Course Objectives:
- Provide essential knowledge required to manage and implement BIM technologies in construction process
- Provide professionals with relevant skills to use BIM in the design and construction of facilities, with an emphasis on structural and civil roles
- Use of BIM software in the process of preparing the models, analysis and documentation

Topics Areas:
**Review of Canadian Construction System**
An overview of common built asset procurement practices in the Canadian construction sector with emphasis on the exchange and use of information.

**Introduction to BIM**
Contrasting Building Information Modelling to Computer-Aided Design, its relevance to the traditional and evolving design and construction processes, BIM terminology, benefits, drivers, workflows and challenges including relevance to structural and civil practitioners. Introduction to the use of BIM outside the design and construction phases of the facility life-cycle.

**BIM Project Execution Plans (PxP)**
BIM as a platform for coordination, collaboration, communication and decision making. Overview of a systematic approach to decision making, documentation, and specifying BIM commitments in a project. Assembling the results into structured plans and protocols to guide project execution and be linked with the project contract.

**BIM Roles and Responsibilities**
Overview of common BIM roles and responsibilities within design and construction of projects.

**Model Element Table and Level of Development**
Review of the meaning and implications of Level of Development and Model Element Tables to model information exchanges in a project. The application of different modeling standards to deliver models as part of project commitments.

**Quality and BIM**
Overview of the role BIM processes and technologies play in the QA/QC activities of a construction project.

**Technology**
BIM can be achieved with a variety of different software tools. An introduction to one of the more common BIM technology platforms in Canada with an emphasis on fundamentals that are common to many approaches.
Course Delivery Format:
As this is an online course the instructors are working to ensure a good and engaging online learning environment and thus learning experience. Students will be expected to be prepared in advance for online live sessions by reviewing assigned course material. Live sessions will include interactive breakout student discussion groups reporting back to the class. The hands-on lab work elements of the course will require students to complete course lab exercises within 2 days of being released, and to self-assess their success rates against the model solutions released subsequently.

Sessions, scheduled twice a week, will generally be delivered in the following order:
- Student review assigned preparatory material offline including preparation for class discussion items
- Live sessions hosted and moderated by the instructors and TAs will include student group discussions followed by groups reporting to the class
- Short live closing presentations building on the covered material
- Live demonstration of material related to current session’s lab work
- Live and then asynchronous support for lab work exercises to develop student modeling and other BIM skills
- Students submit results of their work within 2 days of the session
- Model solutions for lab work will be released 2 days after the lab session for students to self-assessed

Discussions, live presentations and live support during lab work will be during the scheduled course times (Tuesday and Friday 9:30 – 12:30)

Dates:  July 2020 - August 2020

Grading:

<table>
<thead>
<tr>
<th>Element</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Lab Work</td>
<td>10% - submission of lab exercises within 2 days of session (work will be student-assessed)</td>
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<tr>
<td>Testing</td>
<td>15% - 2 quizzes online and timed – BIM theory and process 20% - Online timed (2-3hr) modelling exercises week 7</td>
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<tr>
<td>Summative Project</td>
<td>20% - Project Model component developed during week 6 30% - BIM Execution Plan / report component due end week 7</td>
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<tr>
<td>Closing Reflection</td>
<td>5% - due course end</td>
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Content included in the lab work or other assignments will be testable and/or expected to be applied in the course project deliverables.
Planned Module Breakdown

<table>
<thead>
<tr>
<th>Session</th>
<th>Date</th>
<th>Theory Unit</th>
<th>Modelling Unit</th>
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</thead>
<tbody>
<tr>
<td>1a</td>
<td>7-Jul</td>
<td>Unit 1 Introduction to BIM</td>
<td>Unit 1 Introduction to BIM</td>
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<tr>
<td>1b</td>
<td>9-Jul</td>
<td>Unit 2 Value and Uses of BIM</td>
<td>Unit 2</td>
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<tr>
<td>2a</td>
<td>14-Jul</td>
<td>Unit 3 Collaboration Workflow</td>
<td>Unit 3 Parametric family elements</td>
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<td>2b</td>
<td>16-Jul</td>
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<tr>
<td>3a</td>
<td>21-Jul</td>
<td>Unit 4 BIM Execution Plan</td>
<td>Unit 4 Landscape and Rendering</td>
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<tr>
<td>3b</td>
<td>23-Jul</td>
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<tr>
<td>4a</td>
<td>28-Jul</td>
<td>Unit 5 Project Introduction</td>
<td>Unit 5 Creating structural elements</td>
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<tr>
<td>4b</td>
<td>30-Jul</td>
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<tr>
<td>5a</td>
<td>4-Aug</td>
<td>Unit 6 BIM in Use</td>
<td>Unit 6 Collaboration within a BIM environment</td>
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<tr>
<td>5b</td>
<td>6-Aug</td>
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<tr>
<td>7a</td>
<td>18-Aug</td>
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<tr>
<td>7b</td>
<td>20-Aug</td>
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CONTACTS: John Dickinson john.dickinson@uwo.ca, Mehdi Heidari Sarvestani msarvest@uwo.ca

REFERENCES: Canadian Practice Manual for BIM, buildingSMART Canada BIM Project Execution Planning Guide 2.1, Penn State University

SOFTWARE: Autodesk Revit (Revit 2021), Microsoft Office

Sickness and Other Problems
Students should immediately notify their Studio Instructor by electronic mail if they have any problems that could affect their performance in the course. For more information concerning medical accommodations, please see: http://www.uwo.ca/univsec/handbook/appeals/accommodation_medical.pdf

Student Conduct & Behaviour
Students are expected to connect to live sessions on time, and to conduct themselves during sessions in a professional and respectful manner that is not disruptive to others. For live sessions please mute your microphone, use the raised hand or chat features to ask questions and connect on time for live sessions. Come prepared and participate in class discussions. On the premises of the University or at a University-sponsored program, students must abide by the Code of Student Conduct: https://www.uwo.ca/univsec/pdf/board/code.pdf

Notification
Students are responsible for checking their university email account (@uwo.ca) regularly to receive notices posted by the Instructors. When communicating with instructors by email, students are expected to use their university email account.
**Accessibility**
Please contact the course instructors if you require material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

**Device Use**
Laptops or mobile devices can support your learning in this course, but they can also be a source of distraction for you and other students around you. Please turn off all sound notifications before you enter the lecture hall, workshops or studios. You are welcome to use your devices for course-related activities such as taking notes, researching lecture topics, collaborating on group projects, viewing documents in OWL, and communicating with other students about the course material. You are not permitted to use these devices for any non-course-related activities. During activities that do not require these devices, such as group discussions, you are expected to close or put them away. If you have concerns or comments about how the use of laptops or mobile devices is affecting your learning during the course, please make an appointment to talk with the course instructors.

**Recordings**
The course intellectual content belongs to the instructors and/or the Faculty of Engineering. The recording of audio, video or pictures by students is strongly discouraged for privacy reasons. Recordings made with instructor’s permission are strictly limited for use in study for this course and may not be shared without express permission.