

Job Description

Job Title:	Manager, High Voltage Engineering Lab
Department:	Electrical & Computer Engineering
Reports To:	Lab Director, Research & Special Projects
Jobs Reporting:	None
Salary Grade:	USG 9
Effective Date:	August 1, 2017

Primary Purpose

The High Voltage Engineering Laboratory (HVEL) is a leading research and teaching laboratory in the field of insulation, applied electrostatics, nano-dielectrics, pulse power applications, and power electronics. The HVEL laboratory is one of the most research-intensive facilities in North America and features state-of-the-art technology. HVEL is also available to industries as an independent centre for testing and evaluation. The Manager is responsible for a wide variety of operational, research and administrative laboratory (lab) support services.

The incumbent is also responsible for supporting assigned undergraduate teaching laboratories, including implementing and demonstrating laboratory experiments, as well as student laboratory manuals under the direction of the course faculty member, keeping the content current and providing documentation on the labs as required for professional accreditation of engineering programs.

The Manager reports to the Lab Director, Research and Special Projects (LDRSP) for administrative purposes and to the Director of the HVEL for functional and operational matters.

Key Accountabilities

Coordinate the operation of the High Voltage Engineering Laboratory

- Oversees the operation of the lab facility and ensures the continual functioning of facilities and equipment
- Ensures secure and safe operation of high-voltage equipment such as transformers, impulse generators, etc.
- Provides technical support for industrial contract work (set-up, design, and testing)
- Collect technical data of electrical power distribution systems to document and evaluate device capabilities
- Provides progress reports to industrial clients
- Maintains HVEL user records and equipment manuals
- Installs, qualifies, and tests new HVEL equipment and facilities
- Supervises co-op students who use the HVEL
- Implements professional lab practices

Safety

- Enforces Health & Safety guidelines and coordinates safety training for all lab users
- Provides lab specific safety training to all users
- Performs regular safety inspections and ensures maintenance of lab facilities
- Participates in regular ECE Health and Safety Committee inspections and takes corrective action identified by safety inspections
- Maintains Safety Data Sheets (SDS) for chemicals stored and used in the lab

Job Description



- Carries out duties in accordance with safety, environmental and quality policy, safety principles, etc.

Undergraduate / Graduate Lab Instruction

- Lab Instructor for ECE464 and ECE462
- Assists with teaching ECE665 and ECE669
- Supervises and trains the Teaching Assistants (TAs) for ECE464 and ECE462
- Develops experiments and delivers lab demonstrations specified by course material
- Designs, constructs and tests special lab equipment
- Works with faculty to maintain and upgrade course lab manuals
- Ensures the safety of TAs and students while in the HVEL

Other duties

- Maintains the HVEL website
- Participates in the creation of promotional materials for the lab
- Provides lab facility tours for potential industry clients, collaborators, visitors and academic colleagues
- Packages and ships material and equipment, prepares shipping requests, and coordinates with UW shipping
- Makes on-site visits to industry clients
- Responsible for the completion of special projects assigned by the HVEL Director

Required Qualifications

Education

- Bachelor's degree in Electrical Engineering or equivalent; Master's degree would be an asset.
- Demonstrated knowledge in the electricity supply industry, power system configuration/optimization

Experience

- Three or more years of experience in a high-voltage lab setting and with the operation and maintenance of high-voltage equipment
- Experience managing lab operations in a research engineering or industrial setting
- Experience carrying out small research projects and power analysis techniques
- Must be familiar with high voltage power system including safety practices and design

Knowledge/Skills/Abilities

- Must have thorough knowledge of IEEE, IEC and ASTM standards related to HV testing and material analysis, e.g., IEEE Standard 4 for HV testing, ASTM 2303 for IPT, IEC 61109 for Salt-fog and IEC 60034 - Rotating Electrical Machines
- Familiarity with the following equipment/tests: insulation resistance testing, partial discharge, AC, DC, and impulse breakdown strength, DC HiPot, erosion and tracking resistance using inclined plane tests and salt-fog tests, special high frequency and pulse width modulation tests as per IEEE and or IEC standards
- Basic knowledge of the following software packages: MS Word, Excel, PowerPoint
- Ability to work with a minimum of supervision and able to work in a multi-tasking small technical working group
- Easily adaptable to changing work environments and priorities
- Strong written communication skills with an ability to articulate technical ideas in a clear and concise manner
- Excellent organizational and time management skills to ensure smooth functioning of lab
- Problem solving skills with good judgement and ability to troubleshoot many different types of situations

Job Description



- Well-developed interpersonal skills including a customer service focus to interact effectively with a wide variety of stakeholders
- Proven ability to establish and maintain safety procedures in the lab.
- Competent with the use of basic power tools.

Nature and Scope

- **Contacts:** This position interacts with the following persons: faculty, industrial clients, staff, undergrad students, graduate students, researchers, vendors and other engineers. Provides technical support and must be able to effectively communicate with people at all levels of expertise.
- **Level of Responsibility:** The Manager is responsible and accountable for the smooth operation of the lab and works on his/her own initiative with minimal daily supervision. The incumbent ensures that appropriate Safety protocols are in place to prevent the occurrence of accidents or injuries. S/he is responsible for the coordination of all regulatory and compliance activities for the lab. Independently advises and instructs students. Manages equipment inventory.
- **Decision-Making Authority:** Responsible for real-time operation and safety decisions. Provides input on major HVEL decisions. (ie. Equipment purchases, facility upgrades, course development)
- **Physical and Sensory Demands:** Needs to be extra vigilant due to the hazardous potential of the equipment within the facility. (ie. High-voltages, periodic high noise levels)
- **Working Environment:** Large laboratory environment with the potential for serious injury or damage if users are not adherent of procedures or respectful of equipment. Hours of work: 37.5 hours per week. Provides technical troubleshooting and crisis management, which may require being on call after hours.