

Western University Faculty of Engineering
Thompson Centre for Engineering Leadership and Innovation
ELI 9001 – ENGINEERING BUSINESS
COURSE OUTLINE SUMMER 2026

DESCRIPTION

Build on your engineering expertise, and ‘speak the language’ of top management. In this course, you will discover, develop and apply knowledge in finance and accounting, sustainability and strategy, marketing and operations, and entrepreneurship.

Finance and Accounting: manage the money

- Learn essential accounting terms; analyse and interpret financial statements.
- Justify and fund your engineering project through internal company budgets and external Project Finance sources.

Sustainability and Strategy: create our common future

- Discover why Sustainable Development is relevant to engineering projects.
- Apply the Business Case for Sustainability.
- Apply regulatory requirements for Sustainability reporting and climate-related risk disclosures.

Marketing and Operations: run and grow the business

- Create a competitive strategy and market a business to customers.
- Create effective, inclusive teams and ethically apply intercultural competences.
- Improve productivity and quality. Mitigate and manage risks.

Entrepreneurship: make lifestyle choices

- Is there a problem for which I could be the solution?
- If I am the solution, what is the problem I could solve?

ENROLLMENT RESTRICTIONS

- Enrollment is restricted to graduate students in the M. Eng. program, and students in the Engineering Leadership and Innovation Graduate Diploma program.
- Subject to available space, Research (M.A.Sc./PhD) Engineering students may ‘audit’ the course, provided they attend classes and contribute.

INSTRUCTOR CONTACT INFORMATION

- **Course instructor:**
- **Office and office hours:** In-person before or after class preferred; or videoconference by appointment.

COURSE FORMAT

Ten classes:

- No class May 18 (public holiday) or June 22 (instructor absence)
- Students must attend in-person. Guest presenters may attend in-person or online.
- Course announcements are published at least weekly in OWL Brightspace. Please logon to your University email address to receive essential messages.
- If University or Public Health guidelines require us to move the class online, remaining meetings will be held online by Zoom videoconference at the same scheduled times, and recorded. If Western is temporarily closed, classes may be rescheduled in-person, or held online and recorded.

COURSE MATERIALS AND TEXTBOOK

- No required text or cases to purchase. Slides and readings are provided in OWL Brightspace.
- Students are required to do their own research from sources outside of the provided course material.

TOPICS

Learning activities for all topics include in-class lectures, and reports where students research and apply the concepts to a particular business situation. The reports are completed individually or in teams. Before each class, students are requested to review the related OWL Brightspace module, which includes lecture slides, class discussion questions, required and optional readings.

Module	Topic	Topic Details
One	Finance and Accounting	<ul style="list-style-type: none"> • Introduction: understand the Engineer's role as a business partner; discuss an effective team-building strategy • Discover the ethical and practical applications of Artificial Intelligence in today's business environment • Learn essential accounting concepts and terms • Review the four essential financial statements
Two		<ul style="list-style-type: none"> • Recap essential accounting and finance concepts • Interpret financial statements, including types of assets, debt and equity • Determine how companies are valued
Three		<ul style="list-style-type: none"> • Apply economic analysis and activity-based costing principles • Apply planning, budgeting and forecasting processes • Evaluate and justify engineering projects with a Project Finance perspective

Module	Topic	Topic Details
Four	Sustainable Development and the Business Case for Sustainability	<ul style="list-style-type: none"> • Review and apply the role of Business in the UN Sustainable Development Goals; the UN Declaration on the Rights of Indigenous Peoples; and the Truth and Reconciliation Commission of Canada Recommendations • Create the Business Case for Sustainability: deliver economic value, social benefit, environmental and climate change accountability • Apply sustainability reporting principles, including environmental, social, governance, and regulatory reporting requirements • Apply intercultural competences • Ethically apply the principles of equity, diversity, and inclusion
Five	Marketing and	<ul style="list-style-type: none"> • Apply competitive strategy and industry analysis tools • Develop and apply new product, new technology and physical asset management lifecycles • Segment customer markets, and create a marketing plan
Six	Competitive Strategy	<ul style="list-style-type: none"> • Apply digital business and digital marketing models • Apply Intellectual Property considerations
Seven	Operations and Risk Management	<ul style="list-style-type: none"> • Determine one’s role and authority within a company, and how to lead and follow others to deliver results • Apply operational processes such as project management, design/build, Agile/DevSecOps, Lean/Six Sigma • Apply procurement and supply chain management, including contract and liability law considerations • Reduce risk in Engineering Projects
Eight	Entre -preneurship and lifestyle choices	<ul style="list-style-type: none"> • Learn the entrepreneur’s mindset; and what ‘intrapreneurs’ do • Create a feasible Business Idea, with the Sustainable Business Model Canvas • Create a detailed Business Case to justify the Idea
Nine		<ul style="list-style-type: none"> • Develop Discovery and Delivery competences • Explore professional engineering competences, engineering in paid employment, and engineering as a business venture
Ten		<ul style="list-style-type: none"> • Present your Business Case to the Class

LEARNING OUTCOMES

Degree Level Expectation	Weight	Assessment Tools	Outcomes
Depth and breadth of knowledge	15%	<ul style="list-style-type: none"> • Reports 	<ul style="list-style-type: none"> • Develop and show knowledge in Sustainability, Finance and Accounting, Marketing and Operations, and Entrepreneurship
Research and scholarship	20%	<ul style="list-style-type: none"> • Reports 	<ul style="list-style-type: none"> • Research and analyze topics with established techniques and with personal research outside the provided course material • Provide relevant sources of information with verifiable and accurate quotes
Communication skills	15%	<ul style="list-style-type: none"> • Reports • In-class contributions 	<ul style="list-style-type: none"> • Create clear, logical reports and presentations, in written and oral methods • Provide sufficient detail such that readers and audiences can understand your work and your insights
Application of knowledge	20%	<ul style="list-style-type: none"> • Reports • In-class contributions 	<ul style="list-style-type: none"> • Develop and show insights on how to solve business challenges, mitigate risks, and meet social and environmental requirements • Offer feasible recommendations to run and grow a business, or start a new business
Professional capacity and autonomy	15%	<ul style="list-style-type: none"> • Reports • In-class contributions 	<ul style="list-style-type: none"> • Contribute and work effectively, individually and in teams • Include self-reflection in learning • Contribute to the learnings of others.
Awareness of limits of knowledge	15%	<ul style="list-style-type: none"> • Reports 	<ul style="list-style-type: none"> • Explain assumptions and where other perspectives and methods may be required • Effectively apply reasonable feedback from others

The term ‘reports’ refers to written assessments such as ‘assignments’ and ‘presentations.’ In-class contributions are oral and in real time. There are no quizzes or exams in this course.

ASSESSMENTS

Assessment type	Material covered	Due Date	Weight
Contribution # 1 individual in-class	• Modules 2 – 5	• During each class	8%
Contribution # 2 individual in-class	• Modules 6 – 10	• During each class	12%
Finance and Accounting individual report	• Modules 1 – 3	• After Module 3	30%
Marketing and Sustainability team report	• Modules 4 – 6	• After Module 6	20%
Entrepreneurship and Operations team report	• Modules 7 – 10, and apply other modules 1 – 6	• Presentation July 20 • Written Report after Module 10	10% 20%

LESSON PLAN: WHAT HAPPENS IN CLASS

- Students are requested to review the provided course materials and discuss with colleagues before class.
- During class, the instructor explains important concepts. Students are encouraged to ask questions, contribute their ideas, and build on the contributions of others.
- Class may include a simulated ‘business meeting’ which includes activities such as whiteboard exercises and small team discussions.
- When possible, guest presenters may also attend. The assessments may be adjusted to reflect materials and requirements shared by the guest presenters.

TEAM REPORTS

- We are emulating the workplace where work is completed individually and in teams, and where people are rewarded based on their individual contributions and overall results.
- All students in a team shall contribute to their team reports, and students are requested to document what they contribute. Reports may have an individual component for each student.
- In the first class, we provide guidance on how to effectively work in teams, and the recourse if another student’s or the entire team’s performance appears to need improvement.
- The instructor must approve all student requests to join a particular student team.

ACTIVITIES IN WHICH COLLABORATION IS PERMITTED

- Individual class contributions, and discussion during scheduled classes.
- All team reports as shown above: collaboration within the student team.

ACTIVITIES IN WHICH STUDENTS MUST WORK ALONE; COLLABORATION IS NOT PERMITTED

- For the individual Finance and Accounting report, students may form ‘study groups’ to discuss concepts; however, all submitted work must be the individual student’s own work.
- For the team reports, students may form ‘study groups’ with other students to discuss concepts; however, all work submitted by a team must be unique to that team. Sharing work across teams for purpose of submission, or re-using work from other teams, is not permitted.
- Collaboration is not permitted for any written work submitted to the instructor in consideration for the individual contribution grade. AI and collaborative tools must not be used for this work.

APPLICATION OF ARTIFICIAL INTELLIGENCE AND COLLABORATIVE TOOLS

For all written reports and presentations in this course (except self-reflection and any contribution reports), students are permitted to use artificial intelligence (AI) and collaborative tools to initiate research and to discover concepts and ideas.

- AI must **not** be used to create any report or presentation! The final work or product must be the student’s own creation and in the student’s own words.
- Students must review and revise all AI-generated work and any AI-generated sources for accuracy and relevance.
- Any content which is created by or from other sources must be properly cited and referenced. If students use such services to create content, the entire content must be clearly identified as from another source.
- Merely listing a source or citing a source in-line does not prove it is accurate, relevant, or suitably applied. Students must review the original source; and if they wish to use it, provide a relevant quotation from the source, that the instructor can independently review and verify.
- Students are **not** permitted to use AI and collaborative tools in any self-reflection reports, or any reports provided in lieu of in-class contribution.

GRADING STANDARDS AS APPLIED IN THIS COURSE

General Expectations

- If for a legitimate reason, you are unable to meet your academic responsibilities, or cannot meet due dates, please discuss with your instructor. The instructor will not request any confidential information.
- All work and in-class contributions are evaluated on what would reasonably be expected from a Masters-level student who, upon graduation from their program, would demonstrate the skills shown in the Ontario Qualifications Framework Level 12 www.ontario.ca/page/ontario-qualifications-framework .Detailed rubrics are provided in OWL Brightspace.

Team Report Grades

- When working on team reports, all individuals in the team will normally receive the same grade, subject to their individual contributions.
- In the event students feel that another team member is not a positive contributor, students are requested to respectfully resolve matters with the team member.
- If after drawing someone's attention to their ineffective contribution and their behaviour continues, students may discuss concerns with the instructor at the earliest opportunity.
- After consulting the students concerned and considering whether a student's behaviour likely affected a team's performance, the instructor may adjust the report grade or the course grade for any or all team members.

Penalties - Written Reports and Presentations

- Late reports or presentations may be subject to penalties of 20% of report grade per calendar day. Reports or presentations which are five calendar days late or more, may receive a zero grade.
- Penalties are waived for legitimate and documented reasons such as illness.

Penalties - Contributions

- Students are requested to arrive at class on time, sign the attendance sheet, and (other than necessary breaks) leave only after class is finished. Unless prior arrangements are made with the instructor, students who consistently arrive late or leave early may receive a reduced contribution grade.
- Students who do not attend a class will not receive the contribution grade for that class. However, students who are absent and who also submit a short report of 500-600 words on the topic of the day, may be eligible for the contribution grade, at the instructor's discretion. The eligibility requirements are: submit the report within three calendar days after the missed class; not have excessive absences to date; and **not** use AI or collaborative tools.
- Interactions with others during and outside class must be professional, or the student's contribution grade may be reduced. **There is no penalty for disagreement or difference of opinion.** We encourage discussion.

CHEATING, PLAGIARISM, ACADEMIC OFFENSES

Academic integrity is an essential component of learning activities. Students must have a clear understanding of the course activities in which they are expected to work alone (and what working alone implies) and the activities in which they can collaborate or seek help; see information above and ask instructor for clarification if needed. Any unauthorized forms of help-seeking or collaboration will be considered an academic offense. University policy states that cheating is an academic offence. If you are caught cheating, there will be no second warning. Students must write their essays and reports in their own words. Whenever students take an idea or a passage of text from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence. Academic offences are taken seriously and attended by academic penalties which may include expulsion from the program. Students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence at the following website: https://www.uwo.ca/univsec/academic_policies/grad-disciplinary-matters.html

All required papers may be subject to submission for textual similarity review to the commercial plagiarism-detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin <https://www.turnitin.com/>.

CONDUCT

Students are expected to follow proper etiquette to maintain an appropriate and respectful academic environment. Any student who, in the opinion of the instructor, is not appropriately participating in course activities and/or is not following the rules and responsibilities associated with the course activities, will be reported to the Associate Dean (Graduate) (after due warning has been given). On the recommendation of the Department concerned, and with the permission of the Associate Dean (Graduate), the student could be debarred from completing the assessment activities in the course as appropriate.

HEALTH / WELLNESS SERVICES

As part of a successful graduate student experience at Western, we encourage students to make their health and wellness a priority. Western provides several health and wellness related services to help you achieve optimum health and engage in healthy living while pursuing your graduate degree. Information regarding health- and wellness-related services available to students may be found at www.uwo.ca/health/shs/index.html

Students seeking help regarding mental health concerns are advised to speak to someone they feel comfortable confiding in, such as their faculty supervisor, their program director (graduate chair), or other relevant administrators in their unit. The Faculty of Engineering has a Student Wellness Counsellor.

<https://www.eng.uwo.ca/graduate/current-students/academic-support-and-accommodations/student-wellness-counselling.html>

To schedule an appointment with the Wellness Counsellor, please download and complete the CONFIDENTIAL Intake Form and the Assumption of Risk Form on the above website, and submit to Sara Hanna by confidential email (sara.hanna@uwo.ca). You will be contacted by our intake office within 48 hours to schedule an appointment.

Students who are in emotional/mental distress should refer to Mental Health@Western. For a complete list of options about how to obtain help: uwo.ca/health/psych/index.html

SICKNESS

Students should immediately consult with the Instructor (for a particular course) or Associate Chair (Graduate) (for a range of courses) if they have problems that could affect their performance. The student should seek advice from the Instructor or Associate Chair (Graduate) regarding how best to deal with the problem. Failure to notify the Instructor or the Associate Chair (Graduate) immediately (or as soon as possible thereafter) will have a negative effect on any appeal. Obtaining appropriate documentation (e.g., a note from the doctor) is valuable when asking for accommodation due to illness.

Students who are not able to meet certain academic responsibilities due to medical, compassionate or other legitimate reason(s), could request for academic consideration. The Graduate Academic Accommodation Policy and Procedure details are available at:

eng.uwo.ca/graduate/current-students/academic-support-and-accommodations/index.html

Please note that any academic considerations granted in this course will be determined by the instructor, in consultation with the academic advisors in your Faculty of Registration, in accordance with information presented in this course outline.

ACCESSIBLE EDUCATION WESTERN

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program. Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are strongly encouraged to register with Accessible Education Western (AEW): https://academicsupport.uwo.ca/accessible_education/index.html

AEW is a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction.

STATEMENT ON GENDER-BASED AND SEXUAL VIOLENCE

Western is committed to working to end gender-based and sexual violence on campus and in our community and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced gender-based or sexual violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts, at <https://www.uwo.ca/health/gbsv/index.html>. If you or someone you know has experienced gender-based or sexual violence and would like to talk to someone, please contact support@uwo.ca.