



DEPARTMENT OF ELECTRICAL & COMPUTER ENGINEERING
FACULTY OF ENGINEERING AND APPLIED SCIENCE
Term Adjunct 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.

Qualifications:

Minimum of a Ph.D. in Electrical & Computer Engineering or a related field, expertise in the field relevant to the course, and appropriate teaching experience. Previous educational background and/or experience must be suited to teaching the course described below. Candidates must have excellent communication and presentation skills, as well as be capable of working as a member of a teaching team. Prior teaching experience in project-based engineering courses and lecture-based engineering courses would be a strong asset. Preference will be given to candidates who are registered as professional engineers in the province of Ontario.

Teaching requirement:

Winter Term Course: January 1, 2023 – April 30, 2023
Anticipated course enrolment: 60

Course Description

ELEC 470 Computer System Architecture

W 3.5

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

Winter term classes begin January 9, 2023.

Queen's University is committed to employment equity and diversity in the workplace and welcomes applications from women, visible minorities, aboriginal people, persons with disabilities, and persons of any sexual orientation or gender identity. All qualified candidates are encouraged to apply; however, Canadians and permanent residents of Canada will be given priority. Academic staff at Queen's University is governed by a collective agreement between QUFA, [QUFA](#) and Queen's University.

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 at 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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