



DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING
FACULTY OF ENGINEERING AND APPLIED SCIENCE
Teaching Fellow Position
Academic Year 2022-2023

Posting Date: November 3, 2022
Closing Date: November 18, 2022

The Department of Electrical and Computer Engineering in the Faculty of Engineering and Applied Science at Queen's University requests applications from suitably qualified candidates interested in teaching **the following undergraduate course** in the 2022-23 session.

ELEC- 470 Computer System Architecture
Winter Term Course: January 1, 2023 – April 30, 2023

Course Description

ELEC 470 covers some of the advanced topics in computer architecture with a quantitative perspective. It explores the architectural details that are essential for effective understanding, application, and performance characterization of modern processors, multiprocessors, clusters, and GPU architectures, with hierarchical memory subsystems. This course first studies the fundamentals of quantitative design and analysis, and then introduces the instruction set design through the use of a MIPS instruction set architecture. An important portion of the course is dedicated to exploring processor design and implementation with a focus on instruction level parallelism (ILP), including single-issue pipelined processors, multiple-issue (superscalar) processors, with static and dynamic scheduling and speculation, along with simulation studies. The course then discusses multicore processors and shared-memory multiprocessor architectures, with a focus on thread level parallelism (TLP), cache coherency and parallel programming. It then studies multicore clusters and message passing systems. Hierarchical memory subsystems, including multi-level caches and integration with pipelined processors, and virtual memory with address translation is then covered. Finally, the course discusses data level parallelism (DLP), and GPU architectures.

This course builds on and supplements knowledge from other courses, including ELEC 271, ELEC 274, and ELEC 371 as formal prerequisites, along with ELEC 374 (taken only by Computer Engineering Students) for additional background.

Credit Breakdown

Lecture: 3
Lab: 0
Tutorial: 0.5

Academic Unit Breakdown

Mathematics 0
Natural Sciences 0
Complementary Studies 0
Engineering Science 11
Engineering Design 31

Anticipated course enrolment: 60

Qualifications:

Minimum of a M.A.Sc. Degree in Engineering or a related field, OR a B.A.Sc. Degree in Engineering with extensive practical experience in engineering communications. Registered as a Professional Engineer (or an Engineer in Training) in the Province of Ontario. Previous teaching experience at the University level will be preferred. Candidates should have excellent communication and presentation skills. Preference will be given to candidates who are registered as professional engineers in the province of Ontario.

Course Syllabus can be found at: <https://www.ece.queensu.ca/undergraduate/courses/elec-470.html>

Teaching requirement:

The above advertised course will be taught on campus. Winter term classes begin on January 09, 2023.

Queen's University is committed to employment equity and diversity in the workplace, and it invites applications from all qualified individuals. Queen's is strongly committed to employment equity, diversity, and inclusion in the workplace and encourages applications from Black, racialized/visible minority and Indigenous/Aboriginal people, women, persons with disabilities, and 2SLGBTQ+ persons. All qualified candidates are encouraged to apply; however, Canadians and permanent residents of Canada will be given priority. Teaching Fellows at Queen's University are governed by a collective agreement between Public Service Alliance of Canada (PSAC), and Queen's University.

Link: <http://www.queensu.ca/humanresources/employees/unions.html>

Prior to May 1, 2022, the University required all students, faculty, staff, and visitors (including contractors) to declare their COVID-19 vaccination status and provide proof that they were fully vaccinated or had an approved accommodation to engage in in-person University activities. These requirements were suspended effective May 1, 2022, but the University may reinstate them at any point.

The University will provide support in its recruitment processes to applicants with disabilities, including accommodation that takes into account an applicant's accessibility needs. If you require accommodation during the interview process, please contact Mary Gillespie mary.gillespie@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 complete and current curriculum vitae, a statement of teaching experience, the names and contact details of two referees who may be contacted, and any relevant other materials the candidate wishes to submit for consideration. Applications can be submitted to the ECE Appointments Committee at the address below, or by email to Mary Gillespie mary.gillespie@queensu.ca.

Applications should be received no later than November 18, 2022.

Electrical and Computer Engineering Appointments Committee
C/o Mary Gillespie, Administrative Assistant
Department of Electrical and Computer Engineering
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