Course Outline

Course: ENGR 110 – Design and Communication I /
ENGR 112 – Engineering Design I

Instructors:

Faculty of Engineering

Flavio Firmani Design/Lead Instructor   ffirmani@uvic.ca
Mario Bras   Design Co-Instructor   mbras@uvic.ca

Lectures:

In person (Fraser Bldg., Room 159)

- Tuesday 2:30 – 3:20 (A01, A02, A04, A05, A06 , A12, A13)
- Tuesday 3:30 – 4:20 (A03, A07, A08, A09, A11, A14, A15)

Course Outline

Instructors:

Department of English

Monika Cwiartka	A12, A13	cwiartka@uvic.ca
Loren Gaudet	A02	ldgaudet@uvic.ca
Randy Lawrence	A04, A11	rlawrence@uvic.ca
Brock MacLeod	A01, A07	brock1@uvic.ca
Jim Parker	A08, A09, A15	jimparker1979@uvic.ca
Katherine Skipsey	A03, A06, A14	kskipsey@uvic.ca
Monika Smith	A05	monikasm@uvic.ca

Library

Aditi Gupta	All sections	aditig@uvic.ca

Course Outline

Course Description:

ENGR 110 and ENGR 112 both offer students an introduction to the principles of engineering design processes through projects to be undertaken by teams of students, and offer integrated development and demonstration of writing, research, design and presentation skills through research and design projects.

ENGR 110 additionally includes a communications portion emphasizing writing, research and organizational skills appropriate for University level writing. ENGR 110 meets the University of Victoria's Academic Writing Requirement.

Where requirements differ between ENGR 110/112, notes are made in the following section.

Course Outline

Course Structure:

ENGR 110 is a 2.5 unit course, in which instruction and activities in academic writing and engineering design are presented in an integrated manner. ENGR 112 is a 1.0 unit course, and does not include the Communications Seminars; otherwise, it is the same as ENGR 110. The full set of contact hours for the courses are as follows:

Activity	hrs/wk	# students	ENGR 110	ENGR 112
Plenary lecture activities	1	All students	✓	✓
Engineering design laboratory/studio	2	~30	✓	✓
Communication seminars	3	~30	✓	

Course Outline

Plenary Lecture Activities *(1 hr/wk; ENGR 110/112)*

The plenary lectures will cover the different stages of the design process and the methods that are followed in order to explore the design space and select an appropriate concept. Students will implement these methods in the Design Labs and Design Project.

Engineering Design Lab (Studio) *(2 hrs/wk; ENGR 110/112)*

Students will work in teams to complete a number of Design Activities and a major Design Project. These activities will provide opportunities for students to experience the design process.

A schedule of the activities for the Design Laboratories is given in this document. I cannot enter the schedule on Brightspace as the lab sections take place on different days. Note that this schedule is subject to change.

Course Outline

Communication Seminars *(3 hrs/wk; 1.5 credits; ENGR 110 only)*

Students will be introduced to the fundamental of academic reading, researching, and writing in the context of the discipline of Engineering.

Students will identify academic conventions, rhetorical strategies, structures and patterns, and apply them to their own writing.

Students will use the writing process to plan, draft, and revise a variety of typical academic assignments that ask them to summarize, analyze and synthesize ideas and forms of academic writing.

Students will actively reflect on their learning.

Learning activities and policies vary among the different sections of the communication seminars. Your communication instructor will provide you with a schedule and the policies for your section.

Course Outline

Textbooks:

Technical Writing Essentials[1] and Why Write? A Guide for Students in Canada[2] available online as an Open Educational Resources.

[1] https://pressbooks.bccampus.ca/technicalwriting/

[2] https://pressbooks.bccampus.ca/whywriteguide/

Optional Texts

Clive L. Dym, Patrick Little, and Elizabeth Orwin, *Engineering Design: A Project-Based Introduction*, 4th ed, Wiley, 2014.

Course Outline

Course Resources:

Brightspace: There is a single Brightspace site for the Design components of the course: Fall 2021 ENGR 110 A and B - ENGR 112 A and B. Each Communication section has its own Brightspace site. Students should refer to these sites regularly for information on assignments and preparation for lectures and labs.

The Centre for Academic Communication. The centre provides free one-on-one tutoring to help students build their writing skills and proficiency in English. The centre also runs workshops related to academic writing. You can book an appointment online https://uvic.mywconline.com/ or visit on a drop-in basis.

It is located in Room 135j, k, l, and m in the Academic Help corridor of the Learning Commons, in the McPherson Library.

Course Outline

UVic Libraries. The ENGR 110 Research Help link at the UVic Libraries Gateway offers students help with their research, writing papers, locating resources, and identifying people to ask for more help. The Research Help section includes links to Tutorials on basic research skills. You can also ask questions by e-mail or talk to a subject librarian by phone. The Engineering librarian is Aditi Gupta, aditig@uvic.ca

Course Outline

Learning Outcomes:

Engineering Design (ENGR 110/112): Students exiting ENGR 110/112 will be able to work effectively in teams and individually to develop solutions for open-ended engineering problems. In developing these solutions, students will be able to follow a formal design process in which they will:

1. Understand the role of the Professional Engineer and reflective practitioner in engineering design work

2. Develop a set of user requirements to address needs/requirements of a client

3. Undertake research to identify relevant background information, including: engineering and scientific principles and methods; prior art; regulatory, social, business, and environmental considerations

Course Outline

4. Apply creative thinking to develop innovative solutions for engineering design problems

5. Apply a formal decision making method to assist in choosing between alternative conceptual designs

6. Apply informed judgment in deciding when and how to revisit an earlier stage of the design process (i.e. when and how to iterate; "fail fast, fail early, fail often")

7. Appreciate the need for effective project management practices

8. Recognize the importance of incorporating sustainability and equity/diversity/inclusiveness principles in engineering design

9. Work professionally and effectively as members of a team, including team charter definition, inter and extra-team communication and presentations.

Course Outline

Communication (ENGR 110 only): Students successfully completing ENGR 110 will be able to

1. Recognize, understand, and apply the standard conventions of academic writing to produce academic documents with appropriate content, effective organization, grammatically correct usage, and formal style

2. Apply the Writing Process to plan, draft, revise, edit and proofread their work

3. Apply a problem-solving approach to writing assignments and developing research questions

4. Comprehend challenging texts; identify main ideas and supporting details; and distinguish facts from opinions

Course Outline

5. Reflect on their progress as learners, identify strengths and weaknesses in their own and others' writing, and set learning goals for themselves

6. Analyze challenging texts in terms of rhetorical purpose, audience, genre, patterns of development, and stylistic features

7. Incorporate source material into their own writing according to standard academic conventions; quote, paraphrase, and summarize the words and ideas of others effectively and ethically to support their own ideas

8. Distinguish academic from non-academic sources; find, evaluate, and use academic research sources to support ideas in their research papers; and evaluate others' arguments for validity and reliability in an academic context

Course Outline

Assessment:

Communication (ENGR 110 only)

Term Assignments:	85%
Rhetorical Analysis Essay	
Research Essay	
Short assignments and quizzes	

$\times\, 60\%\ =$ Communication portion (ENGR 110)

Final Assessment:	15%
	Total 100%

Engineering Design (ENGR 110/112)

Quiz	15%
Design studio exercises	30%
Design project	50%
Peer assessments	5%
	Total 100%

$\times\, 40\%\ =$ Design portion (ENGR 110)

OR

$\times\, 100\% =$ Final grade (ENGR 112)

Course Calendar

Wk #		Lecture Topics	Project	Lab Topic
1	Sep 7			
2	Sep 14	Introduction to course & project, design process, client statement and stakeholders		Group Formation
3	Sep 21	Problem Definition: Understanding the problem and quantifying the design attributes		Problem Definition 1/2
4	Sep 28	Keynote speaker: Leigh Andersen, Director, Customer Service and Program Integration	Client Presentation	Library Lab (Aditi Gupta)
5	Oct 5	Functional Analysis: Identifying functions and performance specifications		Problem Definition 2/2
6	Oct 12	Conceptual Design: Developing concepts and exploring the design space.	Project Proposal & Problem Definition	
7	Oct 19	Concept evaluation & iteration: Design evaluation matrices and testing		Conceptual Design
8	Oct 26	Project management		Design Selection and Testing
9	Nov 2	Teamwork	Project Management	
10	Nov 9	Learning from design failures	Design Conceptualization	
11	Nov 16	Application area design experiences		
12	Nov 23	Engineering profession, sustainability & EDI in design	Project Presentations will take place during your lab session	
13	Nov 30	Quiz	Final Report	

This calendar may change during the term, students will be notified ahead of time.

Course Outline

Notes on Assessment:

i. All components of the Design portion of the course will be undertaken in teams (except quiz). <u>Teams will be the same for the design studio activities and the design project</u>.

ii. Students will complete a Peer-Review and Self-Assessment at the conclusion of the term to evaluate the performance of team members.

iii. Only the names written on the title page of the project report deliverables will be entered. Any missing names will be considered as if the student had not participated.

iv. All components of the Design course will be graded on the UVic 0-9 scale, with grades assigned per the wording in the <u>UVic calendar per grade level</u>.

Course Outline

v. In order to receive a final grade in the course, students must complete the following elements:

   a. Design (ENGR 110/112):
   - Attend all Design Studios (Labs) and complete & hand-in Design Activity deliverables
   - Complete & hand-in Design Project deliverables

   b. Communication (ENGR 110 only):
   - Complete all discussions and assignments to the satisfaction of the instructor
   - Pass the final assessment

vi. If you believe that an assignment you submitted has been unfairly evaluated, first discuss your concerns with the instructor. If you are not satisfied, you may apply for a formal grade review.

Course Outline

vii. To pass ENGR 110, students must pass both the communication and the design components of the course. Students who fail either component of the course must retake the entire course.

viii. Failure to pass the final assessment will result in a failing grade for the course. There is no supplemental exam for this course.

ix. The final grade obtained from the above marking scheme for the purpose of GPA calculation will be based on the percentage-to-grade point conversion table as listed in the current Undergraduate Calendar

Course Outline

Grading Scale:

90 – 100	A+
85 – 89	A
80 – 84	A-
77 – 79	B+
73 – 76	B
70 – 72	B-
65 – 69	C+
60 – 64	C
50 – 59	D
0 – 49	F

Late Assignment Policy:

ENGR 110 (Communications):

Meeting deadlines is important to keep your work on track and to enable your instructor to give you timely feedback on assignments and scaffold assignments effectively. If you anticipate that you cannot meet a deadline for a major assignment, let your instructor know. Since work in this course is done individually, we are open to arranging extensions if needed. To request an extension, please send an email indicating the assignment, the original deadline, a reason you need more time, and a proposal for a new deadline. If you submit an assignment after the posted deadline without having negotiated an extension, however, your work (a) may not receive a full set of comments and (b) your assignment grade may be lowered by 5% for every day it is late.

Course Outline

ENGR 110/112 (Design): The Design course is tightly structured to progress through the term, with most components done in teams creating inter and intra-team scheduling challenges. Due to this timeline, extension requests may only be granted in extremely extenuating circumstances; The standard penalty for late submissions is 20% deduction per day.

Course Outline

Attendance Policy:

Communications Lectures (ENGR 110 only): You are expected to attend all classes in which you are enrolled. If you are unable to attend a class, please inform your instructor ahead of time if at all possible. If not, be sure to follow up as soon as you are able, in order to determine what you need to do to get caught up. Plan ahead, if possible, to get a classmate's notes and lecture material. This is your responsibility; no one will chase after you.

Plenary Lecture Activities (ENGR 110/112): Students must attend the quiz. If you are unable to attend the quiz due to sickness, please contact the instructor ahead of time. Students are expected to attend the sessions led by a guest speaker (e.g., project description).

Course Outline

Design Laboratories (ENGR 110/112): Students must attend all Design Laboratory sessions during the time slot/section in which she/he is registered and participate in their teams. Attendance to the presentation is mandatory. If you are unable to attend a session due to sickness, contact your Teaching Assistant prior to the session. Fail to attend or contact your Teaching Assistant will result in a zero for that component.

Course Outline

University policies:

Students are responsible to know the university policies on course withdrawal, academic integrity, equality, and other regulations, which are documented on the Calendar of the University of Victoria (links provided in the last slide)

Academic Integrity:

I strongly discourage students from uploading course materials onto online sharing platforms, such as **Course Hero, OneClass or equivalent sharing platforms**. In general, the course materials that are uploaded were created by the instructor, who therefore owns their Intellectual Property.

Uploading course materials, including lecture notes, lecture videos, project descriptions, and quizzes, onto online sharing platforms is considered to be a copyright violation, regardless of whether an individual did so intentionally or unintentionally.

Course Outline

Course Experience Survey

Students will have the opportunity at the end of the semester to evaluate the course and provide feedback to instructors on your learning experience and on the course overall. The feedback is vitally important in helping us to continually improve the course. The instructors also value feedback throughout the term, in particular to enhance your online learning experience.

General Information and Policies

Students who have issues with the conduct of the course should discuss them with the instructor first. If these discussions do not resolve the issue, then students should feel free to contact the Chair of the Department by email or the Chair's Secretary to set up an appointment.

Course Outline

UVic Policy on Accommodation of Religious Observance

See entry in current Undergraduate Calendar:
https://www.uvic.ca/calendar/undergrad/index.php#/policy/r1q0gofdN?bc=true&bcCurrent=10%20-%20Accommodation%20of%20Religious%20Observance&bcGroup=Undergraduate%20Academic%20Regulations&bcItemType=policies

UVic Policy on Harassment and Discrimination

See entry in current Undergraduate Calendar:
https://www.uvic.ca/calendar/undergrad/index.php#/policy/HkQ0pzdAN?bc=true&bcCurrent=%20General%20University%20Policies&bcGroup=General%20University%20Policies&bcItemType=policies

UVic Policy on Academic Integrity

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University. Consult the entry in current Undergraduate Calendar for the UVic Policy on Academic Integrity:
https://www.uvic.ca/calendar/undergrad/index.php#/policy/Sk_0xsM_V?bc=true&bcCurrent=08%20-%20Policy%20on%20Academic%20Integrity&bcGroup=Undergraduate%20Academic%20Regulations&bcItemType=policies. Note that this calendar entry specifies that, "*single or multiple instances of inadequate attribution of sources should result in a failing grade for the work. A largely or fully plagiarized piece of work should result in a grade of F for the course.*"

Course Outline

Faculty of Engineering Standards for Professional Behaviour

You are advised to read the Faculty of Engineering document Standards for Professional Behaviour in current Undergraduate Calendar, which contains important information regarding conduct in courses, labs, and in the general use of facilities. (See: http://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf)

Faculty of Engineering Policy on Equality

This course aims to provide equal opportunities and access for all students to enjoy the benefits and privileges of the class and its curriculum and to meet the syllabus requirements. Reasonable and appropriate accommodation will be made available to students with documented disabilities (physical, mental, learning) in order to give them the opportunity to successfully meet the essential requirements of the course. The accommodation will not alter academic standards or learning outcomes, although the student may be allowed to demonstrate knowledge and skills in a different way. It is not necessary for you to reveal your disability and/or confidential medical information to the course instructor. If you believe that you may require accommodation, the course instructor can provide you with information about confidential resources on campus that can assist you in arranging for appropriate accommodation. Alternatively, you may want to contact the Centre for Accessible Learning located in the Campus Services Building.

The University of Victoria is committed to promoting, providing, and protecting a positive, and supportive and safe learning and working environment for all its members.

Centre for Accessible Learning
https://www.uvic.ca/services/cal/