

## Job Description

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| <b>Job Title:</b>      | Laboratory Instructor/Software Specialist |
| <b>Department:</b>     | Electrical & Computer Engineering         |
| <b>Reports To:</b>     | Lab Director, Teaching                    |
| <b>Jobs Reporting:</b> | Graduate Teaching Assistant(s)            |
| <b>Salary Grade:</b>   | USG 8-12                                  |
| <b>Effective Date:</b> | January 2021                              |

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### **Primary Purpose**

The Electrical and Computer Engineering (ECE) undergraduate curriculum has two core programs and four interdisciplinary programs. Reporting to the “Lab Director, Teaching” (Lab Director) and to the “theme area Laboratory Instructor/Coordinator” (Coordinator), the “Laboratory Instructor/Software Specialist” (Lab Instructor) enhances student success through a positive learning environment and teaches undergraduate (undergrad) laboratory (lab) portion of courses within the established scope and guidelines of the professional degree program.

These positions are responsible for laboratory course delivery and other academic responsibilities, and the technical operation and maintenance of the ECE undergrad laboratory facilities in support of assigned labs. The Lab Instructor collaborates with course instructor for lecture-lab synchronization and works in conjunction with faculty members on lab content, development and design of any new experiments to be introduced into the undergrad lab portion of the course.

### **Key Accountabilities**

#### **Instruction of Students and Assessment of their Academic Performance**

- Prepares and teaches assigned undergrad lab portion of courses
- Collaborates with faculty course instructors for lecture-lab synchronization
- Monitors students’ lab progress by assessing reports and lab assignments in the technical and theoretical aspects of the subject matter
- Ensures academic integrity is maintained in the lab
- Marks student work term reports
- Assists students on an individual or group basis with lab and related assignments/problems
- Evaluates student technical presentations and symposium poster marking
- Supervises/consults/advises/marks student fourth year design projects
- Develops experiments and writes laboratory materials/manuals in conjunction with faculty
- Recommends and/or makes necessary changes in materials, techniques or procedures to optimize the value of the lab exercise
- Plans new labs, conducts and evaluates prototype labs
- Keeps lab content and resources current

#### **Supervises Teaching Assistants who Oversee Students performing the Experiments and Exercises**

- Ensures the effective utilization and development of TAs who assist with undergrad lab from term-to-term on a changing basis
- Directs lab TAs through the academic term cycle: assigning duties, coordinating their lab activities, etc.

## Job Description



- Provides new teaching assistants with training in lab equipment procedures and/or theory, as well as, instruction on experiments and design exercises before each term's lab sessions begin
- Participates in TA interviewing, ranking, and rating their performance
- Mentors new and sessional staff in area of expertise
- Trains other Lab Instructors in the use of specialized software as required

### **Lab Maintenance**

- Monitors and updates the lab equipment inventory
- Monitors performance to ensure adequate quality control and arranges maintenance of technical equipment/software
- Oversees teaching inventory, researches and recommends purchases
- Maintains the technical and safe operation of the assigned labs
- Recommends and implements approved upgrades and improvements to lab facilities and practices

### **Other Duties**

- Attend lab planning and review sessions
- Participate in class prof/student rep meetings
- Trains for other specializations as required by the department
- Assist with other duties or special projects which may be assigned by the Lab Director or Coordinator

*\*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**

- Bachelor of Applied Science degree in Electrical or Computer Engineering, or equivalent combination of education and experience required. MAsc degree or relevant industrial experience is an asset.

### **Experience**

- Five years of experience managing lab operations
- Experience in working with different measurement instruments in the area of specialization is required
- Has experience with software packages in the area of specialization
- Previous teaching experience is highly desirable
- Experience in running labs, troubleshooting; software; and equipment, giving tutorials/lectures and demonstrations, writing and updating lab manuals, developing new labs, marking reports, and evaluating technical presentations is typically required
- Experience monitoring and enforcing safety in the labs or a similar environment is a typically required
- Experience in purchasing software is typically required

### **Knowledge/Skills/Abilities**

- Lab Instructors should have a proven aptitude for teaching and a demonstrated interest in working with undergrad students
- Well-developed interpersonal, oral, and written communication skills
- Proven ability to establish and maintain procedures for ensuring safety of students and staff in the lab
- Strong organizational, problem-solving, and analytical skills are essential

## Job Description



- Demonstrated ability to work independently and as part of a team within a busy and dynamic environment
- Approachability, consistency, and the ability to motivate and earn students' trust
- Self-motivation in taking initiatives to improve the quality of labs, teaching, and working environment is required
- Willingness to train for other specializations as required by the department
- Intermediate proficiency with Microsoft Office Suite
- Intermediate proficiency with SharePoint, FileMakerPro, or Oracle
- Broad knowledge of current computer software applications used in an undergrad computer or electrical engineering environment

### Nature and Scope

- **Contacts:** Internally, the Lab Instructor communicates regularly with undergrad students, Lab Coordinators, faculty and sessional instructors teaching undergrad classes/labs, lab teaching assistants, Electronic Service Technician/Stores Keeper, technical and other staff within ECE. The Lab Instructor works collaboratively with the other instructors on the team. Externally, the Lab Instructor will have contacts relevant to accomplishing lab delivery objectives, as well as software suppliers.
- **Level of Responsibility:** The Lab Instructor is responsible for the administrative operations of undergrad teaching labs and works per the assigned lab instruction schedule, on his/her own initiative, with minimal daily supervision. The Lab Instructor is responsible for lab exercises and other academic responsibilities within the program. S/he supervises teaching assistants assigned to assist with the undergrad labs from term-to-term on a changing basis. The Lab Instructor actions may have a direct impact on the success of the students.
- **Decision-Making Authority:** The Lab Instructor works independently in the operation of assigned labs. The Lab Instructor makes independent decisions typical of those associated with an undergrad lab instructor e.g. assignments. The Lab Instructor must identify solutions to lab exercises not working well. Work is based on course objectives and performed in accordance within defined practices, procedures and policies.
- **Physical and Sensory Demands:** Moderate demands typical of a technical position operating within a teaching lab environment that may involve some lifting of equipment, rearranging of furniture, and standing for extended periods of time. The Lab Instructor must be able to project his/her voice to communicate with students in a relatively noisy lab setting.
- **Working Environment:** Some laboratories may require working with hazardous voltage levels, electro-mechanical equipment, soldering, or other hazards. In certain cases, safety procedures must be strictly enforced. Most time is spent in teaching labs or in the office, working with teaching assistants and undergrad students, or preparing equipment and materials for the labs. Hours of work: 37.5 hours per week. Lab space and scheduling restrictions may necessitate after hours work. Work outside of normal hours may be occasionally being required to deal with emergencies, maintenance, upgrades, or scheduling issues.