

**CARLETON UNIVERSITY
POSITION DESCRIPTION**

PART A

Employee Name:

Title of Immediate Supervisor:
Head, Library Technology Services

Position Title:
Systems Analyst-Programmer

Department:
Library

**OFFICE USE
ONLY**

1. Title:

2. Position No: **297569**

3. Level 11

4. Evaluated by: _____ Date: _____

5. Approved by: _____ Date: _____

Part B

Position Summary:

Reporting to the Head of Library Technology Services, the Systems Analyst-Programmer organizes and carries out activities related to: strategic and operational planning; server, network, and system administration and operation, maintenance, design, evaluation, analysis, monitoring, and improvement; with additional focus on programming and development of key Library platforms including the website, institutional repository, and other customized applications. The incumbent is a liaison between the Library and the broader Carleton community. They perform other related duties.

PART C

Primary Duties:

1. Networks, Data, and Server Administration - Operations and Planning **(45%)**
 - Administers, monitors, diagnoses, secures, and maintains up-to-date IT infrastructure with minimal down time;
 - Thoroughly documents back-up and retrieval procedures, system changes, architectural designs, and resolutions including support for contingency situations;
 - Participates in initiatives and acts to accommodate, plan, upgrade, and advise changing requirements, infrastructure, and services in order to optimize performance while considering implications and adherence to university-wide policies;
 - Provides training and instruction to colleagues in methods and procedures.

2. Application Development: **(40%)**

- Develops and writes complex application code, including troubleshooting and testing;
- Develops software tools and platforms, focusing on data access, migration, transformation, and reporting;
- Understands and resolves problems related to character encoding, diacritics, metadata schema transformations, identifiers, and working with publisher and community APIs (Application Program Interfaces);
- Plans and gathers requirements for new software projects;
- Makes decisions about project work based on expertise, best practices, and documentation in the support-community;
- Documents and tracks issues, tasks, and overall progress using project management and ticket systems.

3. Project Management (10%)

- Leads infrastructure and/or software development to direct project team activities;
- Establishes priorities and appropriate project work schedules to plan and direct progress and report on the project status;

4. Performs other related duties (5%)

PART D

Specifications: (to be completed by Supervisors in conjunction with employee)

1. KNOWLEDGE

a) Minimum amount of formal education required:

Completion of an honours degree in Computer Science or a related field.

b) Minimum amount of relevant work experience required:

Eight (8) years of server and network administration-related experience in a diverse and complex IT environment; including experience developing, launching, and administering software applications. Preference would be given for candidates with IT work experience in a post-secondary environment.

c) Minimum amount and type of continuing study required:

- The incumbent keeps their knowledge and skills up to date by closely following innovation and security measures in the rapidly changing field of information technology. They stay well-versed by reading technical articles, support documentation, upgrading certification, participating in seminars and courses, and by liaising with vendors and IT staff in and outside of Library settings.

Elaborate on (a) and (b):

The education and experience requirements are a result of the complexity and scope of duties performed and the high level of accountability required. The work requires a thorough knowledge of computing technology, Library applications, and a high level of technical expertise in IT, a field of constant change.

The incumbent must be highly independent, self-directed and have the ability to work with a high degree of accuracy. They must be able to develop plans and measure their effectiveness. They must also possess the ability to anticipate problems, develop and implement complex and innovative concepts, and pinpoint opportunities and resolutions.

The following knowledge and skills are also required:

- UNIX and LINUX administration (experience and certification);
- Software development experience, with strong expertise in developing Internet and web client and server applications (cross-browser / platform / devices);
- Expertise in SOA, REST, web programming environments (Python and PHP), XML, HTML, CSS, and JavaScript;
- Experience working in source code management tools (e.g. Git, Subversion);
- Experience with the open source community, philosophy and LAMP tools (Linux, Apache, MySQL, PHP/Python/Perl).
- Working knowledge of:
 - Databases and full-text indexing applications;
 - Accessible web layout and design (with application of WCAG and W3C guidelines).

2. COMPLEXITY OF DUTIES

Duties for this position are highly complex, wide-ranging, defined in general terms and are carried out with minimal supervision. Significant resourcefulness, initiative, creativity, sound judgment, tact, and discretion are required in resolving problems and carrying out daily responsibilities for all aspects of this position.

Rapid change in the field requires simultaneous adaptation and forecasting of innovation to inform the pursuit of improved infrastructure solutions that are more fiscally responsible, secure, scalable, and efficient for the Library. There are few repetitive tasks. Programs and documentation have to be modified when problems arise, when new software is available, when existing software is revised, and/or when infrastructure and/or related environments are modified or changed.

3. ACCOUNTABILITY

The incumbent makes decisions regarding infrastructure implementation software development. Purchase recommendations are communicated to management for final approval. The consequences of error and poor judgement, on their part, can have far-reaching negative

consequences. The incumbent is responsible for the consistent operation of the Library's shared file system, local networks, and smooth-running software applications. They are accountable for systems development, ensuring projects are reliably completed within required timeframes.

Mistakes leading to hardware or software failure could result in extended system downtime or irretrievable loss of computer data hardware damage, incurring costs to replace infrastructure. A simple error or oversight could, for example, disrupt connectivity to Library resource collections and documentation for the entire university community and external users, worldwide. This in turn could negatively impact the University's reputation.

Responsibility extends beyond a normal work day as the Library is used and accessed 24 hours a day, 365 days a year.

4. NATURE AND LEVEL OF CONTACT

a) Purpose of contacts:

- To exchange information and work collaboratively with various departments, throughout the university, on shared infrastructure and to meet campus-wide technology goals;
- To consult and recommend to Library Management, and/or Project Lead(s), new policies and procedures related to system implementation: communicate encountered problems and/or deficiencies, and propose solutions;
- To act as a consultant and liaison for Library infrastructure and application development, communicating with vendors and hardware/software support personnel;
- To explain or clarify specific procedures and any aspects in fields of specialization to library staff, faculty and students; To represent Library Technology Services at meeting and committees to share documentation and knowledge related to the Library's infrastructure and/or applications to inform decision-making, outline potential impacts, and communicate standards in the university's broader ecosystem.

b) Level (check one) - regular and continuous only and as specified in Part 'C'

- other employees in same work unit or office.
- the above plus students; faculty in the same work unit; or employees from other departments or offices at a similar job level to the incumbent.
- the above plus the general public, faculty and staff at a more senior level from other departments or staff at equivalent levels outside the university.
- all the above plus senior University executives and senior officials from government, private industry, other universities, etc.

5. SUPERVISION/MANAGEMENT CONTROL EXERCISED

- a) **Describe the type of supervisory/management control exercised.** Indicate responsibility for overall direction of a section/department/unit either independently or through subordinate supervisors if applicable.

May act as project leader, supervising other programmers and/or analysts involved in the development and implementation of a variety of library applications and/or infrastructure solutions.

b) Indicate the level of employees directly (not through subordinates) supervised.

- i primarily support
ii primarily specialized technical, Administrative or journeyman trades
iii primarily supervisors of (ii), or managers of section consisting of (i) employees
iv primarily management level

c) Indicate number directly supervised.

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Signed by:

Employee

Date

Approved by:

Head, Library Technology Services

Date

Associate University Librarian

Date

University Librarian

Date