

Job Description

Job Title:	Technical Support Specialist
Department:	Chemistry
Reports To:	Director of Waterloo Advanced Technology Lab (WATLab)
Jobs Reporting:	None
Salary Grade:	USG 7
Effective Date:	February 2019

Primary Purpose

The Waterloo Advanced Technology Lab (WATLab) is an open-access user-based facility that houses one of the best collections of state-of-the-art materials fabrication and characterization tools in Canada. The mission of WATLab is to enhance and to maximize positive multidisciplinary materials research outcome at the University of Waterloo and in Canada while ensuring continued optimal functioning of its facilities and equipment. The position is part of a team that provides a variety of operational support, research and administrative laboratory services to the users of WATLab. The team is responsible for the following instruments for materials characterization: microscopy tools (including several electron microscopes, and atomic force and scanning probe microscopes), bulk analysis tools (including X-ray diffraction, magnetic and physical properties measurement), surface/near-surface composition analysis tools (including Imaging ESCA and Auger electron spectroscopy, secondary ion mass spectrometry, optical spectroscopies, surface electrical and other measurements). This position will have primary responsibility for the tools located in the C2 Lab or QNC Lab,

Key Accountabilities

Operation and Equipment Maintenance

- Performs regular system checks to ensure each instrument is properly calibrated (against standards) and appropriately optimized for general use and that the results are reliable for our users;
- Maintains and improves a set of standard operating procedures for each instrument;
- Maintains an easy-to-use machine signup schedule and ensures that users follow the schedule to enable optimal usage of each instrument;
- Provides assistance to the user in their analysis and in the advanced use (expert level) of the instrument in order to enable/train the user in tackling a challenging research problem on hand;
- Collaborates with faculty and external users concerning their research needs;
- Provides basic equipment upkeeps, and maintains a good record of all the machine physics/service for individual instrument;
- Performs preliminary diagnosis in the event of a machine problem, and interacts with the service engineer of the instrument in question to develop an appropriate cost-effective solution to resolve the problem;
- Supports and assists the service engineer in the event of an on-site service, and follows up with the engineer regarding any new machine issues upon completion of the service.

Training

- Provides instructional training of the basic principle of each technique, and develops and administers training modules to enable the user to operate and use the machine safely and productively (the user base includes graduate students, postdoctoral fellows, research associates, faculty and external users);

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- Maintains a user training schedule and follows up with each user after the training;
- Provides follow-up training for data analysis and more challenging research problems.

Safety

- Enforces Health and Safety guidelines as required by the University of Waterloo;
- Routinely checks the instruments for any safety issues;
- Assures that all the users using the instruments follow the safety protocols as required by the manufacturer and by Health and Safety and that their samples comply with safety regulations;
- Periodically evaluates the user samples for any safety issues.

Other Duties

- Coordinates billing for lab services and consumables;
- Sources appropriate materials and lab supplies and replacement parts, where appropriate, and identifies potential upgrades for each instrument;
- Promotes the lab capabilities to potential new users to increase the usage of instruments;
- Assists with lab promotional details, including guided lab tours for the general public in open-house events and for various school visits.

**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 minimal degree at the bachelor level in a Science or Engineering field is required, and a degree at the M.Sc. or Ph.D. level in Chemistry, Physics, Materials Science and/or other relevant disciplines is preferred.

Experience

- Four years of experience in operating and/or using some of the instruments listed above;
- Experience in working with delicate and highly sensitive instruments and with ultrahigh vacuum systems, including both hardware (such as vacuum pumps, water cooling, sample transfer and preparation, etc.) and software (such as Windows operating systems and Windows based applications), and their interface;
- Experience in working with a diverse group of users (with different background and varying experience with individual techniques and instruments).

Knowledge/Skills/Abilities

- Excellent working knowledge of materials analysis techniques and general operation of the instruments;
- Good working knowledge of the operation of a multiuser, multidisciplinary research facility;
- Excellent organizational and time management skills;
- Excellent analytical and problem-solving abilities;
- Broad knowledge in materials science and analysis;
- Good communication and interpersonal skills.

Nature and Scope

- **Contacts:** This position will interact regularly with graduate and undergraduate students, as well as other researchers (including postdoctoral fellows and faculty) in providing training of the tools and in

addressing questions regarding the use of the tools and the interpretation of the data obtained by the tools. The position will also interact externally with industrial users, and will assist with service engineers from various manufacturers of the tools, during problem diagnosis (over the phone or via email) and on-site visits to repair and/or maintain the tools. Occasionally, the position will source items related to materials and supplies to ensure that the tools are working properly. The position will also provide, on occasion, laboratory tour of the facility to potential users, visitors and members of the general public (in open-house events). This position will report to the Director of WATLab regarding all aspects of these contacts.

- **Level of Responsibility:** The position has no direct supervision role of others. The position provides functional guidance and training to other similar position(s) in the use, maintenance and service of the tools for which the position is primarily responsible, in order to provide continuity of service to the users (should the position goes on leave or vacation).
- **Decision-Making Authority:** On occasion, the position is required to perform diagnostic of any operational and performance issues related to the tools that may arise. This task can be performed in consultation with the Director and/or other similar positions. As the result of these consultations, the position will make a recommendation to the Director whether an expensive on-site service visit and/or other resolution is required to resolve the machine issues.
- **Physical and Sensory Demands:** This position should have a keen sense of awareness of the physical environment conditions (e.g., temperature, humidity, noise level, smell) in the labs as a noticeable change in one or more of these normal conditions could cause and/or indicate impending machine issues of the instruments.
- **Working Environment:** The job will be laboratory based. The position is expected to report to work on time, during regular office hours (normally 9 am to 5 pm), to provide a reliable service to the user base. On (rare) occasion that the service engineer is on site for a service visit, the position will work with the service engineer to accommodate the engineer's schedule as dictated by the task(s) on hand (e.g. initializing the machine after a bakeout). The position will facilitate a harmonious, cordial and safe working environment for the users and for other similar positions in the team.