
ENGR 120 Design and Communication II/ENGR 121 Design II

Term – Spring 2019 (201901)

Instructor

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Office Hours:

Please send me instructor email to arrange a time to meet or to ask questions.

Course Objectives (Design Portion of ENGR 120/ENGR 121)

- The purpose of this course is to provide instruction on how to work on an engineering design as part of a team. The design portion of this course will teach basic technical knowledge and teamwork skills. The design methodology first covered in the ENGR110 and ENGR112 courses will continue to be developed. The communications portion of this course will cover some basic technical communication skills.

Learning Outcomes

Engineering Design (ENGR 120 and ENGR 121)

Students exiting ENGR 120/121 will be able to:

- Follow a standard structured process to design a system comprised of computer, electrical, mechanical, and software subsystems;
- Apply discipline-specific technical knowledge in the design process and understand the relevance of that knowledge to the disciplines in professional practice;
- demonstrate teamwork skills in the successful accomplishment of an engineering design project;
- Identify business, social, environmental and regulatory considerations relevant to the execution of an engineering design project;
- Apply selected tools for effective management of time and resources in the context of an engineering design project.

Technical Communication (ENGR 120 only)

- Apply a problem-solving approach to a communication task, identifying the purpose, audience, and content, and developing an effective production plan;
- Apply research skills that include developing a research plan, gathering information from primary and secondary sources, incorporating research into a document according to established conventions, and documenting your sources according to a required style (IEEE style);
- Effectively plan, draft, revise, and edit the types of documents commonly required of technical professionals, including routine correspondence, proposals, reports, presentations, and other forms of informational writing;
- Edit your own and others' writing so that it is clear, concise, readable, and complete, and conforms to the conventions of standard written English;
- Work effectively as part of a team, applying an understanding of team dynamics, effective communication in groups, conflict management, and shared leadership;
- Design documents for readability, using headings and visuals effectively, and choosing a form and design appropriate to the purpose and audience;
- Prepare and deliver a professional presentation using appropriate visual aids.

Syllabus

ENGR 120 is a 2.5 unit course, in which instruction and activities in technical writing and engineering design are presented in an integrated manner. You will be introduced to fundamental principles and practical aspects of biomedical, civil, computer, electrical, mechanical, and software engineering and will apply this knowledge in developing and implementing your own designs. In parallel, a practical introduction will be provided to the essential skills needed to write and present information as a technical professional. The course is an opportunity to develop your skills as a writer, practice the techniques and strategies used by technical writers, and work with other students to prepare a complete formal report following the model of the Faculty of Engineering co-op work term report. Major written assignments will be based primarily on the design work that you do in this course.

For ENGR 120, the communication grade will count for 60% of the course grade and engineering design 40%. The contact hours for this course are allocated as follows:

Activity	Hrs/Wk	Section Size
Communication lectures	3	30
Plenary lecture	1	All students
Engineering design laboratory	2	≤32

ENGR 121 is a 1.0 unit course, in which instruction and activities in engineering design are presented. You will be introduced to fundamental principles and practical aspects of biomedical, civil, computer, electrical, mechanical, and software engineering and will apply this knowledge in developing and implementing your own designs.

Communication Lectures (ENGR 120 only)

Communications classes combine lecture, discussion, and team meetings in the computer labs to enable you to learn and practice the technical writing skills covered in the course.

Plenary Lectures (ENGR 120 and ENGR 121)

Plenary lectures provide technical information you will need to undertake Design Laboratory work, as well as discussion of topics on other aspects of the engineering profession. Attendance is mandatory since materials in the plenary lectures will form the basis for lab experiments and assignments.

Engineering Design Laboratory (ENGR 120 and ENGR 121)

You will work in teams of 3-4 to complete a number of design exercises and one major design project. Parts of the design exercises and the entire design project will be completed using the VEX robotic kits (<http://www.vexrobotics.com/vex>).

Assignments

Detailed descriptions of assignments will be posted on a CourseSpaces sites and discussed in Communication Seminars, Plenary Lectures, and Design Laboratories. All assignments must be completed to the satisfaction of your instructors in order to pass the course.

Course Web Site:

CourseSpaces page for design laboratory and project: <http://coursespaces.uvic.ca/my>

There will be a separate website for each communications section.

Software

Can be downloaded for free from VEX robotics website

(<http://www.robotc.net/download/vexrobotics/>). You may need to create an account on the VEX website (<https://www.vexrobotics.com/customer/account/login/>).

Cost:

Deposit for VEX kits:\$80/student (\$30 fee +\$50 refundable)

Design Laboratory Information:

The design laboratory will be start during the week of January 8th. During the lab of that week, students will be assigned to a group. You will be working with this group for the full term. Please bring your VEX deposit to your first laboratory session.

ENGR 120 Design Lectures :

A-Section(s): A01-A06 / CRN 21306-21311
Day: Tuesday
Time: 14:30-15:20
Location: DTB A120

A-Section(s): A07-A12/ CRN 21312-21317
Day: Tuesday
Time: 15:30-16:20
Location: DTB A120

ENGR 121 Design Lectures :

A-Section: A01 / CRN 21332
Day: Tuesday
Time: 14:30-15:20
Location: DTB A120
A-Section: A02 / CRN 21333
Day: Tuesday
Time: 15:30-16:20
Location: DTB A120

ENGR 120/121 Design Labs : ELW B336

B01	Monday	14:30-16:20
B02	Monday	16:30-18:20
B03	Tuesday	8:30-10:20
B04	Tuesday	11:30-13:20
B05	Tuesday	16:30-18:20
B06	Wednesday	12:30-14:20
B07	Wednesday	14:30-16:20
B08	Wednesday	16:30-18:20
B09	Thursday	14:30-16:20
B10	Thursday	16:30-18:20
B11	Friday	10:30-12:20
B12	Friday	12:30-14:20
B13	Friday	14:30-16:20
B14	Tuesday	18:30-20:20

Lab Safety Regulations:

Students are expected to comply with all lab safety instructions and rules. This includes following all instructions of Lab Instructors and Technicians. Food and drink are not permitted in the lab. **Non-compliance with these rules will result in grading penalties. The first infraction of lab safety rules will result in a warning. The second infraction will result in expulsion from that lab session with a zero grade being assigned to any lab activity due in that session in addition to a 5% penalty on the course grade. A third infraction of lab safety rules will result in the student being assigned a failing grade for the design portion of the course.**

ENGR 120 Assessment:

Grade Distribution

Engineering Design grade	40%
Technical Communication grade	<u>60%</u>
Total	100%

You must pass both the communication and the design parts of the course. If you fail either part, you must retake the entire course. You must attend all Design Laboratory sessions and complete all Technical Writing Assignments to the satisfaction of the instructor in order to pass the course.

Communication Assignments

Information regarding communications assignments will be provided by your communication instructor and on the CourseSpaces site for your communication section.

Engineering Design Grade Breakdown

Design Assignments/Labs*	40%	*All labs and assignments will be weighted equally.
Plenary Lecture Quizzes	5%	
Plenary Lecture Attendance	5%	
<u>Design Final Project:</u>	<u>50%</u>	
Total	100%	

Note: Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.

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.

<https://web.uvic.ca/calendar2019-01/undergrad/info/regulations/grading.html>

There will be no supplemental examination for this course.

ENGR 121 Assessment:

Engineering Design Grade Breakdown

Design Assignments/Labs*	40%	* All labs and assignments will be weighted equally.
Plenary Lecture Quizzes	5%	
Plenary Lecture Attendance	5%	
<u>Design Final Project:</u>	<u>50%</u>	
Total	100%	

Note: Failure to complete all laboratory requirements will result in a grade of N being awarded for the course.

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.

<https://web.uvic.ca/calendar2019-01/undergrad/info/regulations/grading.html>

There will be no supplemental examination for this course.

Note to students of both ENGR 120 and ENGR 121:

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 Assistant to set up an appointment.

Accommodation of Religious Observance:

<https://web.uvic.ca/calendar2019-01/undergrad/info/regulations/religious-observanc.html>

Policy on Inclusivity and Diversity:

<https://web.uvic.ca/calendar2019-01/general/policies.html>

Standards of Professional Behaviour: You are advised to read the Faculty of Engineering document Standards for Professional Behaviour, which contains important information regarding conduct in courses, labs, and in the general use of facilities.

<https://www.uvic.ca/engineering/assets/docs/professional-behaviour.pdf>

Cheating, plagiarism and other forms of academic fraud are taken very seriously by both the University and the Department. You should consult the entry in the current Undergraduate Calendar for the UVic policy on academic integrity.

<https://web.uvic.ca/calendar2019-01/undergrad/info/regulations/academic-integrity.html>

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 Resource Centre for Students with a Disability 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.

Course Lecture Notes: Unless otherwise noted, all course materials supplied to students in this course have been prepared by the instructor and are intended for use in this course only. These materials are NOT to be re-circulated digitally, whether by email or by uploading or copying to websites, or to others not enrolled in this course. Violation of this policy may in some cases constitute a breach of academic integrity as defined in the UVic Calendar.

Sexualized Violence Prevention and Response at UVic:

UVic takes sexualized violence seriously, and has raised the bar for what is considered acceptable behaviour. We encourage students to learn more about how the university defines sexualized violence and its overall approach by visiting www.uvic.ca/svp. If you or someone you know has been impacted by sexualized violence and needs information, advice, and/or support please contact the sexualized violence resource office in Equity and Human Rights (EQHR). Whether or not you have been directly impacted, if you want to take part in the important prevention work taking place on campus, you can also reach out:

Where: Sexualized violence resource office in EQHR, Sedgewick C119
Phone: 250.721.8021
Email: svpcoordinator@uvic.ca
Web: www.uvic.ca/svp