



FACULTY OF ENERGY SYSTEMS AND
NUCLEAR SCIENCE

TEACHING LABORATORY
GUIDELINES AND PROCEDURES

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Introduction

This manual provides a framework for safe operating practice in undergraduate teaching laboratories within the Faculty of Energy Systems and Nuclear Science (FESNS). The document will provide faculty-specific context in keeping with the university-wide safety and security protocols for all undergraduate students.

FESNS faces unique safety challenges within the teaching laboratories. Many experiments involve radioactive sources that are subject to regulatory control by the Canadian Nuclear Safety Commission (CNSC). Some programs offered by FESNS are multi-disciplinary, and the laboratories may include electrical, chemical and mechanical safety concerns.

Failure to comply with the guidelines and procedures in this manual or associated documentation can lead to dismissal from laboratories, and possible legal action if negligence and or malicious intent are indicated.

Associated Documentation & Regulations

All people accessing laboratories are subject to all applicable safe occupation regulations, including but not limited to the following authorities:

- Ontario Ministry of Labour (<http://www.labour.gov.on.ca/english/hs/>)
- Canadian Centre for Occupational Health and Safety (<http://www.ccohs.ca/>)
- Ontario Ministry of Community Safety & Correctional Services - Office of the Fire Marshal (http://www.mcscs.jus.gov.on.ca/english/FireMarshal/OFMLanding/OFM_main.html)
- Electrical Safety Authority (<http://www.esasafe.com>)
- Technical Standards & Safety Authority (<http://www.tssa.org>)
- Health Canada (<http://www.hc-sc.gc.ca/index-eng.php>)
- Environment and Climate Change Canada (<https://www.ec.gc.ca/>)

Note: All documentation and regulations are subject to change.

In case of a discrepancy between this Laboratory Safety Manual, and Federal or Provincial regulation or law, the regulation or law shall have precedence.

This Laboratory Safety Manual is supplementary to the following safety documents:

University of Ontario Institute of Technology

Laboratory Safety Manual for General Laboratory Operations

https://shared.uoit.ca/shared/department/healthandsafety/documents/laboratory_safety_manual.pdf

Emergency Preparedness Plan and Policy

http://www.durhamcollege.ca/wp-content/uploads/Emergency_preparedness_plan_policy-DC-final.pdf

Radiation Safety Manual

<https://shared.uoit.ca/shared/department/research/documents/RADIATION%20SAFETY%20MANUAL%20R4%202%20APR%202011.pdf>

Laboratory Hazardous Waste Management Manual

https://shared.uoit.ca/shared/department/healthandsafety/documents/Hazardous_Waste_Manual.pdf

Faculty of Engineering and Applied Science Safety Manual

<https://shared.uoit.ca/shared/faculty/feas/documents/Safety-Manual-Current.pdf>

Engineering Laboratory Policies and Safety Protocol Reference Manual

<https://shared.uoit.ca/shared/faculty/feas/documents/FEAS-Lab-Policies-and-Protocols-Manual-Current.pdf>

Authority

The stricter and or more specific of these guidelines, as stated, in whole or in part, within this manual and or any other associated UOIT safety related documentation and or regulations, will supersede anything deemed less specific.

This document applies to student laboratory areas and the teaching activities conducted in those areas. Student laboratory areas include, but are not limited to, teaching laboratories, student collection sites which may be on or off UOIT campus property, and rooms designated as support resources for teaching laboratories.

This document does not apply to research students performing research experiments. This document should be used as guidance for defining safe practice in a research laboratory.

Definitions use in this document

Teaching Laboratory: a physical location where practical experience will be introduced. The location can be in a room on campus, or a field site off campus.

Experiment:

Any structured use of a teaching laboratory to conduct prescribed course-related instructional activities. An experiment includes the space, equipment, and all other resources necessary to achieve the learning outcome of the instructional activity.

Responsibilities

Laboratory Manager: The Laboratory Manager is responsible for managing the activities of all students, staff and faculty members who work in the teaching laboratories. The Lab Manager is also responsible for periodically reviewing and improving any and all University of Ontario safety programs instituted for the teaching laboratories, as well as other FESNS jurisdictions designated for the purpose of carrying out undergraduate instructional laboratory activities.

Laboratory Technician: Laboratory Technicians report to the Laboratory Manager. The Technicians' main responsibilities are to ensure the safety of all laboratory users including students, other staff, faculty, teaching assistants and visitors. Laboratory Technicians are also responsible for training Teaching Assistants and or Work Study Students pursuant to the safe operation and handling of all laboratory equipment, and with particular emphasis on the safe use and operation of experiments and experiment related apparatus. Technicians usually assume the role of Laboratory Supervisor while laboratories are in session. Technicians may be called upon, by the Laboratory Manager, to review any known safety issues and or implement any changes deemed necessary by the Laboratory Manager. Laboratory Technicians are responsible for carrying out periodic safety inspections of, and for, all FESNS Laboratory Jurisdictions.

Laboratory Specialist/Engineering Specialist: The Laboratory/Engineering Specialist may be called upon to assist the Laboratory Manager and or Laboratory Technicians with projects relating to the development and or implementation of laboratory safety guidelines. The Laboratory/Engineering Specialist also assists Lab Technicians with ensuring equipment and procedures are in compliance with all relevant safety guidelines. The Laboratory/Engineering Specialist may be called upon to assist with safety inspections.

Laboratory Supervisor: The Laboratory Supervisor is any individual responsible for the safety of the teaching Laboratory, particularly when experiments are being performed or prepared. The Laboratory Supervisor's main functions are to establish and maintain safety within an ongoing laboratory session, to be in possession of the required safety training, and to effectively apply this training whenever the need arises. A laboratory may have several Laboratory Supervisors acting at any one time. For example, during a given teaching laboratory session, the Laboratory Manager, a Laboratory Technician, a Professor and a Teaching Assistant may all be present. All such persons are expected to assume the roles and responsibilities of Laboratory Supervisors.

Teaching Assistant: The TA's main functions are to establish and maintain safety within an ongoing laboratory session, to be in possession of the required safety training, and to effectively apply this training whenever the need arises.

Professor-in-Charge: The PIC is responsible for designing a safe laboratory experiment, maintaining contact with the Laboratory Supervisor to ensure that the students are following safe laboratory practice, and to revise experiments, as needed, to improve safety.

Responsibilities of all users of laboratories

All personnel making use of teaching laboratories, including supervisors, students, employees and faculty are required to assume the following responsibilities while in any laboratory spaces:

- Always place safety as the highest level priority while conducting any activities within a teaching laboratory.
- Read and understand all safety documents that are presented or provided by the Laboratory Manager, Laboratory Supervisor or Laboratory Technicians.
- Attend and or participate in all relevant safety demonstrations and safety training seminars.

- Immediately report any safety violations, equipment malfunctions, or potential safety issues to the Laboratory Supervisor.
- Know the locations, proper use, and handling of safety equipment including but not limited to: eyewash stations, fire extinguishers, telephones, emergency gas shut off valves, first-aid kits, defibrillators, safety showers, and posted “emergency guidelines”.

Additional Responsibilities of Laboratory Supervisors, Laboratory Technicians, Teaching Assistants, and Professors.

Under the direction of the Laboratory Manager, those noted above will assume the following additional responsibilities:

- Have completed all mandatory training seminars within the first two weeks of hire, before assuming any active responsibilities as Laboratory Supervisor. The Mandatory Training Records shall be provided to the Laboratory Manager, or designate.
- Ensure all laboratory users have received the necessary training, and have signed any necessary acknowledgement forms prior to having access to the laboratories.
- Ensure laboratories are safe for use before allowing access to any user. This includes checking of eye wash stations and all experiment-specific safety features just prior to the beginning of every laboratory session.
- Report any safety violations, equipment malfunctions, accidents, near-misses, and potential safety issues to the Laboratory Manager.
- Expel anyone not conforming to the safety requirements of the laboratory and deny access to the laboratory until or unless he or she can demonstrate full compliance with the safety policy.

The mandatory training seminars for all Laboratory Supervisors shall include:

1. Basic Lab Safety seminars conducted by FESNS (valid for three years)
2. Basic Radiation Safety seminar (also valid for three years)
3. WHMIS Training
<http://healthandsafety.uoit.ca/training/whmis.php>
4. Health and Safety Orientation Training
<http://healthandsafety.uoit.ca/training/>
5. AODA Customer Service Module
<http://accessibility.uoit.ca/tutorials/index.php>
6. AODA Accessible Instruction Module (mandatory for educators at UOIT)
<http://apa.uoit.ca/aoda/>
7. Workplace Violence and Harassment Prevention (mandatory for employees of UOIT?)
https://ssbp.mycampus.ca/prod/www_hso.hsovhp.p_main

Certain seminar certificates must be renewed over time. New hires must complete the attached training Record form (see Appendix A) and must forward this to the Laboratory Manager, as well as to UOIT Human Resources office, within the first two weeks of employment.

Laboratory Policies

Spaces defined as laboratories

The spaces defined as teaching laboratories under the control of FESNS are all subject to procedures given within this manual. Occasionally, teaching laboratory activities will be carried out at locations external to the UOIT campus which may be indoors or outdoors. While these spaces are clearly not conventional teaching laboratories, all applicable safety guidelines and procedures apply. Notification must be prior submitted to Insurance and Risk Management for offsite activities.

Supervision

Designated Laboratory Supervisor and Delegates

An emergency contact sign consisting of at least three qualified Laboratory Supervisors must be posted outside each and every teaching laboratory. Furthermore, each Laboratory Supervisor's name must include the contact phone numbers where these persons can be reached. See Appendix B for a sample of a contact posting. Copies shall be provided to Human Resources / Campus Security.

Undergraduate Laboratories

Laboratory Supervisors are any employees of the Faculty that are directing a particular class or experiment within a teaching Laboratory.

When a teaching laboratory is in use by undergraduate students as part of a normally scheduled laboratory session, at least one of the Laboratory Supervisors or TAs assigned to that Laboratory must be present in the laboratory for the duration of the laboratory session.

When a laboratory is in use by undergraduate students comprised of smaller groups for project work, such as with undergraduate thesis students, a Laboratory Supervisor assigned to that group should be present for the duration of the laboratory session or experiment.

The Laboratory Supervisor must take into account and point out safety risks inherent to the experimentation or laboratory space.

No experiment shall be performed alone. If the Laboratory Supervisor deems an experiment to be safe, and not requiring direct supervision, the student¹ must still be accompanied by, at minimum, a second student.

Access to undergraduate laboratories and equipment

Equipment

Only individuals who are deemed competent by the Laboratory Supervisor may make use of equipment housed in a laboratory. In many cases, training will be available for anyone unfamiliar with the equipment. Students are not allowed to handle or attempt to operate any equipment they have not been trained to operate or handle. Personnel will be available to provide training for equipment- especially for equipment deemed as having safety issues.

¹ A graduate student performing an experiment as part of course work is also considered a student.

Undergraduate access to laboratories

Before access to any laboratory is allowed, and at the start of a new academic year, students must complete the following:

- Read and understand the FESNS Laboratory Guidelines and Procedures manual.
- Read, understand and sign the FESNS Laboratories Laboratory Guidelines and Procedures Acknowledgement Form (See Appendix C). This form must be submitted to the course's Teaching Assistant or Laboratory Supervisor prior to commencing any work within a given laboratory session.
- Be present and understand the lab specific safety training that will be presented at the start of each lab by the Laboratory Supervisor.

Students must be present at the beginning of each lab where the lab specific safety requirements and designated personal safety equipment will be specified. Students will not be allowed to continue with the lab without the proper safety training and appropriate PPE, until the Laboratory Supervisor can provide direct training.

For regularly scheduled teaching activities that will take place within a laboratory, the laboratory shall remain locked and closed prior to the official start time. Students shall not enter the laboratory without explicit authorization from the Laboratory Supervisor.

For access to laboratories, apart from regularly scheduled classes or laboratory sessions, students must request their intent with a Laboratory Supervisor at least 24 hours in advance of their proposed access time. Reasonable access to labs will be given to students except when scheduling conflicts or overwhelming safety concerns apply.

Restricted Laboratories

If a laboratory requires strict access due to inherent dangers, a sign must be posted on each entrance to the laboratory indicating "ACCESS RESTRICTED" or "RESTRICTED ACCESS" along with a brief description of the hazard.

Hours of operation

All UOIT buildings are open during the official university operating hours: from 7:00 am to 11:00 pm, Monday through Friday, except statutory holidays.

Personnel working on campus outside of regular university operating hours should always inform security, **905-721-8668 ext. 2400** or **Direct # 905-721-3211**, with their location(s) and arrival and departure times.

Laboratories should be accessible from 8:00 am through 5:00 pm, Monday through Friday, on days where the University assumes normal operating hours. Access may be denied outside of these hours, especially where supervision is necessary.

Clothing and Personal Protective Equipment (PPE)

Clothing requirements and exclusions

The following clothing requirements and exclusions apply to all undergraduate laboratories whenever conducting or observing any experiment activities:

- Approved laboratory clothing should be worn.
- No open-toed shoes or sandals.
- No jewelry including rings, necklaces, and bracelets.
- No neckties.
- Long hair must be tied back.

Approved lab coats which can be purchased through the University bookstore or Science Store are recommended for all labs to minimize the risk of injury resulting from clothing getting caught in machines, and damage to clothing from chemical or mechanical action. Also note that shorts are not allowed in our undergraduate teaching labs.

Access to the laboratory shall be denied if clothing is considered to present a hazard.

PPE requirements and availability

Students must be informed in advance of the appropriate personal protective equipment (PPE) required for each teaching lab. No student will be permitted to begin any experiment without the proper PPE as prescribed by the Laboratory Supervisor.

Normal PPE requirements include the following:

- Eye protection
 - Safety glasses with permanently attached side shields must be worn during any experiments where chemical splashes may occur or where airborne particles may be moving quickly. This includes any experiment involving a wind chamber or wind tunnel.
 - Safety goggles/respirators/face shields may be required for more dangerous experiments and their requirement for use will be the discretion of the Laboratory Supervisor. Training shall be provided where required.
 - Regular prescription glasses, sunglasses, and contact lenses are not considered suitable safety eyewear. If an experimenter has purpose-built safety prescription glasses, they can be used at the discretion of the Laboratory Supervisor. Safety sun-glasses are not permitted for use under normal indoor lighting conditions.
 - Refer to the **UOIT Laboratory Safety Manual for General Laboratory Operations, Section 22.1: Eye Protection** for information on choosing the correct material for safety eyewear.
- Hand protection
 - Appropriate Safety gloves must be worn for any experiment that may pose a risk of physical harm, chemical exposure or burns to hands.
 - **WARNING-** Be aware that some people are allergic to latex gloves.
 - Refer to the **UOIT Laboratory Safety Manual for General Laboratory Operations, Section 22.2: Hand Protection** for information on choosing the correct material for safety gloves.
- Foot protection
 - No open-toed footwear is allowed in teaching labs.
 - For experiments involving corrosive materials or mechanical impact, alternate footwear must be worn that protects against these dangers.

- Refer to the **UOIT Laboratory Safety Manual for General Laboratory Operations, Section 22.3: Foot Protection** for information on choosing the correct material for safety footwear.
- Hearing protection
 - Experiments involving machinery may require hearing protection. Use of what type of hearing protection will be defined by the Laboratory Supervisor according to Ministry of Labor standards.
 - Refer to the **UOIT Laboratory Safety Manual for General Laboratory Operations, Section 22.4: Hearing Protection** for information on choosing the correct material for hearing protection.
 - Refer to the **UOIT Laboratory Safety Manual for General Laboratory Operations, Section 18: Noise** for information associated with noise levels that are permissible in laboratories.

Laboratory conduct

- Safety is the primary concern of UOIT and FESNS. Any perceived threat to the safety of students, staff, Lab Supervisors, Faculty or FESNS equipment will not be tolerated.
- Horseplay is prohibited, and individuals conducting themselves in any such inappropriate manner may be asked to leave the laboratory.
- A student is not permitted to use any equipment without the permission of the Laboratory Supervisor. Permission may be granted following the Laboratory Supervisor's assessment of the student's competence, safe use and handling of the equipment.
- Food or drinks shall not be consumed inside FESNS teaching labs. Food and or drinks are not permitted in any labs containing radioactive sources under any circumstances.

Safety Equipment and Signage

Signage

- All teaching laboratories must display the following signage:
 - At the entrance of a laboratory, an Emergency Contact list with minimum of three lab supervisors, including the Laboratory Manager must be posted, including their (active) contact telephone numbers. This sign must also include the 24-hour UOIT security contact number.
 - At the entrance to a laboratory, room advisory signs must be placed in clear view, depicting lab-specific dangers including but not limited to laser, radiation, high pressure, machinery, and/or chemical dangers.
 - A sign in clear view, designating the location of eye wash stations. Close to this eye-wash station, a tracking sheet must be displayed showing weekly operational inspections. In addition, a bi-annual maintenance, inspection and test tag from Facilities Management must be affixed to each eye wash station.
 - A sign in clear view, designating the location of all Fire extinguishers. The annual maintenance, inspection and test tags must be clearly visible.
 - An "Emergency Guidelines" poster, provided by UOIT, shall be posted in clear view inside and near the entrance of each teaching laboratory.

- All water and gas sources must have appropriate labels. Water sources must be labeled as “Potable” or “Non-Potable”.
- Active experiments that are left unattended must be labeled with an appropriate contact name and phone number.

Availability of safety equipment in ERC laboratories

All Laboratories must have the following general safety equipment in good operating condition:

- A fire extinguisher, located where it is easily accessible. The space around the fire extinguisher must remain free of obstacles at all times. A ‘location’ sign must be posted such that the fire extinguisher and sign can be easily seen from any location within the laboratory (see signage).
- A labeled ‘sharps’ container for safe disposal of any sharp items or broken glass.
- An eyewash station or eyewash bottles, located where easily accessible. The space around the eyewash station must remain free of obstacles at all times. A ‘location’ sign must also be posted where it can be seen from any location in the laboratory (see signage).
- Access to safety shower in the lab or the adjacent hallway.
- Access to first-aid kits. **Note:** common first-aid kits are located in the North-West hallway of the ERC building corridors.
- Access to the Defibrillator located on the ERC 2nd floor alcove (in front of room ERC 2029), to your left if exiting the elevators.
- Access to a step stool than can be used to safely store and remove items from hard to reach areas.
- A sink to wash hands, as well to use for safe disposal of normal domestic waste. Special disposal of low toxicity and water soluble chemicals must be in full compliance with all applicable environmental standards. Please refer to the Lab Hazardous Waste manual.

Laboratories containing specific hazards will require the following:

- Labs that have radiation sources must always have access to a calibrated radiation survey meter.
- Labs that carry liquid radioactive substances must have operational fume hood/s with dedicated ventilation systems and or drain/s that connect directly to the main sewer line. This is to facilitate the disposal of controlled amounts of radioactive materials according to applicable regulations.
- Radiation level 2 facilities are access-controlled and have visible warning lights indicating that equipment is in operational mode, and that access is restricted.
- Labs that contain chemicals must include a spill control kit.
- Labs that contain chemicals must include appropriate chemical disposal containers.
- Labs that have natural gas sources must have a gas shut-off valve-located outside the lab. Some labs will have audible alarms to warn of low oxygen levels (below safe limits) such as wherever liquid nitrogen is being stored and or used.

Maintenance

- It is the responsibility of the designated Laboratory Technician to ensure that the laboratories are clean and safe for use, and that safety equipment is maintained and checked.
- Eyewash stations must be checked weekly by a designated Laboratory Technician to confirm they are in good working order and the results recorded and kept visible near the eye wash

station. UOIT facilities management will inspect and perform maintenance on eyewash stations and showers twice a year.

- Fire extinguishers are checked by UOIT facilities management on a monthly basis.

Use and storage of chemicals

Liquid and solid chemicals

- Any laboratory containing dangerous chemicals (as defined in **UOIT Laboratory Safety Manual for General Laboratory Operations, Sections 7, 8, 9, 11, 12 (Flammable and Combustible Materials, Dangerously Reactive Materials, Corrosive Materials, Designated and Controlled Substances, Biohazardous Infectious Materials)** (https://shared.uoit.ca/shared/department/healthandsafety/documents/laboratory_safety_manual.pdf), must display chemical hazard signage outside of the laboratory.
- All chemicals, dangerous or not, must be in appropriate containers, properly identified, and labeled in accordance with WHMIS / Globally Harmonized System of Classification and Labelling for chemicals (GHS) requirements.
- All chemicals contained in a laboratory must have an associated up-to-date Material Safety Data Sheet (MSDS) or safety data sheets (SDS) stored in a binder in an accessible location within the same laboratory.

Compressed gasses and liquid nitrogen

- The Laboratory Supervisor is responsible for inspecting compressed gas containers prior to use by students.
 - The Laboratory Supervisor is responsible for ensuring compressed gas containers are properly closed-off after use.
 - Entry to any teaching labs is not permitted if and whenever a visible alarm can be seen or an audible alarm can be heard. Teaching labs may require the use of liquid nitrogen and an alarm will sound when oxygen levels inside the labs fall below safe limits.
- Caution:** Refrain from entering any such laboratory and inform the Laboratory Supervisor or UOIT security immediately if an unattended alarm is suspected.
- Always wear the appropriate PPE when handling compressed air/cryogenic gas/liquid.

Use and storage of ionizing radioactive materials

- Storage of All ionizing radioactive substances except Naturally Occurring Radioactive Materials (NORM) is governed by the Canadian Nuclear Safety Commission (CNSC) and internally by the University Radiation Safety Committee. Please refer to the UOIT Radiation Safety Manual.

Laboratory Procedures

Emergency Response

Response to medical emergencies, discovery of fire, secure-and-hold situations, campus threat/suspicious package situations and lockdown situations, are all prescribed by the UOIT's "Emergency Guidelines" poster which is located inside every laboratory. The following additional procedures apply:

All emergencies

1. If any danger still exists within a laboratory, evacuate the laboratory immediately.
2. Call UOIT Security (preferably **from a University phone**), at extension 2400, or from any other suitable phone or by using one of the emergency phones that are located next to all elevators (**905-721-8668 ext. 2400**) or (**Direct # 905-721-3211**) and calmly explain the situation. Security will call 911 if and when additional assistance is needed.

Fire Alarms

UOIT has a two-stage fire alarm system. Stage 'one' will consist of one beep-tone every two seconds and a stage 'two' alarm will have one beep-tone every second. If a fire is already confirmed, the Stage 'one' alarm might be bypassed directly with a Stage 'two' alarm.

1. During a Stage 'one' alarm, prepare but do not evacuate; terminate current activities following a safe shutdown procedure; ensure all experiments are in a safe state; if possible close any open doors and windows.
2. During a Stage 'two' alarm, evacuate to the designated Assembly Area - the Simcoe parking lot located in front of the ERC building main entrance. This is always, unless notified otherwise, the Assembly Area for all occupants of the ERC building.
 - Do not run through halls, down stairs or attempt to use the elevators during a fire emergency evacuation.
 - Exit using the stairwells located at the corners of the ERC building. Avoid using the central stairwell located on the West side of the building between the 2nd, 3rd and 4th floor.
 - Evacuation orders by the Laboratory Supervisors or by designated fire wardens (who are identified by bright orange safety vests and/or bright orange armbands) must be obeyed.
3. Remain in the Assembly Area. Do not leave the premises or re-enter the building until the "all-clear" signal is given.

Equipment malfunctions

1. In the event of an equipment malfunction, taking into account any existing or potential safety risks, stop work and de-energize the equipment immediately.
2. Notify the Laboratory Supervisor of the malfunctioning equipment.
3. The Laboratory Supervisor should clearly tag (using only an approved tag) equipment "NOT TO BE USED UNTIL FURTHER NOTICE" and must notify Laboratory Manager and or Laboratory Technician who will further investigate the equipment problem.

Detailed procedures for additional threat types can be found in **UOIT's Safety and Security Policies and Procedures** (<http://uoit.ca/main/current-students/campus-services/safety-security/policies-and-procedures/>)

Preventative Maintenance and Repair

Equipment must be inspected, maintained and repaired on a regular schedule, at least once each year.

1. Only qualified personnel authorized by the Laboratory Manager may perform maintenance or repairs on any equipment belonging to a teaching laboratory.(May require service desk request for certified trades)
2. Turn off and / or de-energize any suspect equipment.
 - Unplug detachable and or power corded equipment.
 - Lock-out and tag-out any equipment that must be de-energized from a breaker or other interrupter device. The breaker or other interrupter must also be locked out so it cannot be re-energized while maintenance is on-going. Tags must include time and date of lock-out and the name and contact number of the person who implemented the lock-out.
3. Perform the required maintenance on equipment.
4. If the equipment is accompanied by, or requires a maintenance 'record' sheet, record the action, date, time, and person who implemented the maintenance.
5. Remove any lock-out and re-energize the equipment where necessary.
6. Test equipment and recheck to ensure any and all required safety features are operating and there are no remaining safety issues before declaring the equipment is ready for use.

Damaged or Malfunctioning Equipment or Facilities

Damaged or Malfunctioning equipment including PPE

1. Immediately discontinue use of the equipment.
2. If it can be done safely, where appropriate, de-energize the malfunctioning equipment.
3. Students must report any malfunctioning equipment to the Laboratory Supervisor. Laboratory Supervisors must disable and tag any malfunctioning equipment and inform the Laboratory Manager.
4. The equipment must be tagged as not-working and then secured against further use. For electrical equipment, the power cable should be removed, wherever possible, then stored in a secure location and any and all circuit breaker(s) disengaged.

Malfunctioning facilities such as gas or water

1. If any immediate threat to safety is suspected, the room shall be evacuated immediately. Notify campus security or facilities management.
2. If no immediate threat to safety is suspected, attempt to turn off the valve supplying the gas or water.
3. If a gas supply malfunction occurs, close the gas shut off tap located outside of each laboratory.
4. All malfunctioning facility issues shall be reported to the Laboratory Supervisor.

Gaining Access to Laboratories

Undergraduate access to laboratories

Occasionally, students or student groups will require access to laboratories for project work.

1. The student must request laboratory access from their Supervisor (Instructor or Project Supervisor). The request must include the names of all group members, the dates and times requested, and a comprehensive description of the experiment and / or activities being performed together with a list of all required equipment.
2. The Supervisor will coordinate with the Laboratory Manager or a suitable delegate to confirm the availability of the space and equipment, and relay this information to the Supervisor.

3. The Laboratory Technician assigned to the student or student group may provide access to the laboratory and equipment. Supervision requirements are determined by the student's Supervisor, and in agreement with any requirements set by the Laboratory Technician.
4. Students are not permitted to work alone in the laboratories. The "buddy system" is required.

Keys

Keys for teaching laboratories must be requested through the Laboratory Manager. The laboratory manager will contact facilities management to obtain keys.

Revision History

R#	Date:	Changes:	Initials:
R0	Oct 20-29, 2015	Initial draft	CB SP BG RU BM KR EJW
	Jan 9, 2016	Initial draft	RSO
	Sept 28, 2016	Initial draft	BI
	Sept 29, 2016	Initial draft	SP
	Nov 21, 2016	Initial draft	Dave R, L'naya
	Nov 22, 2016	Initial draft	RU, CB, SP, BG
	Nov 28, 2016	Initial draft	BB (Acting Dean)

Appendix A – Mandatory Training Record

Mandatory Training for Lab Supervisors

Introduction:

Supervisors are strongly encouraged to use the following as a guide for all full time and limited term academic and non-academic hires. It is recommended that all items be completed within the first two weeks of hire. You may wish to keep a copy of this record in the employees file for future reference.

Date:	Employee Name:	
Date of Hire:	Title:	
Department/Faculty:		
Supervisor's Name:		
Requirement:	Date Completed	
Basic Lab Safety Training (valid for 3 yrs.)		
Basic Radiation Safety Training (valid for 3 yrs.)		
WHMIS Training (copy of certificate to be sent to Human Resources) http://healthandsafety.uoit.ca/training/whmis.php		
Health and Safety Orientation Training http://healthandsafety.uoit.ca/training/		
AODA Customer Service Module http://accessibility.uoit.ca/tutorials/index.php		
AODA Accessible Instruction Module (mandatory for educators at UOIT) http://apa.uoit.ca/aoda/		
Workplace Violence and Harassment Prevention https://ssbp.mycampus.ca/prod/www_hso.hsovhp.p_main		

**In the Event of an Emergency in ERC 3094,
please contact:**

Mr. Sharman Perera → 905.721.8668 ext. 5505

Dr. Edward J. Waller → 905.721.8668 ext. 5521

Mr. Robert Ulrich → 905.721.8668 ext. 5488

For 24 hour assistance:

Security → 905.721.8668 ext. 2400

Or Direct → 905.721.3211

FESNS Laboratories Laboratory Guidelines and Procedures Acknowledgement Form

I, _____ (Name of Student) have read and understood all the laboratory guidelines, safety protocols, and responsibilities as a student, which have been outlined in the FESNS Laboratory Guidelines and Procedures Manual when using the undergraduate laboratories.

I, _____ (Name of Student) hereby accept the terms and conditions set out in the FESNS Laboratory Guidelines and Procedures Manual and verify that I may be subject to suspension of laboratory privileges, dismissal, if violation of any of the guidelines and/or protocols outlined in the manual is found.

Student (Banner) ID#: _____

Signature of Student: _____

Signature of Teaching Assistant: _____

Date: _____

To be retained by faculty member. Student should make a copy for herself/himself.

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