

Co-op Work Term Learning Outcomes: Computer Science Programs

This form clarifies the learning objectives that must be met in the course of a co-op work term.

Each co-op work term must allow students to practice and develop technical skills as well as skills that are essential to successful employment (these are sometimes called transferrable, power, or interpersonal skills). The number and type of skills required will vary. As you progress in your program and through your work terms, it is expected that the skills you work on will increase in complexity.

Program	Work Term	Technical Skills	Transferable Skills
Honours Bachelor of Science - Computer Science	1	3	2 - 3
Honours Bachelor of Science - Computer Science	2 and up	3 to 4 (must be more complex or more responsible if same skills are being developed as in work term 1)	2 - 3
Master of Science Computer Science	1 & 2	4	2-3

Technical Skills List

1. Requirements Modeling:
 - Skill in capturing and organizing user stories or functional requirements
 - Proficiency in using tools like Microsoft Visio, Lucidchart, or draw.io

2. Software Specification:
 - Writing clear and concise software requirements documents.
 - Proficiency in using tools like Microsoft Word or Google Docs for documentation.

3. System Analysis and Design:
 - Understanding of UML notations and their application in system modeling (class diagrams, use case diagrams, sequence diagrams).
 - Familiarity with tools like Rational Rose, Enterprise Architect, or similar UML modeling tools.
 - Understanding of architectural patterns and design principles.
 - Understanding of computer architectures, computer networks (LAN, WAN), IoT Networks (ZigBee, BLE, NB-IoT, SigFox, LoRA, etc.), Database Management Systems and SQL

- Understanding of Network Security (key distribution, IP security, web security, and network management security)

4. Programming:

- Proficiency in one or more programming languages (e.g., Java, Python, C++, JavaScript, Assembly, etc.).
- Understanding of data structures and algorithms
- Knowledge of best practices in software development, including code organization, version control (e.g., Git), and debugging.

5. Cloud Computing and Cloud Infrastructure:

- Experience with cloud platforms like AWS, Azure, Google Cloud, or similar.
- Knowledge of services like EC2, S3, Lambda (AWS), or equivalent on other platforms.

6. Software Testing and Quality Assurance:

- Knowledge of testing methodologies (e.g., manual testing, automated testing, regression testing).
- Proficiency with testing tools like Selenium, JUnit, TestNG, etc.
- Experience with bug tracking systems (e.g., Jira, Bugzilla).

7. Technical Reports and Documentation:

- Proficiency in writing technical reports, user manuals, and system documentation.
- Ability to use tools like LaTeX, Microsoft Word, or Google Docs for technical writing.

8. Usability Evaluation and User Experience Design:

- Knowledge of usability testing methods (e.g., user interviews, heuristic evaluation, cognitive walkthrough, A/B testing, ANOVA experiments, heatmaps, clickstream analysis).
- Familiarity with design tools like Sketch, Adobe XD, Figma, or similar prototyping tools.

9. Project Management and Team Management Tools:

- Familiarity with project management tools like Jira, Trello, Asana, or Microsoft Project.
- Knowledge of Agile/Scrum methodologies and Kanban boards.

Transferable Skills List

- Team work
- Innovation / Problem Solving
- Client relationship management
- Inter-cultural awareness
- Public presentation / public speaking
- Project coordination
- Multi-tasking
- Attention to detail
- Written communication
- Interdisciplinary collaboration

- Partnership development
- Time management
- Creativity
- Others exist! If there are transferable skills you will develop in this role that are not on the list, please let your co-op team know when you submit your job posting for review and approval.

Sample Co-op Positions / Titles that commonly provide opportunities to develop required skills:

- Software Developer
- Game Developer
- Web Developer
- Software Engineer
- Network Security Analyst
- Data Scientist
- Interactive Media Develop
- Technical Support
- Application Programmer
- Software Designer
- Database Administrator
- Desktop Support