

ELI 9300 – Design Driven Innovation

COURSE OUTLINE 2025-2026

DESCRIPTION

This course provides students with the opportunity to explore the interplay between innovative design and commercial success. Students will apply a human-centered design approach to understand why technologies succeed/fail, and to investigate how design iteration can lead to innovation when used as a tool to elicit and test a customer's unspoken needs.

ENROLLMENT RESTRICTIONS

Enrollment in this course is restricted to graduate students in the Graduate Diploma in Engineering Leadership and Innovation, as well as any student that has obtained special permission to enroll in this course from the course instructor as well as the Graduate Chair (or equivalent) from the student's home program.

INSTRUCTOR CONTACT INFORMATION

Course instructor:

Email address:

Office hours: By appointment (flexible) – Virtual

COURSE FORMAT

The course will be delivered face-to-face.

Course delivery with respect to the COVID-19 pandemic

Although the intent is for this course to be delivered in-person, the changing COVID-19 landscape may necessitate some or all of the course to be delivered online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will not change. Any assessments affected will be conducted online as determined by the course instructor.

When deemed necessary, tests and examinations in this course will be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide personal information (including some biometric data) and the session will be recorded. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

TOPICS

Topic #	Description	Learning Activities	Tentative timeline
1	Innovation Process		
	Lesson 1: What is Innovation?	<ul style="list-style-type: none"> • Lectures • Additional reading material 	Weeks 1-2
2	Human-Centered Design		
	Lesson 1: Design Thinking and Human-Centered Design	<ul style="list-style-type: none"> • Lectures • Additional reading material 	Weeks 1-3
	Lesson 2: Insight Gathering	<ul style="list-style-type: none"> • Lectures • Problem Log 	Weeks 2-4
	Lesson 3: Insight Statements	<ul style="list-style-type: none"> • Lectures • Interview assignment 	Week 3
3	Understanding Your Customer		
	Lesson 1: Customer Personas	<ul style="list-style-type: none"> • Lectures • Additional reading materials 	Week 4
	Lesson 2: Customer Interviews	<ul style="list-style-type: none"> • Lectures • Workshop activities • Interview assignment 	Weeks 2-5
	Lesson 3: Emotional Design + Empathy	<ul style="list-style-type: none"> • Lectures • Workshop • Additional readings 	Weeks 4, 10
4	Prototyping for Design Feedback		
	Lesson 1: Hypothesis Driven Experimentation	<ul style="list-style-type: none"> • Discussion • Additional readings • Assignment 	Weeks 6-8
	Lesson 2: Rapid Prototyping for Innovation	<ul style="list-style-type: none"> • Lesson • Workshops • Assignment 	Week 8
	Lesson 3: Ideation + Hypothesis Sprint	<ul style="list-style-type: none"> • Lessons • Workshops • Assignment 	Weeks 7-10
	Lesson 4: Running a Feedback Session	<ul style="list-style-type: none"> • Lesson • Workshops 	Weeks 6, 8, 10, 11
5	Impediments to Customer Driven Design		
	Lesson 1: Improving Innovation	<ul style="list-style-type: none"> • Lessons • Additional readings • Reflection assignment 	Weeks 8-12
	Lesson 2: Open-Source Innovation	<ul style="list-style-type: none"> • Lessons • Discussion 	Week 9

SPECIFIC LEARNING OUTCOMES

Degree Level Expectation	Weight	Assessment Tools	Outcomes
Depth and breadth of knowledge	20%	<ul style="list-style-type: none"> • Class Contribution • Reflections + Discussions • Insights Presentation • Feedback Presentation 	<ul style="list-style-type: none"> • Ability to identify the difference between innovation and invention, and interpret each in the context of engineering organizations • Understanding the major stages of the innovation process and leading their implementation • Understanding of the role of human-centered design in the innovation process • Manage and promote innovation in organizations • Understanding the value in utilizing hypothesis-focused prototypes to elicit customer insights • Identify the emotions evoked by design
Research & scholarship	15%	<ul style="list-style-type: none"> • Class Contribution • Interview Assignment • Project Reports 	<ul style="list-style-type: none"> • Synthesize innovation literature and suggest improves to practice within teams and organizations • Ability to utilize empathy and interviews to elicit and identify unmet needs • Ability to identify the critical customers, collaborators and pathways needed to move design from invention to innovation • Ability to identify non-obvious users who may impact technology adoption
Application of knowledge	35%	<ul style="list-style-type: none"> • Class Contribution • Persona Report • Ideation Workshop • Feedback Workshop 	<ul style="list-style-type: none"> • Ability to initiate an innovative and customer-centric design process, and adapt innovation methods to unique circumstances • Ability to use a coherent approach to construct customer personas and problem storyboards • Ability to participate in/lead an ideation session • Ability to develop rapid prototypes and tests to capture customer feedback in response to design hypotheses/assumptions • Resolve conflict in a team environment when multiple solutions arise
Professional capacity / autonomy	5%	<ul style="list-style-type: none"> • Class Contribution • Interview Assignment • Feedback Workshop 	<ul style="list-style-type: none"> • Defends own solutions and ideas in a professional and respectful manner • Ability to lead a user interview to elicit insights • Integrates reflection into his/her learning process • Integrates empathy into his/her design process
Communication skills	15%	<ul style="list-style-type: none"> • Class Contribution • Project Reports • Case Study Discussions • Interview Assignment 	<ul style="list-style-type: none"> • Ability to articulate evidence in support of defining a customer persona • Ability to clearly articulate the profile of a potential customer and their unique needs • Ability to communicate the innovation process steps effectively to business and technical/engineering audiences
Awareness of limits of knowledge	10%	<ul style="list-style-type: none"> • Class Contribution • Feedback Presentation 	<ul style="list-style-type: none"> • Awareness of the need to acknowledge assumptions and hypotheses in testing proposed solutions

		<ul style="list-style-type: none"> • Course Topics + HCD Reflection 	<ul style="list-style-type: none"> • Ability to acknowledge the limitations to the application of theoretical HCD processes in industrial/academic settings • Ability to find additional resources and knowledge to implement innovative practices in engineering projects
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ASSESSMENTS

Assessment Type	Material Covered	Tentative Due Date	Weight
Class Contribution (Participation in class activities) (Class preparation questions)	All topics	Ongoing	10%
Reading Quizzes	Topics 1 + 2	Weeks 2 & 3	4%
Course Project	Topics 2 – 4		70%*
Interview Insights Presentation (Team)	Topics 2 + 3	Week 4	
Interview Reflection (Individual)	Topics 2 + 3	Week 4	
Problem Map + Stakeholders Report (Team)	Topics 2 + 3	Week 6	
Concept + Hypotheses Report (Team)	Topic 4	Week 10	
3-Panel Storyboard + Peer Evaluation (Individual)	Topic 4	Week 9	
Feedback + Improvements Presentation (Team)	Topic 4	Week 12	
Course Topics + HCD Reflection Paper (Individual)	Topic 5	Week 10	16%

*42% team deliverables, 28% individual deliverables

Textbook and Other Learning Materials

This course relies on case studies in place of a textbook. Students must purchase **1-3 cases** during the course, at an expected cost of **\$7/case** if they sign up for a [student account](#) with Ivey Publishing. Case details will be communicated in class at least one week in advance of the associated lesson.

Academic Consideration for Course Components, Flexible Deadlines & Late Penalties:

Quizzes

This course has quizzes that assess students' comprehension from course reading materials prior to classes in which those materials are discussed. The quizzes may only be completed once; however, flexibility is built into their submission by allowing the quizzes to be submitted any time within the week preceding the in-class discussion. Accordingly, requests for academic considerations for the quizzes' final deadline will not be granted.

In-Class Contribution

This course has marks associated with in-class contribution activities. There are 8 weeks in which in class contribution is assessed, as well as a single submission in week 1 to familiarize students with the Gradescope submission process. The top 7/9 of these marks will count towards your final grade. Academic consideration will not be granted for missed in-class contribution activities. If students miss 2/9 of the grades, the remaining 7 will be used in the calculation of the final grade. If students miss greater than 2, they will receive a grade of zero on each that was missed.

Course Project Deliverables

In lieu of a final exam and midterm, the course project has been designated as requiring supporting documentation to receive academic accommodation. This means that supporting documentation will be required if students are to be unable to attend the project-related in-class presentations, as well as the in-class individual ideation workshop and the running of the final façade experiments.

To provide students with flexibility, where possible this course employs flexible deadlines for project reports and reflections. The deliverable deadlines can be found on the course OWL site. For each report/reflection, students are expected to submit the deliverable by the deadline listed. Should illness or extenuating circumstances arise, students are permitted to submit their deliverables up to 48 hours past the deadline without academic penalty. Should students submit their deliverables between 48 and 72 hours past the deadline, a flat late penalty of 20% will be subtracted from the assessed grade. Submissions will not be accepted beyond 72 hours past the deadline.

Also, please note that the Individual 3-Panel Storyboard deliverable, and the subsequent Peer-Evaluations students must complete are open for submission and evaluation for multiple days, providing flexibility. Due to the sequential nature of peer-evaluation, these final deadlines are not subject to further accommodation.

As flexible deadlines are used in this course, requests for academic consideration will not be granted. If you have a long-term academic consideration or an accommodation for disability that allows greater flexibility than provided here, please reach out to your instructor at least one week prior to the posted deadline.

Course Topics & HCD Reflection

The Course Topics & HCD Reflection employs flexible deadlines. The deliverable deadlines can be found on the course OWL site. Students are expected to submit the deliverable by the deadline listed. Should illness or extenuating circumstances arise, students are permitted to submit their reflection up to 48 hours past the deadline without academic penalty. Should students submit their reflection between 48 and 72 hours past the deadline, a flat late penalty of 20% will be subtracted from the assessed grade. Submissions will not be accepted beyond 72 hours past the deadline.

Re-grade Requests:

- Students are expected to be diligent about reviewing their marks promptly following their release. Accordingly, all re-grade requests must be submitted using the re-grade request tool on Gradescope within 1-week of the grades being released.
- All re-grade requests must include the rationale for mark changes and must refer to specific elements of the student's work and rubric to justify the request.
- Note that re-grading can result in marks increasing or decreasing based on re-evaluation.

Activities in which collaboration is permitted:

- Course project team deliverables
 - Problem Map + Stakeholders Report, Interview Insights Presentation, Ideation + Hypotheses Report, Feedback + Improvements Presentation
 - Teams should write/edit report together and divide/collaborate to develop and execute necessary tasks
- Course project materials development (Interview questions, Interviews, Prototype development, Feedback session, *etc.*)
 - Teams are expected to divide work equitably then synthesize findings together

Activities in which students must work alone (collaboration is not permitted):

- Class contribution, pre-class quizzes
- Interview reflection
- Course Topics + HCD Reflection

REQUIRED TEXTBOOK

Ivey Publishing Course Pack (print copy or digital download copy instructions will be provided in class)

OPTIONAL COURSE READINGS

Copies of additional material, beyond the course pack, will be provided in class.

CHEATING, PLAGIARISM/ACADEMIC OFFENCES

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 assignments 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/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

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.com (<http://www.turnitin.com>).

Note on the use of generative AI: ChatGPT, Bing and other AI content generators are not permitted to be used for creating content that is submitted for marks in this course since the use of AI generators does not constitute submission of original work.

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 <http://www.health.uwo.ca/>.

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. Faculty of Engineering has a Student Wellness Counsellor. To schedule an appointment with the counsellor, contact Kristen Edwards (khunt29@uwo.ca) via confidential email and 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: <http://www.uwo.ca/uwocom/mentalhealth/> for a complete list of options about how to obtain help.

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:

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

ACCESSIBLE EDUCATION WESTERN (AEW)

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): http://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.