Job Description

Job Title:	Research/Teaching Support Specialist
Department:	Mechanical and Mechatronics Engineering
Reports To:	Design Engineer
Jobs Reporting:	None
Salary Grade:	USG 9/10
Effective Date:	December 2020

Primary Purpose

The Research/Teaching Support Specialist fulfills two primary roles. This position will be based in the MME design studio and WATiMake clinic to provide technical support for Mechanical & Mechatronics Engineering students. Secondly, this person will spend a portion of their time at the Fire Research Facility supervising the facility and providing technical support for research.

Key Accountabilities

Provide technical support for Mechanical and Mechatronics courses

- Supervise, instruct, and mentor students
- Create and develop labs, demonstrations, and workshops
- Supervise, mentor, instruct, train, and assist students on safe use of equipment, tools and facilities (primarily MME Design Studio, WATiMake clinic, and Fire Research Facility)
- Design and construct mechanical systems for labs and class use
- Instruct and supervise students with clinic, laboratory and classroom activities as required
- Supervise (or co-supervise), instruct, and assist with student projects such as the final year design project
- Instruct teaching assistants, instructors, and other staff in safe and effective use of equipment, tools, software, and proper laboratory procedures
- Develop written instructions and manuals
- Collaborate with faculty course instructors for development and continuous improvement of labs,
- Activities, demonstrations, workshops, and projects
- Review, recommend, and make changes in materials, techniques, content, resources, or procedures to optimize the value of the laboratory or activity and to keep laboratories and activities current

Provide technical support for research activities

- Supervise the fire research facility or operations within it, as required
- Supervise, instruct, and mentor students doing research at the fire research facility
- Research equipment set up, calibration, maintenance, troubleshooting
- Construction/modification of research equipment
- Support software based test, measurement, and control systems
- Assist with the design and development of research equipment and methods

General accountabilities

- Recruit and facilitate faculty course instructor adoption of MME Clinic activities, demonstrations, workshops, and projects
- Communicate with course instructors, other staff, MME department, external departments, and other stakeholders about MME Clinic initiative, goals, and accomplishments

- Recruit and facilitate faculty course instructor adoption of MME Clinic activities, demonstrations, workshops, and projects
- Promote and maintain safety standards
- Manage assigned equipment, including repairs and calibration
- Assist with the MME Design Studio and WATiMake ongoing operations.
- Manage assigned labs
- Maintain SDS inventory, develop SOP's as required
- Maintain equipment inventory
- Conduct workplace inspections
- Be flexibly responsive to evolving research and teaching needs
- Maintain training levels
- Assist in the creation and maintenance of inclusive, welcoming, and supportive environment

Provide Support for Capstone and other Design Projects

- Supervise, consult, advise, and provide individual student and group support for student design projects
- Assist as required with co-ordination and planning of MME Capstone Design Project Symposiums
- Maintain safety standards for fourth-year student design projects and the Mechanical Engineering Capstone Design Project Symposium
- Assist with other duties or special projects as assigned by the Design Engineer

**All employees of the University are expected to follow University and departmental health and safety policy, procedures and work practices at all times. Employees are also responsible for the completion of all health and safety training, as assigned. Employees with staff supervision and/or management responsibilities will ensure that assigned staff abide by the above, and actively identify, assess and correct health and safety hazards, as required.*

Required Qualifications

Education

- A degree in mechanical engineering or similar engineering program is required. An advanced degree is preferred. Must be a Professional Engineer in Ontario or a registered Engineer in Training.

Experience

- Several years of relevant experience (including industrial experience) is required.

Knowledge/Skills/Abilities

A strong aptitude for mechanical technologies and systems is essential
Must have good knowledge and operational experience in many of the following areas:

- Engineering multidisciplinary design
- Engineering tools e.g., Labview, MatLab, ANSYS
- Computer aided design and solid modelling: AutoCAD, Solidworks
- Microsoft Office: Word, Excel, PowerPoint
- Product sourcing
- Electro-mechanical systems
- Thermal and fluids test and measurement techniques
- Material properties and materials testing
- Hydraulic, pneumatic, and electric control systems
- Mechanical testing equipment
- Digital data acquisition, monitoring, and control systems
- Analog and digital circuit design
- Systems maintenance and calibration

- Software development and programming
- Safety standards and procedures
- Commercialization of products and technologies
- Good problem solving, communication, project management, and lateral thinking skills
- Ability to work independently and as part of a team
- Demonstrated ability to build consensus and work in volatile and demanding circumstances
- Be a role model of empathy, inclusivity, equity, and resilience

Nature and Scope

- **Contacts:** MME staff and faculty, MME undergraduate and graduate students, staff/students from other UW engineering departments, research associates from other universities and industry, commercial vendors. Must be able to effectively communicate with people at all levels of expertise.
- **Level of Responsibility:** Independently advises and instructs students. Manages equipment inventory laboratory spaces, on-line tools. Management as required the MME design studio, aspects of the Fire Research Facility, undergraduate laboratory spaces, equipment inventory
- **Decision-Making Authority:** Advises students, teaching assistants, and instructors. May independently manage co-op students, and develops budget, funding acquisition, and equipment purchase discussions for MME executive approval. Some equipment, supply, and tool purchase decisions
- **Physical and Sensory Demands**: Most of the work is light and clean however some of the work at the Fire Research Facility can include large and dirty equipment.
- **Working Environment:** Working conditions vary and range from working at a computer, to bench work, to work in heavy labs. Working outside of normal hours might be occasionally required to deal with emergencies, maintenance, extended run experiments, or upgrades.