#### Trent University LogoOPSEU JOB DESCRIPTION

**Job Title:** Demonstrator/System Administrator

**Job Number:** SS-059 | VIP: 1390

**Band:** OPSEU- 9

**NOC:** 4012

**Department:** Computer Science (CS)

**Supervisor Title:** Chair, Computer Science

**Last Reviewed:**  October 24, 2022

#### **Job Purpose:**

In co-operation with faculty and under the supervision of the Department Chair, assists in the delivery of academic services in the Department of Computer Science by demonstrating and teaching in laboratories and classrooms. Prepares teaching materials (e.g., labs, manuals, assignments), supervises and coordinates other lab support staff (Graduate Teaching Assistants, Academic Assistants, etc.), evaluates undergraduate student work and works with students one-on-one. Manages the department computer labs; purchasing lab equipment and providing technical support for the teaching facilities used by faculty and students. In co-operation with IT, manages and administers department servers providing the infrastructure necessary for course content delivery. Administrates and maintains department specific web applications.

#### Key Activities:

***Curriculum Development/Coordination:***

1. In co-operation with faculty and under general supervision of the Chair, organizes, researches, designs, prepares, demonstrates, teaches, and supervises Computer Science undergraduate student laboratory sessions at all levels.
2. Designs and prepares lab manuals, handouts, and assignments, ensuring accessibility standards are maintained.
3. Evaluates students on the basis written work, lab participation, programming problems, tests, exams, and oral presentations; invigilates tests and exams.
4. Advises students on curriculum, course choices and timetable scheduling.
5. Acts as a computer resource person; working with IT, is aware of, and provides guidance on, computer resources available to students, faculty, and staff within CS. Works with IT to ensure campus lab images include software necessary to support the CS curriculum.
6. Assists with Learning Management System administration for CS classes
7. Assists faculty with web-based content, maintaining accessibility standards, and additional computer technology necessary for CS courses.
8. Evaluates and advises the CS Curriculum Committee on new directions with respect to software, programming languages and hardware.
9. Supervises, coordinates, and trains student academic assistants and markers.
10. Organizes, directs, and supervises graduate teaching assistants, and student lab demonstrators, with respect to ensuring coverage of lab sessions, the nature of lab instruction, objectives of the lab components of the course and necessary background information.
11. Engages in professional development by staying current with respect to the undergraduate CS curriculum, learning new programming languages, operating system software and tools.

***System Administration/Technical Support:***

1. Investigate, evaluate, purchase, setup, and maintain department computers and other laboratory equipment.
2. Working with IT, create, administer, and maintain departmental servers (Unix, Database, Web Applications) to support faculty and the Computer Science Department curriculum.
3. Develops, manages, and enforces system security and backups for department servers.
4. Creates and administers user accounts on UNIX systems managed by the Department.
5. Design, analyze, program, implement, test, and maintain new and enhanced systems utilities and software applications for the Department.
6. Provides technical support to faculty and staff of the Computer Science Department.

***Teaching Support:***

1. In co-operation with faculty, instructs and supervises undergraduate students as necessary. Includes instruction of complex concepts and problem-solving skills in a formal classroom setting.
2. Assists undergraduate and graduate students one-on-one with course related materials, assignments, and computer-related problems at all levels in Computer Science (CS) courses.
3. Provide support to multiple students working in different classes/languages at the same time.
4. Assists/advises graduate students with implementation of computers/software for their research/coursework.
5. Assists/instructs students in the use of specific CS hardware and/or applications software.
6. Provides non-credit training to faculty, staff, and students in the Computer Science Department as the need dictates.

***Departmental Support:***

1. Participates in department committees, student recruitment, events, and community outreach, as well as external committees mutually agreed upon with the Chair.
2. Provides assistance with the design/development of departmental webpages.
3. Coordinates booking of departmental teaching lab(s) and handles keycode programming for lab spaces.
4. Maintains inventory of departmental equipment.
5. Assists in maintaining the department’s laboratory and special projects budgets
6. Supervises and organizes student and casual labour as required.
7. Functions as a Fire Warden in a designated area of the Science Complex.

#### Education Required:

* M.Sc. in Computer Science or related field.

#### Experience/Qualifications Required:

* 2 years directly related laboratory and teaching experience, or system Administration experience.
* Detailed knowledge of the Computer Science, Data Science, and Information Systems disciplines.
* Significant experience with a broad range of programming languages including C#, C, Java, assembly language, SQL, R HTML, CSS, PHP, JavaScript, and Python, and a willingness to learn new languages as necessary to keep up with industry best practices.
* Experience with curriculum development, and the grading/marking of assignments, lab reports, tests, exams, etc.
* Experience with explaining/teaching the same concept in multiple ways.
* Experience with the implementation and maintenance of a LAMP stack (Linux, Apache, MySQL and PHP), shell scripting and general server administration.
* Experience with web development and maintenance.
* Experience with the Software Engineering process; requirements analysis and design, implementation, testing and maintenance.
* Strong working knowledge of computer operating systems, including Windows, MacOSX, and UNIX (with the desire to expand).
* A broad knowledge of application software (word processing, graphics, spreadsheets, databases, sound and video editing, etc.)
* Familiarity with a range of development environments including Visual Studio, Eclipse, Visual Studio Code and IDLE.
* Demonstrated ability to work independently with minimal supervision
* Demonstrated supervisory experience.
* Excellent communication skills (both written and oral).
* Excellent organization, analytical, and problem-solving skills
* Strong writing, editing, evaluation and feedback skills and experience.
* Excellent presentation skills with experience in facilitating small- and large-group settings

**Job Evaluation Factors:**

**Direct Responsibility**

Undergraduate or Graduate student markers

Undergraduate or Graduate academic assistants

Graduate teaching assistants

Student Lab Demonstrators

**Communication**

Internal:

* Students: teach and explain course/lab materials and evaluations.
* Faculty, Staff (outside department): Answer queries about course/lab content, Trent Policy and technical issues.
* Faculty, Staff (inside department): Develop lab material, provide department administration and service
* Demonstrators (within and outside department): Develop course materials
* Teaching Assistants, Workshop Leaders, Academic Assistants: explain duties and assignments. Troubleshoot problem situations.
* Finance Department: Purchasing
* IT: Server configuration and support. Addition, update or removal of software from lab image. Changes to network structure in labs.

External

* Retailers and Manufacturers: Gather information and order equipment. Troubleshoot technical problems.
* Trent Community: Act as a resource.
* Parents and Prospective Students: Act as a resource for perspective students. Provide hardware/software guidance for incoming students.
* Community: Participate in community outreach like coding clubs and Lego robotics.

**Motor/ Sensory Skills**

* Dexterity – keyboard entry, especially coding and responding to student e-mails, computer upgrades and repair.
* Fine motor skills, Co-ordination - using a mouse and physically marking/grading student course work for many hours at a time
* Gross Motor Skills – Moving computer and lab equipment
* Stamina - standing for extended periods of time in order to conduct labs/workshops
* Hearing - responding to student individual requests made in person
* Visual - all aspects of the job
* Speaking - conducting labs/workshops, providing office hours assistance.

**Effort**

Mental:

* Patience, understanding
  + Dealing with numerous students with varying degrees of need.
  + Often required to repetitively answer the same question(s) in a short period.
* Compassion
  + Dealing with numerous students with varying degrees of need.
  + Awareness of health, psychological issues inherent in student’s lives.
* Flexibility
  + Able to adapt to differing teaching styles of various faculty.
  + When explaining concepts to students, must be able to adapt to varying learning styles and levels of understanding.
* Stamina
  + Repetition of the same lab session several times in a row can be mentally exhausting.
* Sustained concentration: marking student work, creating new lab materials, analyzing student code, troubleshooting hardware/software problems.

**Working Conditions**

Physical:

* Marking/keyboarding
* Standing/moving during lab periods
* Lifting/carrying when moving/installing equipment
* Responding to e-mails

Psychological:

* Accountability:
  + Responsible for accessibility of material.
  + Many department classes depend on departmental servers and are significantly impacted when issues arise.
* Disgruntled/distressed students and faculty
  + Not trained to deal with mental health issues which may present while providing assistance.
  + Handling of complaints and grade appeals.
* Frequent coinciding deadlines – particularly at the start and end of the semester
* Multiple competing demands
  + At any one time may be multiple competing tasks (email, technical issues, student support).
  + Students may be looking for support in multiple languages all at the same time.
* Interruptions – emergencies and students looking for assistance interrupt planned tasks.
* Lack of control over work hours:
  + Timetabled labs can result in unpredictable hours (early mornings, late evenings, long days) from semester to semester.
  + Technical issues can arise requiring evening/weekend work.