University of Notre Dame

Safety Program

Department of Electrical Engineering
275 Fitzpatrick Hall

Department Chair: Thomas Fuja

Department Safety Coordinator: Gary H. Bernstein
225 Cushing Hall
574-631-6269
bernstein.1@nd.edu

Approvals:
Local Area Safety Committee: March 10, 2015
Risk Management and Safety (RMS):

UNIVERSITY OF NOTRE DAME

Department of Electrical Engineering
Safety Program

Safety Personnel

Position	Name	Office Location (Bldg and Room)	Phone	Email
Department Chair	Tom Fuja	275 Fitzpatrick	574-631-7244	tfuja@nd.edu
Safety Coordinator	Gary Bernstein	225 Cushing	574-631-6269	gbernste@nd.edu
Safety Committee Member	Neil Dodson	249B Cushing	574-631-7752	ndodson@nd.edu
Safety Committee Member	Mike Thomas	B37 Stinson	574-631-7493	Mthomas8@nd.edu
Safety Committee Member	Clint Manning	253B Cushing	574-631-7235	cmanning@nd.edu
Safety Committee Member	Greg Snider	275 Fitzpatrick	574-631-4148	gsnider@nd.edu
Safety Committee Member	Bert Hochwald	203B Cushing	574-631-8875	bhochwal@nd.edu

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Department of Electrical Engineering
Safety Program

1. Executive Summary

1.1. The goal of the Laboratory Integrated Safety Plan (LISP) is to create a culture of safety at the University of Notre Dame. This Safety Program is an extension of the LISP but specific to the Department of Electrical Engineering. While it has been attempted to address all known safety concerns within Electrical Engineering, due to the nature of research, it is impossible to identify all hazards. While this program promotes a safe working environment, individuals ultimately hold responsibility for their own safety.

2. Purpose & Scope

2.1. This document describes Electrical Engineering's specific safety program. It is intended to supplement The University of Notre Dame's Risk Management and Safety (RMS) Department's health, safety and environmental policies and procedures.

3. Responsibilities (Additional responsibilities are defined in the Laboratory Integrated Safety Plan)

3.1. Department Chair:

- 3.1.1. Embraces a culture of safety and establishes and demonstrates an expectation that all personnel will follow policies and procedures to ensure safety. Appoints a Safety Coordinator (SC).
- 3.1.2. Establishes and maintains a Local Safety Committee (LSC). This includes appointing both a SC and a LSC.
- 3.1.3. Enables enforcement of rules and regulations, and takes prompt, effective corrective action when necessary.
- 3.1.4. Provides assistance to RMS and the LSC when situations arise that threaten the safety of investigators and other personnel in the department.
- 3.1.5. Identifies resources needed to address risk mitigation efforts that exceed the ability of the laboratory.

3.2. Safety Coordinator (SC)

- 3.2.1. Main point of contact for the Local Safety Committee (LSC).
- 3.2.2. Chairs the LSC unless the Department Chair designates an alternative.
- 3.2.3. Coordinates the LSC meetings and ensure meeting minutes are taken.

3.2.4. Acts as an intermediary between RMS, laboratory personnel, and the Department Chair, or his/her designee to facilitate solutions to noncompliance issues.
3.2.5. Ensures reporting of injuries, accidents, and exposures to RMS, assists in investigating, and works with RMS and laboratory to mitigate future risk.
3.2.6. Reports at least annually to the Department Chair, or his/her designee the current status of laboratory safety validations; injury, accident, and exposure incidents; and existing gaps in laboratory safety practices, resources, and infrastructure.

3.3. Local Safety Committee (LSC):
3.3.1. Serves as a conduit between RMS and research personnel.
3.3.2. Ensures that information is communicated both ways and that personnel have undergone required training, and training is documented.
3.3.3. Maintains and reviews this Program annually.
3.3.4. Serves as the main point of contact for environmental, health and safety activities and provides key personnel with information related to the Laboratory ISP and ensures that laboratories undergo the validation process.
3.3.5. Determines when specific laboratories are required to develop a Laboratory Safety Protocol as required in the LISP.
3.3.6. Meets regularly, at least annually.

3.4. Principal Investigators (PI)
3.4.1. Ensures that a Laboratory Contact is identified and their responsibilities are clearly communicated. Though the PI/Supervisor or instructor may serve as the Principal Laboratory Contact, he or she may also designate other senior personnel such as technicians, post-doctoral associates, or graduate students to fill this role.
3.4.2. Ensures the laboratory is validated through the Joint Assessment process.
3.4.3. Ensures that all personnel working in the laboratory have their training needs identified and receive the required training. Ensure training records are maintained.
3.4.4. Informs all employees and students that environmental, health, and safety are priorities and informs them about these policies, rules, regulations and procedures, as well as their specific responsibilities.
3.4.5. Develops a Laboratory Safety Protocol if required by this Safety Program. The PI may task another individual within the laboratory to construct the Laboratory Safety Protocol though the PI is responsible for ensuring the task is satisfactorily completed.

3.4.6. Identifies hazards within the laboratory and implements practices to mitigate risk.
3.4.7. Sets expectations and requires that safety equipment, devices, personal protective equipment (PPE) are provided and maintained, and are properly used by all individuals present in the laboratory, including personnel from other laboratories.
3.4.8. Takes prompt corrective action when unsafe conditions, practices or equipment are reported, observed, or when identified during Joint Assessments, self-assessments, or unannounced assessments.
3.4.9. Promptly reports work-related injuries, illnesses, accidents, and exposures to hazardous agents to RMS and the Safety Coordinator. Collaborates with RMS to investigate incidents and implement means to mitigate risk if needed.
3.4.10. Provides financial support for environmental, health, and safety improvements or request assistance from the next higher level of supervision.

3.5. Principal Laboratory Contacts
3.5.1. Designated point of contact for RMS and personnel working within the laboratory for safety issues.
3.5.2. Schedules Joint Assessments and works to resolve any issues identified during the Assessment.

3.6. Unit or Department Members – Adhere to this Program and all University safety policies.

3.7. Visitors (Researchers and Others) – Adhere to this Program.

4. Laboratory Specific Protocol Requirements

4.1. If a lab has any of the hazards identified below, the PI or his designee shall develop a Laboratory Safety Protocol specific to those hazards.
4.1.1. Sealed, non-sealed or machine produced radiation
4.1.2. Laboratory is Bio-safety level (BSL) 2 or 3.
4.1.3. Use of controlled substances
4.1.4. Use of lasers rated 3B or 4
4.1.5. Conducts entry into confined spaces
4.1.6. Performs maintenance on equipment – may require lockout / tagout
4.1.7. Experiments involving exposed electrodes with voltages above 50V
4.1.8. Other hazards as identified by the LSC or Risk Management and Safety.

4.2. The Laboratory Safety Protocol should clearly describe the hazard, the training required to inform and protect personnel from the hazard, equipment associated with potential hazard exposure, and processes that shall be followed to mitigate risk to personnel.

5. General Laboratory Safety Requirements

5.1. Laboratory safety requirements are outlined in the Chemical Hygiene Plan.

5.2. Laboratory Postings - Emergency contact information and relevant hazard warnings shall be posted on the outside of the door leading into the laboratory. A contact information card can be obtained through RMS (1-5037) or on the RMS Website.

5.3. Minors are prohibited from working alone in any laboratory. They shall be attended by senior personnel such as technicians, post-doctoral associates, or graduate students at all times. Minors working in laboratories are required to complete the Forms for Minors in Appendix A.

5.4. Personal Protective Equipment (PPE) – Additional PPE requirements are identified in the Chemical Hygiene Plan.

5.4.1. Minimum PPE requirements for working in laboratories while handling hazardous materials include safety glasses (ANSI Z87), protective gloves, and lab coat or apron. Closed-toed shoes that are not readily permeable to liquids are required at all times while in the laboratory.

5.4.2. Prescription safety glasses with side shields are permitted. Individuals desiring ANSI approved prescription safety eyeglasses must first seek approval from their supervisor then contact RMS at 1-5037. RMS will provide a voucher to Eyemart Express (215 E. University Dr., Granger, IN). The cost of the prescription safety glasses (up to $65) will be charged back to the department.

5.5. Specific Safety Requirements of the Notre Dame Nanofabrication Facility (NDNF):

5.5.1. Users of the Notre Dame Nanofabrication Facility must adhere to those specific guidelines found at http://www3.nd.edu/~ndnf/NDNF_safety_manual_8-26-2013.pdf

5.5.2. NDNF staff are required to maintain their own specific safety plan and keep all records related to safety and training.

6. General Training Requirements

6.1. General laboratory safety training is required for all personnel working in a lab as appropriate to the tasks performed by personnel and students in that lab. It is the responsibility of the worker to complete lab safety training initially and on an annual basis. Refresher training can be completed online through the RMS web site.

6.2. Training records must be maintained for personnel. Records shall include the name of the training course and date it was completed. The records can be hard copies or electronic. All training must be documented centrally, once a training record management system is in place, or locally within the department or the laboratory. Documentation should be available when requested by the LSC or RMS.

7. Communication Process

7.1. Safety information relevant to the Department of Electrical Engineering will be communicated through emails to all relevant parties, including faculty, staff, postdocs, graduate students and undergraduates.

7.2. NDNF will be responsible for its communication with NDNF users, and will do so through emails and general safety meetings.

8. Radiation/Laser Safety

8.1. Refer to the Laser Safety Manual for Class 3B and 4 requirements. The manual is located on the RMS Web site at this link.

8.2. All users of radioactive materials and all users of radiation producing machines shall attend initial radiation safety training and take either on-line or in-person refresher training annually.

9. Biological Safety

9.1. Requirements for laboratories working with biohazards can be found on the RMS web site at this link.

9.2. All users of biological hazards or infectious materials shall attend initial BSL 1-2 training and take refresher training annually.

9.3. All personnel working with blood, unfixed human tissue, or other bloodborne pathogens shall complete annual Bloodborne Pathogen (BBP) training. Additional requirements for working with bloodborne pathogens can be found on the RMS web site at this link.

10. Laboratory Waste

10.1. Chemical Waste – Refer to RMS web site for information on chemical waste handling and disposal. Go to the RMS Web site for pickup schedules.

10.2. Radioactive Waste - Refer to the RMS web site for the radioactive waste process.

10.3. Bio-hazardous Waste - Refer to the Infectious Waste Guidelines on the RMS web site at this link or the RMS web site.

11. Laboratory Field (Off-Campus) Work

11.1. Laboratories conducting field or off-campus work may be required by the LSC to develop a safety protocol for the activities. This department requires ALL off-campus activities complete a Field Research Safety Plan or list the activities requiring a Field Research Safety Plan.

11.2. A template for field or off-campus research is available on the RMS web site.

Appendix A – Forms

Forms for Minors	Forms for Minors Working in Labs.pdf
Other RMS Forms: Controlled Substances, DEA, International Travel, Radiation, Workers' Compensation (Injury), PPE, Waste Pick-up	http://riskmanagement.nd.edu/forms/