Recognition (PLAR)</b> PLAR is available for this course.	
Supervised laboratory hours (science lab)	60														
<b>Total hours</b>	<b>0</b>														
<b>Scheduled Laboratory Hours</b> Labs to be scheduled independent of lecture hours: <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes		<b>Transfer Credit</b> <i>(See <a href="#">bctransferguide.ca</a>.)</i> Transfer credit already exists: <b>No</b> Submit outline for (re)articulation: <b>No</b> <i>(If yes, fill in <a href="#">transfer credit form</a>.)</i>													
Department approval		Date of approval: October 27, 2023													
Faculty Council approval		Date of meeting: December 2023													
Undergraduate Education Committee (UEC) approval		Date of meeting: March 1, 2024													

**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. Construct a fully automated system and apply it to a real-world application model.
2. Integrate various sensors for specific tasks.
3. Control actuators such as motors, and solenoid valves.
4. Integrate industrial PLC into automated system.
5. Integrate robotic arm into an automated process.
6. Work in teams.

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

Project:	50%	Lab work:	50%	%
	%		%	%

**Details:**

Project must include elements of pneumatics, sensors, PLC, and robotic arm. Specific interaction of the elements will be determined by the project selected by the students.

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

**Typical Instructional Methods** *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Student-directed lab work with guidance from faculty.

**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**

Specifications for the project will be derived from student project interest and/or from collaboration with related industry. This is a capstone project.