



**DEPARTMENT ELECTRICAL & COMPUTER ENGINEERING
SMITH ENGINEERING**

**Casual Part-Time Position
Academic Year 2024-2025**

Posting Date: September 17, 2024

Closing Date: October 3, 2024

The Department of Electrical and Computer Engineering in the Faculty of Engineering and Applied Science at Queen's University will be hiring one student this Fall, for the development and setup of the following undergraduate course in the 2024-2025 session.

**ELEC 390: Principles of Design and Development
Winter Term Course: January 1, 2025 – May 31, 2025**

Under the direction of the ECE Undergraduate Curriculum Subcommittee (UCS) on Artificial Intelligence and Machine Learning and the Smith Engineering Reimagining Engineering Education Guiding Team, the course content for ELEC 390 will be shifting towards a new design project that focuses on autonomous vehicles, ethics, and AI and ML. As such, a course developer is required to assist with the development of new course content that meets these objectives.

Currently, the plan is to base the course on a hardware platform consisting of a Lynxmotion rover (<https://www.lynxmotion.com/a4wd1-original-rovers/>), Raspberry Pi 4 compute and camera system, and a Coral Edge TPU coprocessor (<https://coral.ai/products/accelerator/>). Multidisciplinary teams of students will be working towards developing the necessary hardware and software to enable the platform to drive autonomously in a miniature town.

Course Syllabus can be found at:

<https://www.queensu.ca/academic-calendar/search/?search=elec+390>

The successful candidate will:

- Work with the course instructor to develop a curriculum and syllabus for the course,
- Acquire, prototype, and test hardware, and make recommendations as to their suitability for the course,
- Help make decisions regarding the logistics and structure of the course, and
- Develop a series of labs, based on an autonomous driving platform, that will apply the topics of vision-based AI/ML and vehicle control to an autonomous driving situation.
- Develop elements of a design competition to evaluate student designs to be held at the end of the Winter semester.

The successful candidate will be:

- A current or former graduate student in the ECE program or related engineering program (either current, or recently graduated)



***** Please obtain your supervisor's approval before applying to this advertisement *****

Successful candidates will have:

- Sound understanding of core concepts in engineering design and problem-solving,
- Hands-on skills in the electrical and/or computer engineering fields,
- Proven ability to work independently, and
- Initiative and creativity

Experience in the following areas would be considered an asset:

- Experience with machine vision, AI and ML techniques
- Experience with mobile robotics, control theory and
- Ability to code in Python

This is a casual part-time position, working a maximum of 80 hours during the period of September through December. The pay rate is \$30/hour + 4 % vacation pay.

***** You must be eligible to work in Canada *****

The University will provide support in its recruitment processes to applicants with disabilities, including accommodation that considers an applicant's accessibility needs. If you require accommodation during the interview process, please contact ECE Reception. Link: ecerecpt@queensu.ca

To comply with Federal laws, the University is obliged to gather statistical information about how many applicants for each job vacancy are Canadian citizens/ permanent residents of Canada. Applicants need not identify their country of origin or citizenship; however, **all applications must include** one of the following statements: **I am a Canadian citizen/permanent resident of Canada; OR I am not a Canadian citizen/permanent resident of Canada. Applications that do not include this information will be deemed incomplete.**

Applications should include a brief cover letter, an unofficial transcript, and a resume. Applications can be submitted to the below address or by email to ECE Reception. Link: ecerecpt@queensu.ca

Applications should be received **no later than October 3, 2024.**

Department of Electrical and Computer Engineering
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