



Position Description

Position Title: Lab Technologist

Division: Russ Edwards School of Trades & Technology

Classification: EA3

Supervisor's Title: Academic Chair

POSITION SUMMARY

Reporting to the Academic Chair, the **Lab Technologist** supporting **Mechatronics Engineering Technology** plays a crucial role in maintaining, managing, and facilitating laboratory activities in our new, state-of-the-art multi-lab environment for the three-year diploma program. This person bridges technical operations with academic delivery. The lab technologist is primarily responsible for overseeing and maintaining the operations of the mechatronics laboratory facilities. The lab technologist provides technical assistance to Academic Chairs, faculty, and students regarding the lab facilities including specialized mechatronics, robotics, and electronics equipment, systems, and software. The technologist also ensures that the lab operates to deliver the required curricula and evaluation of student performance related to the program, including student labs and capstone projects. Support will also be given to applied research faculty in the area of mechatronics for application in agriculture, food processing, and adjacent sectors.

RESPONSIBILITIES AND ACCOUNTABILITIES

Primary:

- Investigate, research, and update faculty on the use of the latest technological developments and innovations, acting as a liaison and key resource person for the educational technology systems and equipment in the labs
- Manages the setup and commissioning of new equipment and software systems, ensuring that all mechatronics systems, computers, and software is configured appropriately for the program
- Provide instruction and supervision to students on the proper use of equipment.
- Designs and conduct comprehensive in-service training to faculty on training aids, including upgrades
- Provides guidance for faculty and students in troubleshooting
- Provide expert technical assistance and guidance to students, supporting the various labs and lab assignments.
- Identifies and anticipates the requirements of mechatronics, robotics and electronics lab facilities. Contributes to determining the required laboratory equipment and systems, administers procurement processes and managing the licensing of software used within the program; ensure all software is up-to-date and compliant with licensing agreements; ensures lab is safe and suitable for use.
- Provides expert advice for students working on capstone projects and applied research, provides advanced technical support and guidance to help students achieve their project goals.
- Collaborates closely with colleagues to support the overall goals of the Mechatronics Engineering Technology Program
- Assist the Academic Chair in preparing the departmental operating budget and manage operating supplies and maintenance budgets for labs
- Maintain records on consumable supplies and capital equipment
- Lead purchase requisitions for the acquisition of capital equipment and consumable supplies

RESPONSIBILITIES AND ACCOUNTABILITIES

- Maintain a liaison with related industry/agencies and other professionals in the field to stay informed of current developments, trends, and practices
- Serve as a resource for research faculty that are conducting applied research in the area of mechatronics.

Secondary:

- Contribute towards development of policy and procedures through meetings and task forces.
- Participate in projects that support College activities and environment.
- Assist with the identification, design, implementation and evaluation of new initiatives.
- Attend professional development activities as determined by the human resource plan.
- When required, assist with selecting candidates for vacant positions in the division.

KEY RELATIONSHIPS (attach relevant organizational chart(s))

Staff Positions Directly Supervised _____

Staff Positions Indirectly Supervised _____

Other Key Relationships:

Direction is provided through program development and review, established course objectives, program meetings, regular feedback, and annual performance evaluation and review. Lab technologist performance may be evaluated through direct observation, feedback from faculty and students, and adherence to established lab protocols.

Matters which must be referred to the immediate supervisor:

- Significant changes to lab procedures or protocols
- Evaluation of lab components within the course or program
- Significant modifications to lab equipment, materials, or scheduling

Decisions to be made on initiative:

- Immediate response to safety concerns or breaches of lab conduct as defined in college policies
- Day-to-day operation and organization of lab activities, including preparation, setup, and routine maintenance of equipment
- Monitoring and reporting student performance and engagement within the lab environment
- Providing feedback and guidance to students
- Troubleshooting all lab systems; gathering information from vendors to support equipment and software systems to support proper functioning

KNOWLEDGE, SKILLS, ABILITIES, OTHER

Expected educational background includes a mix of formal education and relevant certifications: Minimum Diploma or Advanced Diploma in Mechatronics, Electromechanical Engineering, Robotics, Automation, Electrical or Mechanical Engineering Technology; Bachelor's preferred in Mechatronics Engineering, Electrical Engineering, Mechanical Engineering, Robotics, Control Systems, or Engineering Technology.

KNOWLEDGE, SKILLS, ABILITIES, OTHER

Desirable additional education or certification:

- Postgraduate study in areas such as Automation and Control Systems, Embedded System, Robotics, Industrial Maintenance, STEM Education or Instructional Technology (for lab teaching support)
- Industry Certifications (strong asset): PLC Programming (e.g., Siemens, Allen-Bradley)
- Safety Certifications: WHMIS, Lockout/Tagout (LOTO), Occupational Health & Safety
- Software Certifications:
 - SolidWorks Certified Associate (CSWA)
 - LabVIEW Certified Associate Developer (CLAD)
 - Autodesk Certified User (ACU)
- Electronics: IPC Soldering Certification (for PCB and prototyping labs)

Additional Expectations

- Continuing Education: Expected to regularly update skills due to the fast-changing nature of mechatronics.
- Professional Affiliations (optional but encouraged):
 - Engineering Technology Accreditation Canada (ETAC) credential alignment
 - IEEE, ISA, or similar organizations

1. Technical Knowledge

Core Mechatronics Areas:

- **Electronics and Electrical Systems:** Understanding of analog/digital circuits, sensors, power electronics.
- **Mechanical Systems:** Knowledge of mechanics, hydraulics, pneumatics, actuators.
- **Control Systems:** Basic to intermediate knowledge of feedback systems, PID control, automation.
- **Embedded Systems:** Familiarity with microcontrollers (e.g., Arduino, STM32, Raspberry Pi) and their programming.
- **Robotics:** Kinematics, dynamics, robot programming and integration.
- **Computer-Aided Design (CAD):** Use of SolidWorks, AutoCAD, or Fusion 360 for part design and modeling.
- **PLC and SCADA Systems:** Knowledge of industrial automation tools and interfaces.

Software & Programming:

- Programming languages: C/C++, Python, LabVIEW, MATLAB/Simulink.
- Simulation tools: MATLAB, Simulink, Proteus, Multisim.
- 3D printing software and firmware (e.g., Cura, PrusaSlicer).

2. Technical Skills

- **Lab Equipment Operation:** Oscilloscopes, function generators, multimeters, soldering stations, CNC machines, 3D printers.
- **System Integration:** Ability to assemble, test, and debug multi-disciplinary mechatronic systems.
- **Troubleshooting and Maintenance:** Diagnosing faults in equipment and experimental setups; performing routine maintenance and calibration.
- **Safety and Compliance:** Understanding of safety protocols and lab best practices (e.g., ESD safety, chemical/electrical safety).

KNOWLEDGE, SKILLS, ABILITIES, OTHER

3. Organizational & Support Skills

- **Inventory and Asset Management:** Keeping track of tools, components, consumables, and equipment.
- **Documentation:** Maintaining lab manuals, safety procedures, standard operating procedures (SOPs), and test logs.
- **Procurement Support:** Assisting with technical specifications for purchasing equipment and supplies.
- **Experiment Setup:** Preparing lab setups for student labs and research projects as per faculty instructions.

4. Interpersonal and Communication Skills

- **Collaboration:** Working closely with faculty, students, and other technologists.
- **Instructional Support:** Assisting students during labs, explaining equipment usage, guiding troubleshooting efforts.
- **Reporting:** Communicating technical findings or issues clearly in oral or written form.

5. Aptitudes and Attributes

- **Problem-Solving Orientation:** Resourcefulness and logical thinking when encountering technical challenges.
- **Attention to Detail:** Precision in setting up and inspecting experimental systems.
- **Curiosity and Lifelong Learning:** Staying current with new technologies in automation, robotics, and smart systems.
- **Dependability:** Reliability in maintaining labs and equipment, often with minimal supervision.
- **Adaptability:** Ability to support a wide range of lab activities across electrical, mechanical, and software domains.

Optional but Valuable:

- Familiarity with Industry 4.0 technologies: IoT, edge computing, digital twins.
- Experience with academic or research environments: Understanding of pedagogical objectives and academic cycles.
- Knowledge of intellectual property and lab confidentiality if supporting faculty research.

OTHER COMMENTS

As integral members of the program delivery team, Lab Technologists contribute directly to supporting the college's Mission and Goals by ensuring that laboratory environments operate safely, efficiently, and in alignment with academic objectives. Lab Technologists must be responsive to evolving technologies and educational practices, while demonstrating strong communication and collaboration skills when engaging with students, faculty, and external partners. In fostering an inclusive and respectful learning environment, they are expected to uphold principles of equity, diversity, and sustainability. Their role includes supporting student learning, contributing to program innovation, and maintaining professional standards that reflect the college's commitment to excellence in applied education.

Employee's Signature

Date

Supervisor's Signature

Date