# Forensic Investigation (Digital Forensics and Cybersecurity Option)

Bachelor of Technology Full-time/Part-time School of Computing and Academic Studies

## Overview

The Forensic Investigation: Digital Forensics and Cybersecurity Bachelor of Technology program enables you to extract digital evidence using forensic techniques, and to investigate and reduce cyber-related crime. Hone your investigative and problem-solving skills, expand your legal knowledge, and learn how to present in court as an expert witness.

Delivery: in person. See details.

There is a growing need for specialists trained in digital forensics and cybersecurity (DFCS) because criminals are increasingly targeting our computers and using computers to commit fraudulent and violent crimes. Computers are the backbone of our infrastructure, and anyone with malicious intent can cause irreparable harm by sabotaging these systems.

The DFCS Bachelor of Technology (BTech) provides you with essential technical expertise, investigative skills, legal knowledge and communication skills to combat computer crimes such as identity and corporate theft, and credit card fraud. Most criminals leave clues behind, but you must know what, how and where to find them.

## About the program

*Full-time*

- The program employs a cohort model, where you have the same classmates in all courses. This allows you to work through this intensive program with your co-students, sharing your experience and expertise, and building a professional network that will last long after you graduate
- 2 intakes: January and September
- 5 terms: four 15-week terms and one 4-week term
- Monday to Friday, 8:30 until 5:30 pm
- Offered in-person at the Downtown campus [1]
- Excellent job placement rate upon graduation

*Part-time*

- 3 intakes: January, April, and September [2]
- Offered evenings and weekends
- Up to 7 years to complete the program
- Blended delivery: on-campus and online
- Excellent job placement rate upon graduation

See the Program Details [3] to learn more about what you can expect from Digital Forensics and Cybersecurity, and how you can prepare for a career as a cyber specialist.

## Who should complete the DFCS BTech?

This program might be for you if you:

- Would like to develop a fundamental understanding of DFCS
- Want to hack legally, that is, working for corporations to find and close computer system security holes
- Enjoy applying critical thinking and problem-solving skills to investigate and prevent cyber attacks
- Are keen to communicate verbally and in writing with all stakeholders at all levels
- Are interested in giving expert testimony when a case comes to trial

If any of these sound like you, please check the Entrance Requirements [4] to ensure you can apply and start your new cyber career!

## What Digital Forensics and Cybersecurity grads can do

Technical people may think they know how to extract data; however, they may inadvertently alter or delete important information. As a DFCS grad, you know how to handle information extraction, as well as how to identify information that is useful in a legal case and how to explain and present it in court.

By earning your BCIT Degree, you'll be honing your DFCS skills and gaining knowledge of various industry-recognized technologies, preparing you for positions in multiple industries, including the Royal Canadian Mounted Police (RCMP) that almost exclusively rely on BCIT grads in this field.

And because there is a growing requirement for professionals in both the private and public sectors, you'll have excellent job opportunities. Have a look, for example, at where our grads, James Black [5] and Raeann Sherman [6] , ended up working.

Learn more about job positions and future opportunities on the Graduating and Jobs page [7] .

## Entrance Requirements

### Application processing

**Full-time:** This program is open to applications beginning:

- February 1st* for the January intake
- October 1st* for the September intake

*or next business day

**Part-time:** Applications are accepted throughout the year.

# Entrance requirements

This program has a two-step admission process. Applicants must meet all entrance requirements to be accepted.

**Step 1: Pre-entry assessment**

Contact the Program Head for a pre-entry assessment.

You must upload an approved pre-entry assessment from the program area to your online application.

The following documents will be required for your pre-assessment:

- For **Full-time Learning**:
    - Resume
- For **Flexible Learning**:
    - Resume
    - Completed and signed applicant waiver form from the program area

**Step 2: Meet the following entrance requirements**

- **English language proficiency:** Category 2 [8] – English Studies 12 (67%) or equivalent

- **Completion of one of the following options prior to admission:**
    - **Option 1:** A two-year diploma (minimum 60.0 credits), an associate's degree, or a bachelor's degree from a recognized post-secondary institution in a computing or IT field, such as Computer Information Technology (CIT), Computer Systems Technology (CST), Full-Stack Web Development (FSWD), Business Information Technology Management (BITMAN), Computer Information Systems Administration (CISA), or Industrial Network Cybersecurity (INCS) including:
        - 6.0 credits from outside of core academic discipline [PDF] [9]
    - **Option 2:** A minimum of 60.0 credits of courses fulfilling the requirements of the first two years of study towards the completion of a defined undergraduate degree from a recognized post-secondary institution in a computing or IT field including:
        - 6.0 credits from outside of core academic discipline [PDF] [10]
    - **Option 3:** A minimum of 60.0 credits of courses from one or more recognized post-secondary institutions in a computing or IT field, including:
        - 18.0 second year or higher level credits
        - 30.0 credits of computing including courses in networking, programming, and operating systems
        - 6.0 credits from outside of core academic discipline [PDF] [11]
- **Criminal Record Check (CRC)**
    - Contact your local police department to obtain the appropriate forms - Letter for police department [PDF] [12]
    - Must be issued within one year of your application date
    - The outcome of the CRC may influence your acceptability for this program

Applicants who have completed post-secondary studies outside of Canada, the United States, the United Kingdom, Australia or New Zealand will require a comprehensive evaluation of their credentials by the International Credential Evaluation Service (ICES) [13] . Credential evaluation reports from other Canadian services [14] may be considered. These reports must include course-by-course evaluations and GPA calculations.

Read more about how to meet BCIT's entrance requirements [15]

# Recommended for success

Attend an information session prior to applying for this program. For more information and to register for an information session visit the Forensics website [16] .

# International applicants

The **full-time** option is available to international applicants. A valid study permit [17] is required prior to starting the program.

The **part-time** option is available to international students who currently have a valid status in Canada [18] . A valid study permit [19] is required prior to starting the program.

# Apply to program

To submit your application:

- Include proof of meeting all entrance requirements.
- Convert all transcripts and supporting documents to PDF files [20] .
- Have a credit card ready to pay the application fee.

Learn more about how to apply [22]

# Scheduled Intakes

**Full-time:** January and September each year.

**Part-time:** January, April, and September [23] .

# Prior Learning Assessment & Recognition (PLAR)

Prior Learning Assessment Recognition (PLAR) [24] allows students to use knowledge and skills learned outside recognized programs to gain exemption for particular courses in the program. Contact the Program Coordinator for details.

# myCommunication

Within two business days of submitting your completed application, BCIT will send a message to your personal and myBCIT email addresses. All correspondence regarding your application will be posted to your online myCommunication [25] account at my.bcit.ca [26] . We will send you an email when a new message is posted. It is important to watch for these emails or regularly check your account online.

You can expect to receive communication concerning the status of your application within four weeks.

# Costs & Supplies

We encourage students entering the full-time program to apply for entrance awards. Awards include:

- One of three Mastercard Computing Technology Awards [27] valued at $20,960, open to students who self-identify from an underrepresented group
- And many more

Learn more about entrance awards. [28]

## Tuition fees

**Full-time Studies**

Use our tuition estimator [29] to find tuition and fees for this program.

For more information on full-time tuition and fees, visit:

- Full-time Studies Tuition & Fees [30]
- International Tuition & Fees [31]

**Flexible Learning**

Flexible Learning (Part-time Studies) tuition is charged on a course-by-course basis. Please see the Flexible Learning Tuition & Fees [32] page for more information on domestic and international tuitions.

## Financial assistance

Financial assistance may be available for this program. For more information, please contact Student Financial Aid and Awards [33] .

# Courses

## Part-time option

- Students completing this program through Flexible Learning and admitted for Fall 2023 should select and register for courses from the Fall 2023 Flexible Learning Program Matrix [PDF] [34] .
- Students admitted to January 2024 and onwards should select and register for courses from the Winter 2024 Flexible Learning Program Matrix [PDF] [35] .

The courses within the matrix shown below have been split into terms for students in the full-time option.

## Program matrix

Check current availability of courses [36] for this program.

| Full-time option: | | Credits |
|---|---|---|
| **Term 1 (15 weeks)** | | |
| FSCT 7001 [37] | **Forensic Applications of Criminal Law 1: Legal Procedures** | 2.5 |
| FSCT 7509 [39] | **Introduction to Digital Forensics and Evidence Imaging** | 3.0 |
| FSCT 7511 [41] | **Cybersecurity Foundations** | 3.0 |
| FSCT 7512 [43] | **Digital Forensics in the Cloud** | 3.0 |
| LIBS 7001 [45] | **Critical Reading and Writing** | 3.0 |
| | | |
| **Term 2 (15 weeks)** | | **Credits** |
| FSCT 7002 [47] | **Criminal Law 2: Legal Evidence** | 2.5 |
| FSCT 7910 [49] | **Research Methodology and Measurement Models** | 3.0 |
| FSCT 8500 [51] | **Mobile Forensics** | 3.0 |
| FSCT 8513 [53] | **Digital Forensics 1** | 3.0 |
| FSCT 8540 [55] | **Network Security 1** | 3.0 |
| | | |
| **Term 3 (15 weeks)** | | **Credits** |

| | | |
|---|---|---|
| FSCT 7131 [57] | **Principles of Incident Response and Disaster Recovery** | 3.0 |
| FSCT 8523 [59] | **Digital Forensics 2** | 3.0 |
| FSCT 8560 [61] | **Network Security 2** | 3.0 |
| FSCT 8561 [63] | **Security Applications** | 3.0 |
| FSCT 8611 [65] | **Graduation Project 1** | 3.0 |
| | | |
| **Term 4 (15 weeks)** | | **Credits** |
| BUSA 7250 [67] | **Management Skills and Applications** | 3.0 |
| COMM 7200 [69] | **Report Writing and Workplace Communication for Forensic Investigation** | 3.0 |
| FSCT 8590 [71] | **Network Exploits and Vulnerabilities** | 3.0 |
| FSCT 8622 [73] | **Graduation Project 2** | 6.0 |
| LIBS 7002 [75] | **Applied Ethics** | 3.0 |
| | | |
| **Total Credits:** | | **62.0** |

Check current availability of courses [77] for this program.

## Transfer credit

Do you have credits from another BC/Yukon post-secondary school? Do you want to know if they transfer to courses here at BCIT? Check out BCIT's Transfer Equivalency Database [78] to find out.

## Program Details

Some applications of computer forensics are:

- Investigating and uncovering evidence of illegal activities conducted via computer
- Investigating crimes by searching for evidence the accused may have stored on computers or data drives, although the crime itself may not have been committed via computer
- Hacking legally, that is, working for corporations to find and close computer system security holes

Training in computer forensics is extremely important in order to understand how to handle the delicate information in storage devices. Technical people may think they know how to extract data; however, they may inadvertently alter or delete important information. Computer forensics practitioners know how to handle information extraction, as well as how to identify information that is useful in a legal case and how to explain and present it in court. Primary responsibilities of computer forensic investigators include:

- Preserving, identifying, extracting, and documenting evidence stored in computers
- Searching through documents on a computer for information that will help detectives build their cases, often spending much of their time recovering deleted emails and files
- Compiling computer evidence for legal cases and working on programs that help recover computer evidence
- Giving expert testimony when a case comes to trial

## Program length

**Full-time:** Two years.

**Part-time:** Up to seven years.

The Bachelor of Technology in Forensic Investigation must be completed within seven years.

## Grading

Depending on the course learning outcomes, students will be graded on a combination of the following:

- Participation in in-class exercises
- Participation in and completion of case studies
- Participation in discussion forums
- Submission of completed projects
- Submission of completed assignments
- Quizzes
- Mid-term and final examinations

The minimum passing grade for each course is 60%.

## Additional program options

- Crime and Intelligence Analysis [79]
- Forensic Science [80]

## Program delivery

In person: This program is delivered on campus.

## Program location

**Full-time**:
Downtown Campus [81]
555 Seymour Street
Vancouver, BC

**Part-time**:
Courses may be offered at the following locations:

Burnaby Campus [82]
3700 Willingdon Avenue
Burnaby, BC

Downtown Campus [83]
555 Seymour Street
Vancouver, BC

## Program structure

## Flexible Learning (Part–time Studies):

| Components | Credits |
|---|---|
| 1. Core Courses<br><br>• 1.1 General Education (9.0 credits)<br>• 1.2 Legal Framework (5.0 credits)<br>• 1.3 Applied Management (3.0 credits) | 17.0 |
| 2. Digital Forensics and Cybersecurity (Core and Specialty Courses) | 30.0 |
| 3. Elective | 3.0 |
| 4. Graduation Project | 12.0 |
| **Total** | **62.0** |

# Graduating & Jobs

## Job Opportunities

The Digital Forensics and Cybersecurity Option is intended to provide the additional skills and knowledge that professionals require to work successfully in the prevention and investigation of commercial crime and computer crime. There is a growing requirement for professionals in both the private and public sectors.

## Some position titles include:

- Computer Forensics Investigator/Examiner
- Cybersecurity Analyst
- Forensic Computer Analyst
- Computer & Information Systems Security Manager
- IT Security Consultant
- Corporate Security Officer
- Network/Internet Security Specialist
- Vulnerability Security Research

Graduates will be able to function both as professionals in their own right and as members of multidisciplinary teams composed of financial and investigative professionals.

## In 2023, The Conference Board of Canada reported:

- Surging demand for cybersecurity skills coupled with a shortage of professionals with these skills
- Rapid digitalization and increasing frequency of cyberattacks
- Positions requiring cybersecurity skills offer a 70 per cent higher average hourly wage than all other job postings in Canada
- From 2024-2029, demand for cybersecurity professionals is projected to grow by an estimated average annual rate of 2.9 per cent

## Graduate employment outcomes

The BCIT student outcomes report presents summary findings from the annual survey of former students administered by BC Stats one to two years after graduation. These reports combine the last three years of available results for the 2021-2023 BCIT Outcomes Surveys of 2020-2022 graduates and for Degree 2019-2021 graduates. The reports are organized into three-page summaries containing information on graduates' labour market experiences and opinions regarding their education. More detailed information can be accessed at the BC Student Outcomes [84] website.

To view these results, you may need to have the Adobe Acrobat Reader [85] installed in your Web browser.

- Forensic Investigation (Digital Forensics and Cybersecurity Option) [86]

# Apply for graduation

Upon successful completion of all program requirements, complete an Application for BCIT Credential [PDF] [87] and submit it to Student Information and Enrolment Services.

Allow approximately six to eight weeks for processing.

All financial obligations to the Institute must be met prior to issuance of any credential.

# Faculty, Advisors & Staff

## Raymond Yu, Program Head

Raymond has been working in the Forensic Science and Technology area since 2004. As Program Head of BCIT Digital Forensics and Cybersecurity, Raymond appreciates being involved in helping create a more secure future. He also enjoys helping students with their course and career planning, and supporting their search for co-op/internship placements. He works with employers closely to assist them with recruiting potential employees from his pool of both full-time and part-time students. Raymond received his MBA (major: Management Information System) from City University and his EdD (major: Leadership) from SFU.

email: Raymond_Yu@bcit.ca

## Ryan Johnson, Faculty

Ryan Johnson is a criminal defence lawyer. He graduated from SFU with a bachelor's degree in criminology and then from UVic law school with a Juris Doctor degree. Ryan has a great deal of experience representing clients charged with a variety of criminal allegations and has run numerous trials, including lengthy proceedings dealing with developing areas of the criminal law.

## Ilia Lvovski, Faculty

Digital forensics and data recovery specialist with over 16 years of experience in private and federal sectors, including the criminal investigations division of the Canada Revenue Agency. Took part in large-scale investigations and joint operations in and outside of Canada. President of HTCIA (High Technology Criminal Investigations Association), West Canada chapter. Specializes in civil and criminal digital forensics investigations, data recovery, cloud analytics and cryptocurrency. Digital forensics instructor with BCIT since 2017.

## Advisory committee

- Lisa Lapointe – Chief Coroner Province of BC
- Jagjit Sumra – Director of Investigative Services, Canada Post
- Andy Mendel – Manager of OHS Investigations
- Scott Kramer – Director of Information Security, CLIO
- Tara Wilkie – RN, BSN, Forensic Nurse Examiner, SANE-A Co-Coordinator – Forensic Nursing Service, Surrey Memorial Hospital
- Jason Yap – Snr. Manager, Information Security & Network, Raymond James Ltd.
- Christine Martin – RCMP DNA Lab
- Hardeep Mehrotara – Director, Information Security, Concert Properties
- Ryland Wellwood – Manager, Strategic Partnerships & Special Projects, RCMP-GRC
- Michelle Prokop – Intelligence Analyst Supervisor, RCMP – Combined Forces Special Enforcement Unit BC
- Clint Baker – Ops NCO, E Division Digital Forensics Services, RCMP

# Contact Us

Raymond Yu, Program Head

Email: Raymond_Yu@bcit.ca

Programs and courses are subject to change without notice.

## List of links found on this page

This list includes all links found on this page for your reference.

[1] https://www.bcit.ca/about/visit/campuses-directions/downtown/
[2] https://www.bcit.ca/flexible-learning/part-time-courses-programs/flexible-learning-key-registration-dates/
[3] https://www.bcit.ca/programs/forensic-investigation-digital-forensics-and-cybersecurity-option-bachelor-of-technology-full-time-part-time-847cbtech/#details
[4] https://www.bcit.ca/programs/forensic-investigation-digital-forensics-and-cybersecurity-option-bachelor-of-technology-full-time-part-time-847cbtech/#entry
[5] https://commons.bcit.ca/news/2022/05/outwit-opponents-in-a-capture-the-flag-kind-of-way-digital-forensics-and-cybersecurity-graduate-james-black/
[6] https://commons.bcit.ca/news/2023/09/forensics-grad-i-loved-learning-from-my-professors/
[7] https://www.bcit.ca/programs/forensic-investigation-digital-forensics-and-cybersecurity-option-bachelor-of-technology-full-time-part-time-847cbtech/#graduating
[8] https://www.bcit.ca/admission/entrance-requirements/english-language-proficiency/#category2
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[20] https://www.bcit.ca/admission/how-to-apply/submitting-transcripts-supporting-documents/#documents
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[23] https://www.bcit.ca/flexible-learning/part-time-courses-programs/flexible-learning-key-registration-dates/
[24] https://www.bcit.ca/admission/entrance-requirements/transfer-credit/prior-learning-assessment-recognition/
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[42] https://www.bcit.ca/outlines/fsct7511/
[43] https://www.bcit.ca/courses/digital-forensics-in-the-cloud-fsct-7512/
[44] https://www.bcit.ca/outlines/fsct7512/
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[48] https://www.bcit.ca/outlines/fsct7002/
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[50] https://www.bcit.ca/outlines/fsct7910/
[51] https://www.bcit.ca/courses/mobile-forensics-fsct-8500/
[52] https://www.bcit.ca/outlines/fsct8500/
[53] https://www.bcit.ca/courses/digital-forensics-1-fsct-8513/
[54] https://www.bcit.ca/outlines/fsct8513/
[55] https://www.bcit.ca/courses/network-security-1-fsct-8540/
[56] https://www.bcit.ca/outlines/fsct8540/
[57] https://www.bcit.ca/courses/principles-of-incident-response-and-disaster-recovery-fsct-7131/
[58] https://www.bcit.ca/outlines/fsct7131/
[59] https://www.bcit.ca/courses/digital-forensics-2-fsct-8523/
[60] https://www.bcit.ca/outlines/fsct8523/
[61] https://www.bcit.ca/courses/network-security-2-fsct-8560/
[62] https://www.bcit.ca/outlines/fsct8560/
[63] https://www.bcit.ca/courses/security-applications-fsct-8561/
[64] https://www.bcit.ca/outlines/fsct8561/
[65] https://www.bcit.ca/courses/graduation-project-1-fsct-8611/
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[73] https://www.bcit.ca/courses/graduation-project-2-fsct-8622/
[74] https://www.bcit.ca/outlines/fsct8622/
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[76] https://www.bcit.ca/outlines/libs7002/
[77]
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[88] https://www.bcit.ca/international-students/
[89] https://www.bcit.ca/financial-aid/
[90] https://secure.bcit.ca/sis/apply/