Queen's University | DEPARTMENT OF Mechanical and Materials Engineering

TERM ADJUNCT POSITION AVAILABLE
Academic Year 2023-24

Posting Date: June 1, 2023
Closing Date: July 4, 2023

1 position/1 section available, in person

The Department of Mechanical and Materials Engineering in the Faculty of Engineering and Applied Science at Queen's University invites applications from suitably qualified candidates interested in teaching the following undergraduate course in the 2023-24 session.

The course will be taught in person with an expected enrollment of approximately 240 students. The successful applicant will have 100% percent responsibility for this course. Graduate teaching assistants will be assigned to assist with labs and marking.

MECH 241 – Fluid Mechanics I

January 2024 – April 2024

Qualifications:
Minimum of a PhD in Mechanical 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 proven with prior experience. Prior teaching experience in a university environment, specifically large lecture-based engineering courses would be an asset. Registration as a Professional Engineer, or eligibility to acquire registration in Canada, would be a strong asset.

Course Description and Teaching Requirement:

MECH 241 – Fluid Mechanics I W | 3.5

An introductory course in fluid mechanics. Topics include properties of fluids, fluids at rest, manometers and other pressure measuring devices, dimensional analysis, the laws of conservation of mass and momentum, Bernoulli's equation for incompressible flow and the energy equation, flow measurements, elementary pipe flow problems including losses, pumps, etc. On completion of the course students will be able to: Explain Bernoulli based energy equations with reference to energy and hydraulic grade lines, static and dynamic pressure; Explain control volume and control mass analysis with reference to Eulerian and Lagrangian frames, applied forces and flows; Solve simple flow systems for velocity distributions using continuity and Navier Stokes equations with appropriate boundary conditions; Solve flow and force problems in an integral framework using Bernoulli, conservation of mass and momentum; Solve piping system performance problems using Bernoulli with friction, minor losses, pump and turbine performance curves; Calculate pressures and forces on submerged surfaces in a static fluid; Solve scaling problems using dimensionless groups.
(Lec: 3, Lab: 0, Tut: 0.5)
Prerequisites: APSC 111
Academic Units:
Mathematics 0 Natural Sciences 24 Complementary Studies 0 Eng Science 18 Eng Design 0

Program and Course Symbols and Codes can be found at https://calendar.engineering.queensu.ca/

Winter term classes begin January 8, 2024 and end April 8, 2024 while the examination period ends on April 30. Grading and final mark reconciliation may extend into the next month.

The University 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.

The academic staff at Queen's University are governed by the *Collective Agreement* between the Queen's University Faculty Association (QUFA) and the University, which is posted at: https://www.queensu.ca/facultyrelations/queens-university-faculty-association-qufa/queens-qufa-collective-agreement

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.

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 Gabrielle Whan, gabrielle.whan@queensu.ca

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 other relevant materials the candidate wishes to submit for consideration. Applications can be submitted to the Mechanical and Materials Engineering Appointments Committee by email to Gabrielle Whan, Department Manager at gabrielle.whan@queensu.ca or at the address below. Applications should arrive no later than **July 4, 2023 at 5:00 pm.**

Mechanical and Materials Engineering Appointments Committee
c/o Gabrielle Whan
Department of Mechanical and Materials Engineering
McLaughlin Hall, Room 201
Queen's University, Kingston ON, K7L 3N6
Tel. 613 533-2585