

Job Description

Job Title:	Technologist, Field Survey and Water Resources Engineering
Department:	Civil and Environmental Engineering
Reports To:	Technical Resources Manager
Jobs Reporting:	None
Salary Grade:	USG 7
Effective Date:	March 2019

Primary Purpose

The Field Survey and Water Resources Technologist will be responsible for the effective delivery of undergraduate teaching laboratories, graduate student research, and field data acquisition. In supporting undergraduate teaching, the position involves planning, developing and delivering undergraduate laboratories, assisting students in carrying out field projects and supporting undergraduate capstone projects. With respect to graduate involvement, activities include application of appropriate health and safety measures, quality assurance and quality control, assisting graduate students in the selection, assembly, construction, deployment and troubleshooting of research apparatus /instrumentation, and participating in field research data collection. The technologist provides important input in laboratory curriculum and maintains continuity of instruction while faculty and teaching assistants change from term to term. The Field Survey and Water Resources Engineering Technologist is also expected to assist with the management of facilities, survey, hydraulics and hydrology equipment and supplies for a multi-user, multi- disciplined research area.

Key Accountabilities

Undergraduate Laboratory Instruction and Maintenance

- Provide laboratory instruction when required for undergraduate teaching labs
- Actively instruct on the legal and engineering survey techniques associated with field data acquisition and layout for the first year survey camp
- Plan, organize and participate in off-campus field trips and give instruction to students regarding legal and engineering field surveying and sampling procedures and safety requirements
- Maintain survey, hydraulics, and hydrology equipment owned by the department and researchers in an organized fashion
- Prepare lab equipment and order supplies required for conducting the lab experiments (primarily hydraulics, hydrology and field related courses)
- Assist and guide Civil and Environmental Engineering Capstone Projects
- Work with other technical staff and teaching assistants to ensure that all experiments in all courses work properly when classes meet
- Make improvements to existing experiments and exercises so they are more suitable for achieving educational goals in the context of an environmental engineering education

Assist with Research Activities

- Provide technical support for graduate students and researchers in the design, construction, deployment, troubleshooting and analysis of field and laboratory experimental setups and data collection
- Function, when required, as the field Party Chief for field legal and engineering survey campaigns
- Periodically complete extended field assignments in remote locations acting as onsite safety officer, party chief, and assisting in data collection

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- Provide instruction and technical guidance in the application of QA/QC protocols for specific test methods
- Design, manufacture and fabricate research apparatus
- Independently manage and maintain continuity of activities during transition periods from one grad student to another
- Review technical literature, identify, and help select laboratory and field equipment/software that will satisfy present and future research needs

Health, Safety & Environment

- Act as the health, safety, and environmental supervisor for undergraduate laboratories and field trips
- Responsible for the establishment of safe field and laboratory practices for all lab users, working closely with the Departmental H&S Coordinator
- Understand and manage the hazards of the lab and field environment and ensure that students are wearing the appropriate Personal Protective Equipment and implementing appropriate safety measures
- Maintain Laboratory Safety Inspections
- Develop and review Job Hazard Analyses, Standard Operating Practices, Field Risk Assessments and Laboratory Risk Assessments
- Maintain current H&S training required for the position including maintaining first aid certification

Other

- Supervise CEE Technical Resources Assistant (co-op student) when required and evaluate their performance
- As requested, participate on departmental, faculty and university committees.
- Assist with the setup and running of departmental competitions and special events: Capstone Design Symposium, Design Days, Explorations, and Open Houses.
- Work collaboratively with the other technologists on the team.
- Undertake other duties as assigned by the Technical Resources Manager.
- Perform literature reviews and professional training to remain current with developments in environmental engineering, analytical chemistry and education.
- Other duties as assigned

**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

- 3+ year Technologist diploma in Legal Surveying, Civil Engineering Technology or Environmental Engineering Technology, Bachelor of Geomatics, or equivalent combination of education and experience

Experience

- 2+ years of experience working in Legal Surveying and/or Civil Engineering Survey Technology related role, including demonstrated experience working at remote sites

Knowledge/Skills/Abilities

- Valid G Driver's License required
- First Aid Certification is an asset
- Survival Training is an asset

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- Pleasure Craft Operators card is an asset
- Strong computer skills
- Proficient knowledge of Total Stations, First-Order Differential RTK GPS systems and Auto Levels
- Proficient Knowledge of instrumentation and field data collection installations (hydrometric monitoring stations)
- Knowledge of LIDAR data acquisition systems. Drone reconnaissance and other aerial data acquisition techniques is of strong benefit.
- Expert knowledge of pump selection and the ability to mechanically maintain and operate pumps and pumping systems
- Strong knowledge of Fluid mechanics, Open Channel Hydraulics and Hydrology.
- Proficient knowledge of Water Resources field methods and equipment (i.e. velocity flow meters and PCADP technology)
- Experience working with hand and power tools
- Experience in lab course development and instruction an asset
- Excellent written and oral communications
- Excellent organizational, time management, interpersonal, and analytical skills
- Ability to manage multiple, competing priorities
- Ability to maintain attention to detail in a fast paced, multitasking environment
- Flexible in assisting with new tasks as assigned

Nature and Scope

- **Contacts:** Internal – undergraduate and graduate students (instructing, advising and sharing information), coop students (Supervising) staff and faculty (advising and sharing information) within the department and with other departments (Earth Sciences, Geography, Environment, engineering machine shop, Mechanical Engineering). External – equipment and material suppliers and sales representatives (obtaining quotations and designing apparatus), service engineers and trade persons (repairing and optimizing equipment, troubleshooting), government and industry managers, engineers, scientists and plant operators (advising, building relationships).
- **Level of Responsibility:** Responsible for maintaining equipment, supplies and materials within the water resources civil and environmental engineering labs. Responsible for health and safety oversight within lab and on field sites, influencing departmental management with respect to decision making regarding the purchase of equipment. Responsible for ensuring labs are instructed on the required schedule, on his/her own initiative with minimal daily supervision. Accountable for the smooth operation of the laboratories.
- **Decision-Making Authority:** Responsible for appropriately procuring supplies and materials in conjunction with the Technical Resources Manager. In conjunction with the departmental H&S Coordinator responsible for making decisions that relate to the health and safety of persons working in the water resources engineering laboratories and conducting field work.
- **Physical and Sensory Demands:** Some tasks may be physically challenging requiring considerable strength and endurance; use of hand tools and power tools, lifting of heavy materials, extended non-regular work hours. The demands within the laboratory setting may involve some lifting of equipment, rearranging of furniture, and standing for extended periods of time. Person must be able to project their voice to communicate with students in a noisy environment. Requires exertion of physical or sensory effort resulting in slight fatigue, strain, or risk of injury. There is frequent need to give close attention to detail and various stimuli such as written material, online material, data readouts and information discussed with co-workers, faculty, and students.
- **Working Environment:** The job involves working in both indoor and outdoor environments. There are deadline pressures and competing priorities while at the same time there is a demand for

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thoroughness, accuracy and safety. The indoor work occurs in an office and laboratory settings and involves reading, writing, working at computer workstations, handling hazardous chemicals and operating and maintaining pumps and experimental apparatus. The outdoor work involves exposure to the outdoor elements year round; working in extreme heat or cold, working in noisy or dusty environments, working on construction sites, working near sewage, around water, near traffic, working at remote locations, working at industrial facilities, and walking, crawling, and wading in possibly insect infested environments. Some tasks may be physically challenging requiring reasonable strength and endurance; use of hand and power tools; hiking to remote field sites, sleeping in tents in all weather conditions, carrying equipment in extreme heat or cold, working at heights, operating forklifts and cranes and lifting of heavy materials. The workplace environment may sometimes be off-site at a remote research location where standards and practices may be undefined. The technologist must use best judgement in establishing safe, responsible working practices for all of the participants at external workplace environments. There is some occasional use of a personal or department vehicle. The job typically runs during regular working hours but there is some regular evening/weekend work required and some extended evening/weekend work required during field projects.