EMERGENCY POSTING

This job is posted in accordance with the CUPE 3902 Unit 1 Collective Agreement

Teaching Assistant Requirement for Graduate Courses - Mechanical and Industrial Engineering

Date of appointment: January – April 2017 (13 weeks)

MIE1001H: Advanced Dynamics
Instructor: Prof. E Diller, ediller@mie.utoronto.ca

Estimated enrolment: 29 students

Anticipated requirement: 1 TA @ 2 hrs per week (for 13 weeks)

TA qualification: thorough knowledge at the graduate level of rigid body dynamics concepts including Lagrange's Equations, Hamilton's Principle and Equations.

TA Duties: preparation and marking of weekly problem sets and tests

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MIE1005H: Theory of Vibrations
Instructor: Prof. K. Behdinan, behdinan@mie.utoronto.ca

Estimated enrolment: 25 students

Anticipated requirement: 1 TA @ 2 hrs per week (for 13 weeks)

TA qualification: thorough knowledge at the graduate level of
(i) vibrations of multibody systems,
(ii) vibrations of continuous systems, including beams, membranes, etc.,
(iii) multi-plane balancing,
(iv) finite element method applied to vibrations

TA duties: (i) marking weekly problem sets, (ii) marking term test, and (iii) conducting tutorials.

MIE1120H - Current Energy Infrastructure and Resources
Instructor: Prof. D. Sinton, sinton@mie.utoronto.ca

Estimated enrolment: 59 students

Anticipated requirement: 2 TA @ 3 hrs per week (for 13 weeks)

TA qualification: Engineering undergraduate (preferably Mechanical). Understanding of, and interest in, energy technologies. Strong communication skills.

TA duties: Setting assignments, making solutions, management of online course resources, marking.

MIE1224H: Heating, Ventilating, and Air Conditioning (HVAC)

Instructor: Dr. Babak Samareh, samareh@mie.utoronto.ca, Marianne Touchie, touchie@mie.utoronto.ca

Estimated enrolment: 31 students

Anticipated requirement: 1 TA @ 3 hrs per week (for 13 weeks)

TA qualifications: Strong background in heat transfer, thermodynamics, and fluid mechanics, and previous experience in the design and sizing of HVAC equipment.

TA duties: Selecting weekly homework, marking, and maintaining blackboard gradebook. Designing and marking the final project.

MIE1301H Solid Mechanics
Instructor: Prof. Tobin Filleter, filleter@mie.utoronto.ca

Estimated enrolment: 24 students

Anticipated requirement: 1 TA @ 2 hrs per week (for 13 weeks)

TA qualification - thorough knowledge at the graduate level of (i) tensor mechanics, (ii) stress principles, (iii) kinematics of deformation and motion,(iv) fundamental laws and equations, and (v) linear elasticity and viscoelasticity.

TA duties: (i) marking term test and assignments, and (ii) conducting tutorials.

MIE1411H – Design of Work Places
Instructor: Prof. Paul White, pwhite3@toronto.ca

Estimated enrolment: 51 students

Anticipated requirement: 1 TA @ 5 hrs per week (for 13 weeks)

TA qualification: knowledge of physical ergonomics, e.g., Snook tables and NIOSH equation; excellent spoken and written English

TA duties: marking assignments and exam; assisting students on an ad hoc basis

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MIE1414H – Human Factors in Transportation
Instruction: Prof. A. Smiley, Alison.smiley@utoronto.ca

Estimated enrolment: 23 students

Anticipated requirement: 1 TA @ 2 hrs per week (for 13 weeks)

TA qualification - very familiar with blackboard system, knowledge of human factors, excellent English writing skills

TA duties - handling posting to blackboard and limited marking of projects

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MIE1512 – Data Analytics
Instructor: Prof. Mariano Consens, consens@mie.utoronto.ca

Estimated enrolment: 55 students

Anticipated requirement: 1 TA @ 5 hrs per week (for 13 weeks)

TA qualification: Preparation of computer lab materials and student support during hands on labs, as well as grading of student work (including the course project submission). The labs will be focused on the use of scalable data management frameworks (Spark, Hadoop) in cloud environments.

TA duties: The position requires considerable knowledge in the area of data management tools, with an emphasis on hands on experience with SQL systems. Candidates should have an interest in working in cloud environments (eg, Bluemix, AWS, Azure), and while previous experience is not required, familiarity with cloud environments is an asset.

MIE1615H: Markov Decision Processes
Instructor: Prof. CG Lee, cglee@mie.utoronto.ca

Estimated enrolment: 22 students

Anticipated requirement: 1 TA @ 2 hrs per week (for 13 weeks)

TA qualification: Has taken a graduate level course in the area of Markov decision processes

TA duties: Grading assignment, reports, and exams; Answering questions at the course portal; Assist instructor to prepare exams; Preparation of assignments

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MIE1603H – Integer Programming (for research students) / MIE1653H – Integer Programming Applications (for MEng students)

Instructor: Prof M. Bodur, bodur@mie.utoronto.ca

Estimated enrolment: 39 students

Anticipated requirement: 1 TA @ 4 hrs per week (for 13 weeks)

TA qualification: Strong background in Integer Programming at a graduate level,
Gurobi, Python (and possibly C++)

TA duties: Marking assignments and holding office hours

MIE1622H - Computational Finance and Risk Management
Instructor: Oleksandr Romanko, oleksandr.romanko@utoronto.ca

Estimated enrolment: 71 students

Anticipated requirement: 1 TA @ 6 hrs per week (for 13 weeks)

TA qualification: Matlab programming experience, basic knowledge of linear algebra and optimization

TA duties: grading assignments, helping to grade a course project and a test

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MIE1623: Introduction to Healthcare Engineering
Instructor: Prof D. Aleman, aleman@mie.utoronto.ca

Estimated enrolment: 39 students

Anticipated requirement: 1 TA @ 3 hrs per week (for 13 weeks)

TA qualification: Applicant should be a research student (PhD preferred) in Operations Research in Healthcare.

TA duties: Primarily marking biweekly assignments

MIE 1721H - Reliability
Instructor: Prof. D. Banjevic, banjev@mie.utoronto.ca

Estimated enrolment: 51 students

Anticipated requirement: 1 TA @ 5 hrs per week (for 13 weeks)

TA qualification: strong background in probability and statistics, and a reliability course.

TA duties: Marking and some contact time with students. Solving and posting assigned problems.

MIE1744: Nanomechanics of Materials
Instructor: Prof. Tobin Filleter, filleter@mie.utoronto.ca

Estimated enrolment: 23 students

Anticipated requirement: 1 TA @ 2 hrs per week (for 13 weeks)

TA qualification: thorough knowledge at the graduate level of (i) nanomechanics and nanotribology theory, (ii) experimental nanomechanical testing techniques, and (iii) nanomaterials/nanocomposites.

TA Duties: (i) preparing and delivering experimental nanomechanics lab demonstrations, (ii) reviewing/marking final project outlines & reports, (iii) assistance in preparing and delivering 1-2 class lectures.

MIE1809: Advanced Mechatronics
Instructor: Ridha Ben Mrad, rbenmrad@mie.utoronto.ca

Estimated enrolment: 30 students

Anticipated requirement: 1 TA @ 3 hrs per week (for 13 weeks)

TA qualification:

- Extensive experience with piezoelectric materials modeling and simulations
- Experience with piezoelectric motor technologies
- Experience with integration with piezoelectric materials into mechanical structures
- Experience with piezoelectric sensors
- Be in the PHD program

TA duties:

- Discussions with students regarding development of their projects
- Discussions with students regarding lecture materials
- Development and distribution of handouts describing lecture materials
- Marking of project reports

Notes:
1. TA position and hours posted are tentative, pending on final enrolment.

2. Current TA rates : **Winter 2017 Term,** January 1, 2017 – April 30, 2017
U/G: $43.22 per hour; **SGS I**: $43.22 per hour; **SGS II:** $43.22 per hour

3. **Applicants are advised to discuss their qualifications for a position with the course instructor. The Graduate Coordinator relies heavily on the course instructor to assess the relative merits of TA applicants.**

4. The Graduate Coordinator has the sole authority to offer TA positions for graduate courses in the Department of Mechanical and Industrial Engineering.

5. CUPE 3902 Unit 1 Collective Agreement is available at
http://agreements.hrandequity.utoronto.ca/#CUPE3902_Unit1

Completed TA application form must be submitted to the MIE Graduate Office (Room MC 108),
by Monday, November 21, 2016 (9:00 am)

Please note that should rates stipulated in the collective agreement vary from rates stated in this posting, the rates stated in the collective agreement shall prevail.