Western University
Faculty of Engineering
Thompson Centre for Engineering Leadership and Innovation

ELI 3000 – Managing Innovation Process

Course Outline 2023-24

Description:

This course is for students who have an interest in innovation and its management in entrepreneurial settings and corporate environments. Without innovation, there is no entrepreneurship, but not all innovations manifest in the form of new businesses or business processes. Understanding the foundations of innovation and how it may—or may not—improve firm performance is crucial for success in the hypercompetitive business landscape. Our objective in this course, then, is to build a better understanding of the conceptual domain of innovation and what managing innovation means for today's engineering leaders.

Instructor: Dr. Jacob Reeves, Ph.D.
Email address: jreeves5@uwo.ca
Consultation hours: By appointment (flexible)

Contact Hours:

3 lecture hours/week, half course.

Prerequisites:

Third year standing in an engineering program or permission from the instructor.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record.

CEAB Academic Units:

Complementary Studies (Elective Course) = 100% or 39 AUs

Recommended Textbooks:

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

Other Required References:

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

Recommended References:

None.

General Learning Objectives (CEAB Graduate Attributes)

Knowledge Base		Use of Engineering Tools		Impact on Society and the Environment	I
Problem Analysis		Individual and Team Work	D	Ethics and Equity	
Investigation		Communication Skills	A	Economics and Project Management	D
Design	A	Professionalism		Life-Long Learning	A

Notation: *x* represents the content level code as defined by the CEAB. blank = not applicable; I = introduced (introductory); D = developed (intermediate) and A = applied (advanced).

Topics and Specific Learning Objectives

1. Topic: Innovation Process

Following this section, students should be confident that they can:

i. identify the differences between invention and innovation
ii. describe the major stages of the innovation process
iii. initiate an innovative design cycle

2. Topic: The Human-Centered Design Thinking Approach

Following this section, students should be confident that they can:

i. apply human-centered design thinking techniques to identify and define unmet needs
ii. interview a current/potential customer to elicit insights
iii. identify non-obvious users who may impact the adoption of their technologies
iv. design empathy experiments to better understand customer perspectives

3. Topic: Understanding Your Customer

Following this section, students should be confident that they can:

i. articulate the profile of a potential customer and their unique needs
ii. identify the emotions (visceral, behavioural and reflective) evoked by design
iii. identify ways to integrate customer interactions into the design process

4. Topic: Prototyping for Design Feedback

Following this section, students should be confident that they can:

i. participate in or lead an ideation session
ii. develop rapid prototypes and tests to capture customer feedback in response to design hypotheses/assumptions

Evaluation

Course Component	Description	Weight
Contribution (Individual)	Course contribution is divided between preparation and in-class activities. Classes are structured to be interactive and to rely on the Ivey case method and group discussions. To ensure that students are prepared to contribute to class activities, there will be pre-class reflection questions that should be submitted ahead of time. Additionally, students will earn marks based on meaningful contributions to class discussions and participation in class workshop activities.	20%
Course Project (Team)	The course project calls for students to work in teams of 4 or 5 to design a new product or service. The project topic will be selected from your team members' individual problem logs, pending professor approval. Team will apply design thinking methods to identify insights, ideate solutions and test your hypotheses and assumptions with potential customers. • Team Deliverables (50%): i) Problem Map + Persona Report ii) Interview Insights Presentation iii) Ideation + Hypotheses Report iv) Feedback + Improvements Presentation • Individual Deliverables (30%): i) Interview Reflection ii) Ideation: 3-Panel Storyboard + Review *One week will be set aside for each team to run customer feedback sessions with their peers during class time.	80%

Course Policies:

The following course-specific policies will be enforced throughout the course:

Homework Assignments: Assignments (individual and group exercises) will be discussed during class hours. The assignments must be submitted for marking by the due dates discussed in class. Written assignments will be submitted electronically including the problem log - see the provisions concerning plagiarism below.

Late Submission Policy: Late submissions will be accepted within 24 hours of the due date/time but will receive a flat 20% deduction from the final grade. 24 hours after the due date/time, submissions will not be accepted without official accommodations approved by the university. Presentations must be given on the assigned date.

Re-grade Request Policy: 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.

Use of English: In accordance with Senate and Faculty Policy, students may be penalized up to 10% of the marks on all assignments, tests, and examinations for improper use of English. Additionally, poorly written work with the exception of the final examination may be returned without grading. If resubmission of the work is permitted, it may be graded with marks deducted for poor English and/or late submission.

Attendance: Any student who misses more than 25% (or 3 classes) will be reported to the Dean (after due warning has been given). On the recommendation of the department, and with the permission of the Dean, the student will be assigned a failing grade in the course.

Absence Due to Illness or Other Circumstances: Students should immediately consult with the instructor or department Chair if they have any problems that could affect their performance in the course. Where appropriate, the problems should be documented (see the attached "Instructions for Students Unable to Write Tests or Examinations or Submit Assignments as Scheduled"). The student should seek advice from the instructor or department Chair regarding how best to deal with the problem. Failure to notify the instructor or department Chair immediately (or as soon as possible thereafter) will have a negative effect on any appeal.

For more information concerning medical accommodations, see the relevant section of the Academic Handbook:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf

For more information concerning accommodations for religious holidays, see the relevant section of the Academic Handbook:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Cheating and Plagiarism: Students must write their essays and assignments in their own words. Whenever students take an idea or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. University policy states that cheating, including plagiarism, is a scholastic offence. The commission of a scholastic offence is attended by academic penalties, which might include expulsion from the program. If you are caught cheating, there will be no second warning.

All required papers may be subject to submission for textual similarity review to commercial plagiarism-detection software under license to the University for the detection of plagiarism. All papers submitted will be included as source documents on 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).

Scholastic offences are taken seriously, and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, in the relevant section of the Academic Handbook:
http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf

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.

Use of Electronic Devices: Students may use laptops, tablet computers, or smart phones (vibrate mode only) during class for course related activities. Non-emergency phone calls or text during class are not permitted. Electronic devices may be used during the final project presentation if part of the presentation itself.

Policy on Repeating All Components of a Course: Students who are required to repeat an Engineering course must repeat all components of the course. No special permissions will be granted enabling a student to retain laboratory, assignment, or test marks from previous years. Previously completed assignments and laboratories cannot be resubmitted by the student for grading in subsequent years.

Internet and Electronic Mail: Students are responsible for regularly checking their Western e-mail and the course web site (https://owl.uwo.ca/portal/) and making themselves aware of any information that is posted about the course.

Accessibility: Please contact the course instructor 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 519-661-2111 ext. 82147 for any specific question regarding an accommodation.

Support Services:

Office of the Registrar, http://www.registrar.uwo.ca/ Student Development Centre, http://www.sdc.uwo.ca/

Engineering Undergraduate Services, http://www.eng.uwo.ca/undergraduate/ USC Student Support Services, http://westernusc.ca/services/

Students who are in emotional/mental distress should refer to Mental Health @ Western, http://www.health.uwo.ca/mental_health/, for a complete list of options about how to obtain help.

Units:

Metric and US Customary.