Area of Interest: Construction and Skilled Trades

Building Information Modeling - Lifecycle Management

Ontario College Graduate Certificate Program Code: 1525X01FWO

1 Year

Ottawa Campus

Our Program

One of Canada`s first programs to specialize in the Building Information Modeling (BIM) sector.

The one-year Building Information Modeling - Lifecycle Management (BIM-LM), Ontario College Graduate Certificate program is an effective way to increase your career options in the Architecture, Engineering, Construction, and Owner/Operator (AECOO) industry. Expand your professional skills through the application of BIM technologies, data management and processes to improve productivity and make an impact in your industry.

Buildings and infrastructure projects are becoming increasingly more complex, requiring more sophisticated tools and processes. BIM uses intelligent 3D digital representations integrated with databases to enable interdisciplinary collaboration and information management for the design, construction and operation of buildings and infrastructure. By leveraging the tools and processes of BIM, project stakeholders can design, visualize, simulate, coordinate, and manage assets creating a more efficient and sustainable project lifecycle.

This program develops your knowledge and technical skills in BIM lifecycle practices to support productivity improvements in design, construction and facilities management. You develop BIM execution plans, enhance collaboration skills, hone technical abilities and apply BIM authoring and data capture tools and technologies.

Graduates of this program may work in all levels of government, as well as within the architecture, engineering construction and owner/operator industry.

SUCCESS FACTORS

This program is well-suited for students who:

- Have an interest in the social and technical aspects of the built environment.
- Work well as a team member or in a leadership role.
- Are comfortable working with multiple computer software applications
- Can apply principles to problem-solve and find unique solutions.

Employment

Graduates may be employed as BIM specialists, BIM managers, BIM project managers, BIM coordinators, Project model managers, BIM process leaders, virtual design and construction managers, construction information managers, lifecycle information managers, BIM project leads, or BIM consultants, dependent upon previous background and experience in industry.

Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Apply and leverage Building Information Modeling (BIM) technologies and processes to support productivity for the design, construction and management of buildings and infrastructure.
- Develop and use BIM-based information exchange procedures to ensure data interoperability

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- Develop documentation and communication strategies to improve BIM lifecycl workflows.

- Identify and mitigate potential risks related to intellectual property, contractual obligations and regulatory compliance when sharing data with project stakeholders.

- Recommend and justify BIM processes and tools to support design, construction and facilities management activities to meet project goals.

- Apply leadership and communication skills to support team-building, productivity and coordination of BIM lifecycle management.

- Develop and apply quality assurance processes to ensure BIM project delivery and lifecycle requirements follow identified standards.

- Develop and implement a BIM Execution Plan based on stipulated project requirements to guide BIM processes and deliverables.

- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

Program of Study

Level: 01	Courses	Hours
BIM1011	Fundamental BIM Applications	42.0
BIM1020	BIM Tools and Technology for Design	56.0
BIM1030	Workflow and Collaboration for Design	84.0
BIM1040	Introduction to Project Definition and Deliverables for Design	56.0
BIM1051	BIM Standards and Guidelines	42.0
Level: 02	**Courses**	**Hours**
BIM2001	Remote Sensing Technologies for BIM	42.0
BIM2011	Advanced BIM Applications and Innovations	42.0
BIM2020	BIM Tools and Technology for Construction and Facilities Management	56.0
BIM2030	Workflow and Collaboration for Construction	84.0
BIM2040	Project Definition and Deliverables for Construction and Facilities Management	56.0

Fees for the 2023/2024 Academic Year

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at https://www.algonquincollege.com/fee-estimator .

Further information on fees can be found by visiting the Registrar`s Office website at https://www.algonquincollege.com/ro .

Fees are subject to change.

Additional program related expenses include:

- One (1) course pack per class (budget approximately $50 per course).

Admission Requirements for the 2024/2025 Academic Year

Program Eligibility

- Ontario College Diploma, Ontario College Advanced Diploma or Degree or equivalent in a related building construction industry; OR

- A diploma (in a non-related building construction field) with 3 years working experience in a Building Construction industry. These applicants will be assessed individually and will be required to complete an Eligibility Package.

- Eligibility Package submission details can be found on the Algonquin College Additional Admission Requirements website: https://www.algonquincollege.com/admissionspackages .

- Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).

- IELTS-International English Language Testing Service (Academic) Overall band of 6.5 with a minimum of 6.0 in each band; OR TOEFL-Internet-based (iBT)-overall 90, with the minimum in each component: Reading 22; Listening 22; Speaking 22; Writing 24; OR Duolingo English Test (DET) Overall 120, minimum of 120 in Literacy and no score below 105.

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Application Information

BUILDING INFORMATION MODELING - LIFECYCLE MANAGEMENT
Program Code 1525X01FWO

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

60 Corporate Court
Guelph, Ontario N1G 5J3
1-888-892-2228

Applications are available online http://www.ontariocolleges.ca/ .

Applications for Fall Term and Winter Term admission received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants applying from out-of-country can obtain the International Student Application Form at https://algonquincollege.force.com/myACint/ or by contacting the Registrar`s Office.

For further information on the admissions process, contact:

Registrar`s Office
Algonquin College
1385 Woodroffe Ave
Ottawa, ON K2G 1V8
Telephone: 613-727-0002
Toll-free: 1-800-565-4723
TTY: 613-727-7766
Fax: 613-727-7632
Contact: https://www.algonquincollege.com/ro

Additional Information

Experience with BIM authoring tools (e.g., REVIT, ArchiCAD, MicroStation) is recommended for learners entering this program.

Contact Information

Program Coordinator(s)

- James Hayes, mailto:hayesj@algonquincollege.com , 613-727-4723

Course Descriptions

BIM1011 Fundamental BIM Applications

BIM improves the quality of design, construction and the operation of buildings. Therefore, it is essential to understand BIM's capabilities and its role in the project lifecycle. Students explore the history and evolution of BIM concepts, principles and processes and how they are applied to the project lifecycle. Through historical and present-day scenarios, students build a sound foundation and understanding of current BIM practices, and their roles and responsibilities as leaders in the field.

Prerequisite(s): none
Corerequisite(s):none

BIM1020 BIM Tools and Technology for Design

BIM tools and technologies and their capacities are critical to the design, execution and management of the various stages of a project lifecycle. Students explore and evaluate the nature and goals of interoperability and information sharing through the use of BIM design tools. Students work independently and in groups to research tools commonly adopted for their use from the idea to design phases in local and international markets. Through the application of BIM design and authoring tools, research projects and presentations, students develop a foundation in the use of BIM.

Prerequisite(s): none
Corerequisite(s):none

BIM1030 Workflow and Collaboration for Design

Planning and communication are critical to minimizing the cultural shifts that arise with the transition to a BIM-centric environment. Students gain concrete experiences with various communication mediums and planning frameworks, and apply tool-specific knowledge and skills to develop and implement workflows for planning and collaboration activities used during the design phase. Through discussions, presentations and real-world scenarios, students gain the fundamental skills for workflow development.

Prerequisite(s): none
Corerequisite(s):none

BIM1040 Introduction to Project Definition and Deliverables for Design

Successfully defining and delivering a project in BIM requires client buy-in and supporting contract language relative to its delivery method and options. Students explore the context of BIM, its contract language, project delivery methods, information exchange standards and contractual requirements that ensure successful project delivery for various stages of the project lifecycle. Through authentic activities, discussions and collaborative projects, students identify the requirements and deliverables that comprise a BIM Execution Plan.

Prerequisite(s): none
Corerequisite(s):none

BIM1051 BIM Standards and Guidelines

Successfully defining and delivering a project in BIM requires client buy-in and supporting contract language relative to its delivery method and options. Students explore the context of BIM, its contract language, project delivery methods, information exchange standards and contractual requirements that ensure successful project delivery for various stages of the project lifecycle. Through authentic activities, discussions and collaborative projects, students identify the requirements and deliverables that comprise a BIM Execution Plan.

Prerequisite(s): none
Corerequisite(s):none

BIM2001 Remote Sensing Technologies for BIM

Remote sensing technology is becoming increasingly indispensable in the AECOO industry for the ability to accurately measure complex objects, spaces and buildings that would otherwise be extremely challenging or impossible to accurately capture. BIM professionals understand how this data is captured and utilized and how to verify its quality. Students explore 3D laser scanning and photogrammetry and UAV technologies and their applications for design, construction and facilities management activities. Students participate in simulations and develop skills to identify required information, produce data-capture specifications, and leverage technology to capture and manipulate data from buildings or locations for various outputs. Through hands-on activities, scenarios and presentations, students develop the ability to procure, manipulate and implement 3D scanning and photogrammetry data in BIM lifecycle projects.

Prerequisite(s): BIM1020
Corerequisite(s):none

BIM2011 Advanced BIM Applications and Innovations

Unique projects are advancing BIM's capabilities through their innovative approaches and applications. Understanding how BIM is being used on these complex projects can provide users with a model of how BIM could be applied in ways that have not yet been considered or adopted in modern AECOO industry practices. Students explore advanced applications of BIM and determine where distinct achievements have been made and identify how similar practices could be introduced in other AECOO projects. Students find innovative ways to leverage available technologies and solve problems through BIM. Through reviews of case studies, research and presentations, students identify and evaluate where BIM productivity improvements have occurred and could be applied to advance the AECOO industry.

Prerequisite(s): none
Corerequisite(s):none

BIM2020 BIM Tools and Technology for Construction and Facilities Management

The processes of traditional delivery methods are being transformed by the adoption of BIM and digital tools. Students develop a practical understanding of information flows between applications in a BIM environment during the construction and operations phases. Students cover the usage of BIM tools and technologies applied to activities such as coordination, scheduling, cost estimating and facility management.

Prerequisite(s): BIM1020
Corerequisite(s):none

BIM2030 Workflow and Collaboration for Construction

Using BIM for construction management and facilities management requires adapting processes and defining deliverables distinct from the design phase. Students determine the model requirements and manage process variables and how project information will be shared or delivered to the stakeholders and project participants. Through authentic activities, presentations, discussions and collaborative projects, students identify the requirements and deliverables for the construction and operations phases.

Prerequisite(s): none
Corerequisite(s):none

BIM2040 Project Definition and Deliverables for Construction and Facilities Management

Strategic re-tooling of processes and production techniques are required for effective use of BIM to achieve production efficiencies and improvements. Students determine the model requirements, how to manage the variables that exist during the process and how the information will be shared or delivered to the various parties. Students work collaboratively through various hands-on and class activities with a focus on construction through to the operations lifecycle phases.

Prerequisite(s): BIM1040
Corerequisite(s):none