Building Controls & Energy Management

Advanced Certificate Part-time School of Construction and the Environment

Overview

Note: This program is under review and will not accept applications at this time. For more information, please contact the curriculum coordinator .

Delivery: online. See details.

The Advanced Certificate in Building Controls & Energy Management (BCEM) program was developed in partnership with industry to meet the growing need for individuals with both energy management and building controls expertise.

The aim of this program is to supply industry with graduates who can use controls and building automation systems to improve energy efficiency. This includes integration of this knowledge in all phases of a building's life: sustainable design, construction, commissioning, and ongoing operation.

Owing to the dynamic nature of the building automation control and energy management fields, people working in these fields come from many different backgrounds. Individuals often specialize in one field or the other, but not both. This industry is now growing as more high performance buildings are being constructed. An additional driver is the advent of "connected" buildings, with data from formerly isolated systems being integrated and sent to the internet cloud for third party analysis and diagnostics, lending an information technology flavour to both aspects.

The target audience for this program are designers, builders, operators, commissioners, and energy managers of buildings with an interest in sustainability. Each will come into the program with a different skillset. This program will provide each sector segment with the same language and knowledge in order to improve energy efficiency of buildings through use of effective controls systems.

The BCEM program is an online part-time studies program that will provide graduates with the skills and knowledge of sustainable energy management and building controls system principles, approaches, techniques, and tools, so that they will be able to function quickly and effectively in the building controls and efficiency sector.

The program uses live, web-based lectures and self-guided learning as the primary method to develop the knowledge and applied skills of the learners. Learning methodologies will also include case studies, project work, group collaboration, and student presentations.

Entrance Requirements

Application processing

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Entrance requirements

This program has a two-step admission process. Applicants must meet all entrance requirements and will be accepted on a first qualified basis as long as space remains.

Step 1: Pre-entry assessment

Applicants are required to complete a pre-entry assessment form [PDF] [1] to review their work experience and how they meet the entrance requirements.

- Applicants that do not meet all entrance requirements may receive a study plan indicating required pre-entry courses.

The pre-entry assessment can be completed and emailed to BCIT_BCEM@bcit.ca.

You can apply if you have had the pre-entry assessment and have completed any necessary pre-entry courses. A completed pre-entry assessment form from the program area must be uploaded to complete your application.

Step 2: Meet the following entrance requirements

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

- **Math: one** of the following:
  - Pre-Calculus 11 (67%) or
  - Foundations of Math 11 (67%) or
  - Workplace Math 11 (67%) or
  - Other acceptable BC and Yukon courses [3]
- **Entry options: one** of the following:
  Option 1:
  - Recognized diploma or degree in a related field, such as:
    - Electrical Engineering
    - Mechanical Engineering
    - Process Controls
    - Mechanical Technologies
    - Instrumentation
    - Power & Process Engineering
    - HVAC Technology
    - Building Science
    - Industrial Instrumentation and Process Control Technician

  Option 2:
  - Interprovincial Red Seal in a related trade, such as:
    - Instrumentation and Control Technician
    - Industrial Electrician
    - Electrician
    - Refrigeration and Air Conditioning Mechanic
    - Plumbing

  Option 3:
  - BCIT Advanced Certificate in Sustainable Energy Management [4] (or previous associate certificate)

  Option 4:
  - Fourth Class Power Engineer certification with a minimum of two years work experience.

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) [5] . Credential evaluation reports from other Canadian services [6] may be considered. These reports must include course-by-course evaluations and GPA calculations.

Read more about how to meet BCIT's entrance requirements [7]

Recommended for success

- Work experience in fields such as operations and maintenance, facilities management, building controls engineering, and/or building controls integration

Professional development

Subject to program head approval and course availability, students may take up to three courses for professional development without having to apply to the program. CESA 5100 - Energy Basics [8] , or equivalent background, is required to register in these courses. Please contact BCIT_BCEM@bcit.ca for more information.

International applicants

This program is available to international applicants who will complete the program from outside Canada or who currently have a valid status in Canada [9] other than study permit. International applicants accepted into this program are not eligible for a study permit.

Apply to program

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Scheduled Intakes

September each year.

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 [10] account at my.bcit.ca [11] . 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

Tuition fees

Flexible Learning (Part-time Studies) tuition is charged on a course-by-course basis. Please see the Flexible Learning Tuition & Fees [12] page for more information on domestic and international tuitions.

Books & supplies

$500 (general estimated cost, subject to change).

Courses

Program matrix

Check current availability of courses [13] for this program.

Required Courses:		Credits
CESA 5100 [14]	**Energy Basics**	2.5
CESA 5320 [16]	**Energy Systems & Controls**	4.0
CESA 5420 [18]	**Building System Integration and Analytics**	3.0
CESA 5500 [20]	**Codes and Standards**	1.0

CESA 5620 [22]	**Commissioning and Optimization**	4.0
CESA 5700 [24]	**Decision Making**	2.5
CESA 5800 [26]	**Change Management**	2.5
CESA 5820 [28]	**Controls and Operations Management**	2.5
CESA 5920 [30]	**Controls Project**	2.0
Total Credits:		**24.0**

Check current availability of courses [32] 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 [33] to find out.

Program Details

Program length

Courses run from September to June each year with a two month break over July and August. You can choose from two different formats, depending on how quickly you want to finish the program:

1.5 year option: You can complete this program in approximately 16 months by taking two courses at all times from September to June in the first year and from September to December in the final term.

2.5 year option: You can complete this program in approximately 28 months by taking one course at a time from September to June for the first two years and then taking two courses in the final term from September to December.

The maximum time to complete the program is 7 years.

Additional program options

If you are interested in energy management, but not building controls, please take a look at the Advanced Certificate in Sustainable Energy Management [34] program, which partners with this program in some of the course offerings.

Program delivery

Online: This program is delivered fully online.

Each course in the program will require you to log in to Learning Hub one evening per week. These evening sessions may include a lecture, guest lecturer, and/or class discussions. During the rest of the week, you will work at their own pace to complete weekly assignments or tasks. Though self-paced, each course will have set timelines for the completion of assignments and quizzes.

Program location

Courses are offered through online learning [35] .

Graduating & Jobs

Job opportunities:

There is a strong demand in industry for people with the skills that the Advanced Certificate in Building Controls & Energy Management will develop. Many industry partners have stated that their company has difficulty finding people with both building controls and energy management skills. Industry believes that there is demand for graduates with the BCEM credential's profile.

Current job titles of people typically working in this emerging field that could benefit from this program are:

- Engineers, P.Eng. (Mechanical, Control Systems Designer)
- Power Engineers (Control Technicians, Facility Managers)
- Controls Contractors
- Energy Managers
- Facility Operators
- Energy Modellers
- Analytics Specialists
- Systems Integrator (Manager of Integration, System Integration Operator)
- Trades
- Commissioning Agents
- Building Operators
- Sustainability Managers
- Engineering Technologists
- Vendors or suppliers of automation equipment

Employment destinations:

To date, there is no job title that reflects the uniqueness of this emerging field. Potential employment areas for graduates of this program are:

- Engineering Design Firms
- Engineering Commissioning Firms
- Energy Management Jobs
- Facilities Management and Operations Companies
- Construction Companies
- Real Estate and Property Management Companies
- Controls Companies

The primary reasons for students to pursue a credential in this field are to stay up-to-date in an emerging field, to advance their career, and to make a shift into a new specialization of career.

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 [36] website.

To view these results, you may need to have the Adobe Acrobat Reader [37] installed in your Web browser.

- Building Controls & Energy Management [38]

Apply for graduation

Upon successful completion of all program requirements, complete an Application for BCIT Credential [PDF] [39] 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

Alexandre Hebert
Zero Energy Buildings Manager
604-451-7011

Contact Us

Alexandre Hebert (Temporary contact)
Alexandre_Hebert@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/files/construction/pdf/bcem_pre_entry_assessment.pdf
[2] https://www.bcit.ca/admission/entrance-requirements/english-language-proficiency/#category2
[3] https://www.bcit.ca/admission/entrance-requirements/equivalencies/bc-yukon-high-school/#math11
[4] https://www.bcit.ca/programs/sustainable-energy-management-advanced-certificate-part-time-5070adcert/
[5] https://www.bcit.ca/ices/
[6] https://www.cicic.ca/1374/obtain-an-academic-credential-assessment-for-general-purposes/index.canada
[7] https://www.bcit.ca/admission/entrance-requirements/
[8] https://www.bcit.ca/courses/energy-basics-cesa-5100/
[9] https://www.bcit.ca/international-students/permits-visas-status/status-in-canada/
[10] https://www.bcit.ca/admission/after-you-apply/communicating-with-bcit/
[11] https://my.bcit.ca/
[12] https://www.bcit.ca/admission/tuition-fees/flexible-learning/
[13] https://www.bcit.ca/courses/cesa5100,cesa5320,cesa5420,cesa5500,cesa5620,cesa5700,cesa5800,cesa5820,cesa5920/
[14] https://www.bcit.ca/courses/energy-basics-cesa-5100/
[15] https://www.bcit.ca/outlines/cesa5100/
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[17] https://www.bcit.ca/outlines/cesa5320/
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[33] https://www.bcit.ca/admission/entrance-requirements/transfer-credit/
[34] https://www.bcit.ca/programs/sustainable-energy-management-advanced-certificate-part-time-5070adcert/
[35] https://www.bcit.ca/flexible-learning/distance-online-learning/
[36] https://bcstats.shinyapps.io/so_data_viewer/
[37] https://get.adobe.com/reader/
[38] https://www.bcit.ca/files/ir/gp/5095adcert.pdf
[39] https://www.bcit.ca/files/records/pdf/appl_4_credential.pdf
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