



BCIT WIL Programs

Student Skill Sets

Prepared for TRIUMF

Computer Information Technology Diploma

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| <p>CIT Co-op Program Students are available full time for 4 or 8 month work terms</p> <p>Recruit Sept-Dec for January start Recruit Jan – March for May start</p> <p>Contact: Susanna Kan, Co-op Coordinator skan10@bcit.ca</p> | <p>CIT Internship Program Students are available part time for 10 hours per week during their last term of their diploma (4 months)</p> <p>Recruit Sept-Dec for January start Recruit Jun – Aug for September start</p> <p>Contact: Neda Changizi, Faculty member nchangizi@bcit.ca</p> |
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Link to Courses page: <https://www.bcit.ca/programs/computer-information-technology-diploma-full-time-5540dipma/#courses>

Notable Courses Completed before work terms:

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| <ul style="list-style-type: none"> • Linux • Scripting for IT • Windows Server Admin • Web Development | <ul style="list-style-type: none"> • Database systems • Cloud computing • Database admin and management | <ul style="list-style-type: none"> • Object Oriented Programming • Networking • IT Service and Project Management |
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Skills students have before start of work term:

| | | |
|---|--|--|
| <ul style="list-style-type: none"> • Python • Powershell • Bash • IT Security • Javascript, CSS, HTML • Linux and Windows server admin • Git | <ul style="list-style-type: none"> • Agile Development • SQL and noSQL • Visual Studio code, Node.js • AWS, Azure, Google Cloud • React | <ul style="list-style-type: none"> • Virtual Machines • Mobile app development • Test Driven Development • API's |
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Computer Systems Technology Diploma

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| Recruitment periods and start dates | September – December posting for January start January – March posting for May start |
| Length of work term | 4 months, 8 months |
| Type of WIL Program | Co-op |
| BCIT Contact Person | Susanna Kan, Co-op Coordinator skan10@bcit.ca |

Link to Courses page: <https://www.bcit.ca/programs/computer-systems-technology-diploma-full-time-5500dipma/#courses>

Notable Courses Completed before Co-op work term:

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| <ul style="list-style-type: none"> • Programming fundamentals • Web development • Business Analysis and System Design | <ul style="list-style-type: none"> • Relational Databases • Object Oriented Programming • Computer architecture |
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Skills students have before start of work term:

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| <ul style="list-style-type: none"> • Javascript, HTML, CSS • Python • Java • C | <ul style="list-style-type: none"> • SQL • Github • API's | <ul style="list-style-type: none"> • Agile development • SDLC |
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Additional Notes:

- Students are adept at self learning and most hold additional self taught skills including: mobile development, React, firebase, AWS, Unity, C#

Electrical Engineering and Technology (Diploma)

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| Recruitment periods and start dates | September – December posting for January start January – March posting for May start |
| Length of work term | 4 months, 8 months, |
| Type of WIL Program | Co-op |
| BCIT Contact Person | Earl Anderson 604.451.6911 Earl_anderson@bcit.ca |

Link to Courses page: <https://www.bcit.ca/programs/electrical-engineering-bachelor-of-engineering-full-time-8030beng/#courses>

Notable Courses Completed before Co-op work term:

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| <ul style="list-style-type: none"> • Technical Communications • Digital Techniques • C Programming • Technical Documentation | <ul style="list-style-type: none"> • Circuit Analysis • Technical Math • Calculus for Electronics • Intro to codes and standards | <ul style="list-style-type: none"> • Engineering Tools • Electrical Circuits • Physics for Electronics • Intro to Networking • Electronic Fabrication, Tools and Techniques |
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Skills students have before start of work term:

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| <ul style="list-style-type: none"> • Digital electronics • AC/DC circuits • AutoCAD | <ul style="list-style-type: none"> • C programming for electronics • Calculus for electronics • Electronic Manufacturing | <ul style="list-style-type: none"> • Transistor circuits, linear power supplies, computer control • PCB layout • Troubleshooting/repair/documentation |
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Electrical Engineering B.Eng

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| Recruitment periods and start dates | September Intake, students are available from April to September |
| Length of work term | 4 months |
| Type of WIL Program | Internship |
| BCIT Contact Person | Earl Anderson 604.451.6911 Earl_anderson@bcit.ca |

Link to Courses page: <https://www.bcit.ca/programs/electrical-engineering-bachelor-of-engineering-full-time-8030beng/#courses>

After 2nd year the students will have:

- well-developed background in mathematics and natural sciences;
- an understanding of electrical circuits, analog and digital electronics, micro-controller systems, sensors and signal conditioning;
- programming skills in C, C++ and assembly language;
- an appreciation of the importance of marketing and communication in engineering activities
- an understanding of the various roles and disciplines of professional engineering.

After 3rd year, the students will have acquired additional expertise in:

- engineering statistics and materials
- circuits, electromagnetics, power system components, linear systems, signal processing, semiconductors and communications.
- critical reading and writing, applied ethics and engineering economics

The program is designed to establish a level of theoretical understanding and problem solving that is comparable to other electrical engineering degree programs. In addition, there is ample opportunity to develop and refine hands-on practical skills in demanding lab activities associated with several of the courses.

Additional Notes:

B.Eng students need to complete a summer work term between their 2nd or 3rd year.

CNC Machinist Technician

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| Recruitment periods and start dates | March posting for mid-May start June posting for late-August start |
| Length of work term | 8 months |
| Type of WIL Program | Co-op, Apprenticeship |
| BCIT Contact Person | Jennifer Weintraub, Co-op Coordinator jweintraub1@bcit.ca |

Link to Courses page: <https://www.bcit.ca/programs/cnc-machinist-technician-diploma-full-time-cooperative-education-1525ttdipl/#courses>

Notable Courses Completed before Co-op work term:

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|---|---|---|
| <ul style="list-style-type: none"> • Safe Work Practices • Mathematics for Machinists • Interpretation of Drawings • Layout and Measuring | <ul style="list-style-type: none"> • Support Machines • Advanced Lathe Operations • Advanced Mill Operations • Materials & Metallurgy | <ul style="list-style-type: none"> • Service & Maintenance • Grinding Operations • Oxyacetylene Cut and Weld • CNC Concepts |
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Skills students have before start of work term:

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| <ul style="list-style-type: none"> • Shop drawings • Layout, measuring, and testing tools • Basic metallurgy | <ul style="list-style-type: none"> • Select lubricants • Basic fundamentals of CNC • Machine shop projects | <ul style="list-style-type: none"> • Bearings and seals • Support machines, lathes, milling • Familiarity with machines, and precision grinder |
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HVAC + Refrigeration Technician

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| Recruitment periods and start dates | June posting for September Start (Co-op 1) February posting for April Start (Co-op 2) |
| Length of work term | 22 weeks each |
| Type of WIL Program | Co-op, Apprenticeship |
| BCIT Contact Person | Jennifer Weintraub, Co-op Coordinator jweintraub1@bcit.ca |

Link to Courses page: <https://www.bcit.ca/programs/heating-ventilation-air-conditioning-and-refrigeration-technician-diploma-full-time-cooperative-education-2990tt dipl/#courses>

Notable Courses Completed before Co-op work term:

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| <ul style="list-style-type: none"> • Apply Trade Safety Practices • Apply Trade Tools and Fasteners • Apply Fundamentals of Refrigeration | <ul style="list-style-type: none"> • Proper Service Procedures • Apply Electrical Fundamentals • Interpret Electrical Diagrams | <ul style="list-style-type: none"> • Apply Electrical Test Equipment • Install Electrical Devices • Install Refrigeration Project |
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Skills students have before start of work term:

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| <ul style="list-style-type: none"> • Trade safety practices and technical information • Fundamentals of refrigeration and service procedures • Electrical fundamentals, diagrams, and equipment testing | <ul style="list-style-type: none"> • Installation of electrical devices and refrigeration projects • Design refrigeration system and HVAC distribution system • Heat pump systems, gas heating system, and computer | <ul style="list-style-type: none"> • Environmental systems • Ammonia systems/water treatment • Air distribution arrangement, air properties and measurements • Heat/cool load calculations |
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Mechanical Engineering B.Eng Internship

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| Length of work term and availability | After year 2: 3 months June - August After year 3: 4 months May - August |
| Type of WIL Program | Internship |
| BCIT Contact Person | Sirine Maalej, Program Head smaalej@bcit.ca |

Link to Courses page: <https://www.bcit.ca/programs/mechanical-engineering-bachelor-of-engineering-full-time-8020beng/#courses>

Skills students have before start of their third year:

- Effectively use computers to perform typical spreadsheet, word processing and data management.
- Create 2D engineering drawings using AutoCAD.
- Use parametric solid modeling software to create 3D models of mechanical parts.
- Competent using SolidWorks and Inventor
- Perform simple stress analysis of mechanical components.
- Select basic machine components, such as bearings, gears and pulleys, for given applications.
- Select hydraulic and pneumatic components and analyze typical fluid power circuits.
- Estimate power requirements of basic mechanical machines.
- Select control and drive components for simple machines.
- Interpret and program simple PLC (Programmable Logic Controllers) application.
- Materials engineering
- Thermodynamics
- Applied Mechanics
- Engineering programming
- Electronics and microcontrollers
- Fluid mechanics
- Mechanics of solids
- Control and Dynamic systems
- Engineering economics

Interior Design Co-op

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| Recruitment periods and start dates | March – July posting for September start |
| Length of work term | 8-12 months |
| Type of WIL Program | Co-op |
| BCIT Contact Person | Jennifer Weintraub, Co-op Coordinator jweintraub1@bcit.ca |

Link to Courses page: <https://www.bcit.ca/workplace-education/co-op/programs/interior-design/>

Skills students have before start of work term:

- Advanced design theory
- Commercial space planning
- Lighting
- Construction design
- Millwork and furniture design

Occupational Health and Safety

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| Type of WIL program | Project, Summer work |
| Program Website | https://www.bcit.ca/programs/occupational-health-and-safety-diploma-full-time-6850diplt/#overview |
| Contact | Bobby Sidhu, Program Head Bobby_sidhu@bcit.ca |

Project – OH&S Audit

- Students will conduct an assessment of the employer’s OHS Management system and provide a comprehensive report.
- Students will spend approximately 20 hours at the work site
- Audit time periods include Sept-Dec and Jan – May
- Send audit proposals to the Program Head

Summer work

Students can work full time during summer break (June – August)

Send job descriptions to the Program Head to promote.

School of Business Business Consulting Projects

BCIT Business Consulting Projects match a group of two or three students with local businesses to provide recommendations and solutions to a business problem or challenge. Most projects are completed between January and May of each year.

Business Consulting Projects are different from traditional co-op and internship programs. Students are not assigned to actual positions, but rather fill a consulting role for your organization. A team of 2-3 students will spend countless hours dedicated to your project. Your organization will receive a comprehensive written report and an oral presentation outlining the student consulting team's research and proposed recommendations.

Each project will have a BCIT faculty member that will serve as an advisor for the student consulting team. Exit surveys from participating companies show that the completed strategic business solutions have a value that far surpassed their expectations.

Wage:

Students are unpaid for their work, but participating organizations submit a fee (\$500-\$750) which contributes to a student bursary fund.

| Program (detailed application procedure are in link) | Availability | Skill Sets |
|--|--|--|
| Business Information Technology Management | Feb – May (Submit projects Sept – Nov prior) | <ul style="list-style-type: none"> - Integrate ERP Software - Build with NET, SQL, XML - Model and Develop databases |
| Human Resources Management | Feb – May (Submit projects Sept – Nov prior) | <ul style="list-style-type: none"> - Policy Development and Implementation - HR Metrics - Recruitment and Selection |
| Operations Management | Sept – Nov (Submit projects Jun – Aug prior) Jan – May (Submit projects Sept – Nov prior) | <ul style="list-style-type: none"> - Supply Chain Management - Process Improvement - Quality Management - Materials Management |

School of Business Internships

The BCIT School of Business internship and practicum programs provide organizations with students ready and eager to apply their skills in the workplace. Many companies that host BCIT interns are extremely happy with the results and re-apply for student interns every year.

Application timeline: November each year

Interviews: Jan – Feb

Internship timeline: March – May

Wage: Internships can be paid or unpaid. Many organizations provide a wage to increase interest in their posting. Students weigh the skills gained from the position and will often accept unpaid internships to gain an in-demand skill set.

| Program (Details in link) | Availability | Skill Set |
|--|-------------------------|---|
| Marketing Communications | 9 weeks / 4 days a week | <ul style="list-style-type: none"> ▪ Develop marketing communication plan ▪ Marketing analytics ▪ Market research ▪ Promotions and event planning ▪ Digital and direct marketing ▪ InDesign, WordPress, Photoshop |
| Digital Design and Development | 8 weeks / 4 days a week | <ul style="list-style-type: none"> ▪ Web design ▪ Motion graphics ▪ Web and mobile apps ▪ Video and audio editing ▪ Web video and animation |
| New Media Design and Web Development | 9 weeks/ 5 days a week | <ul style="list-style-type: none"> ▪ Web design ▪ Web apps and web development ▪ Web animation ▪ Graphic design and branding ▪ Social media networking ▪ UX and UI Design |
| Broadcast and Online Journalism | 4 weeks / 5 days a week | <ul style="list-style-type: none"> ▪ Write news stories ▪ Conduct interviews ▪ Writing for the web ▪ Shoot and edit video |
| Accounting | 4 or 8 months | Contact: Jennifer Kerr, Program Head Jennifer_kerr@bcit.ca |
| Entrepreneurship | 10 weeks/ 2 days a week | <ul style="list-style-type: none"> ▪ Business Plans ▪ Market research ▪ New Product/Service Development |

Industry Sponsored Capstone Project (Engineering)

Students from the Diploma and Bachelors program complete projects related to Electrical and Computing Engineering. Projects in these areas of engineering are welcome for consideration:

- Communications
- Computer
- Power
- Control Engineering

Projects can involved research, proof-of-concept, or product development. Each project typically has 3 students.

Project details: <https://www.bcit.ca/energy/industry-services/industry-sponsored-capstone-projects/about/>

Wage: Students are unpaid for this project.

| Program | Term Begins | Project Duration | Total Hours | Submission Deadline |
|---------|-------------|------------------|-------------|---------------------|
| Diploma | January | 12 weeks | 200 | December 15 |
| Diploma | September | 12 weeks | 200 | August 22 |
| Degree | September | 30 weeks | 500 | August 22 |

Project submission form: <https://www.bcit.ca/energy/industry-services/industry-sponsored-capstone-projects/project-submission-form/>

Industry Sponsored Student Project (Computing)

The ISSP matches a group of Computing students from the following programs to local businesses with an IT or Software development related problem.

- Computer Information Technology (CIT)
- Computer Systems Technology (CST)
- Systems Software Developer (SSD)
- Full Stack Web Development (FSWD)

Projects scope should be 400 hours.

Wage: There is a Participation fee (if project is selected) of \$500 which is used by BCIT to administer the project term. Students are unpaid for their work.

Groups of 5-7 students work on the problem over the course of 1 academic semester, culminating in a presentation and report at the end of the project.

Project submission form:

<https://www.bcit.ca/computing-academic-studies/industry-sponsored-student-projects/about-the-issp-program/>

| Term | Program | Start term | Approx. term duration | Number of students | Part-time/Full-time | Submission deadline |
|--------|---------|------------------|-----------------------|--------------------|---------------------|---------------------|
| | | | | on team | | |
| Fall | CST | Beginning of Sep | 13 weeks | 4-5 | Part-time | 01-Aug |
| | CIT | | | 4-8 | Part-time | |
| Winter | CST | Beginning of Jan | 13 weeks | 4-5 | Part-time | 01-Dec |
| | CIT | | | 4-8 | Part-time | |
| | FSWD | | | 4-8 | Part-time | |
| Spring | CST | End of Apr | 5 weeks | 4-5 | Full-time | 23-Mar |
| | SSD | Mid Apr | 4 weeks | 4-5 | Full-time | |
| Summer | CST | End of May | 10 weeks | 4-5 | Part-time | 23-Mar |