

## Job Description

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<b>Job Title:</b>	MME Engineer
<b>Department:</b>	Mechanical & Mechatronics Engineering
<b>Reports To:</b>	Design Engineer
<b>Jobs Reporting:</b>	None
<b>Salary Grade:</b>	USG 9/10
<b>Effective Date:</b>	April 2021

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### **Primary Purpose**

The MME (Mechanical and Mechatronics) Engineer provides technical support for the Mechanical & Mechatronics Engineering department with primary responsibility for the undergraduate students in both the Mechanical Engineering and Mechatronics Engineering programs.

### **Key Accountabilities**

#### **General role requirements and accountabilities:**

- Enthusiastic about enhancing experiential learning and engaging with students (ranging from first year through to more experienced and knowledgeable upper year students).
- Collaborate with stakeholders from multiple departments, backgrounds, and range of technical experiences.
- Supervision of co-op students and advising/training Teaching Assistance (TA's) or technical persons.
- Develop concise and clearly written instructions, manuals, and sample programs as key resources for students and faculty. This includes regularly reviewing subject matter to ensure topics are current and relevant.
- Support the development and operation of design competitions, conferences, and departmental symposia.
- Project management with accurate estimation of timelines, scope, cost estimation, and ensuring multiple stakeholders are properly supported.
- Capital equipment and other purchases – requisition and acquisition, setup, deployment, and ongoing support as needed.
- Maintain training levels to be current with subject matter, a high degree of interest in continuous improvement is required.
- Familiar with advancing intellectual property, commercialization potential, and business startups.

#### **Technical expectations:**

##### **Expectations regarding the undergraduate design courses, laboratories, clinics, and design studio support.**

- Supervise, mentor, instruct, and assist students with hands-on projects.
- Able to provide technical analysis that is supported by strong theoretical knowledge.
- Familiar with:
  - i. developing proof-of-concepts, both in software and hardware examples,
  - ii. rapid prototyping methods and tools,
  - iii. embedded software systems,
  - iv. high-level programming,
  - v. and traditional machining techniques.

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- Create, develop, and demonstrate in person content for both labs and workshops.
- Creatively diagnose, problem solve, and transfer knowledge to students or faculty, while maintaining a timely and value-added approach.
- Effectively utilize and apply knowledge from electrical, controls, mechanical, and software experiences.

### **Regular and ongoing expectations:**

- Maintain safety standards as they relate to undergraduate activities and upper year projects including capstone projects.
- Maintain laboratory safety standards.
- Create, develop, and deploy laboratory, clinic, and design studio activities, in a range of domains that may include mechanical, electronic, or software systems.
- Maintain equipment inventories, asset tracking, and equipment sign-out.
- Deliver flexible and responsive support for changing teaching needs.
- Supporting other duties and activities as assigned.

*\*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 mechatronics engineering (preferred), mechanical or similar engineering program is required.
- A Master's degree in a similar field is an asset.
- Must be a Professional Engineer or a registered Engineer-in-Training.

### **Experience**

- Five years of relevant experience is desired.

### **Knowledge/Skills/Experience**

A strong aptitude for mechanical technologies and systems is essential. Must have good knowledge & experience in several areas; the core skills are a) to e) below:

- Engineering software tools (e.g.: SolidWorks, SolidWorks Simulation, MATLAB, LabVIEW, AutoCAD, Fusion 360)
- Software development and programming including open-sourced electronic platforms/computers (Arduino, Raspberry Pi, C/C++, ROS, OpenCV)
- Proficient in Microsoft Office suite. Expertise in Excel and Teams, especially their non-regular features are an asset
- Project management experience
- Safety standards and procedures
- Product sourcing
- Prototyping tools such as laser cutters, 3D printers, CNC machines
- Commercialization of products and technologies
- Multidisciplinary design of consumer products
- Troubleshooting electro-mechanical systems
- Hydraulic, pneumatic, and electric control systems
- Digital data acquisition, monitoring, and control systems
- Analog and digital circuit design

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- Systems maintenance and calibration
- Patenting familiarity
- Additional areas include: materials, thermal, fluids, and testing/measurement techniques

### **Nature and Scope**

- **Contacts:** Interpersonal skills are critical. This role provides technical support and liaison with undergraduate students, faculty, administration, and other technical staff. The practitioner must be able to communicate effectively with people at all levels of expertise.
- **Level of Responsibility:** Independently instruct and mentor students. Manage: co-op students, clinic activities, and equipment inventory.
- **Decision-Making Authority:** Advises students, teaching assistants and faculty. Ongoing decisions and while managing co-op students, capital acquisition leadership, and some curriculum development in conjunction with faculty.
- **Physical and Sensory Demands:** Some activities require setup and takedown.
- **Working Environment:** Working conditions vary and range from working at a computer, to bench work, to work in clinics, labs, classrooms, and other areas. Working outside of normal hours might be occasionally required to deal with emergencies, maintenance, extended run activities, upgrades, or departmental initiatives.