
ENGR 120 Design and Communication II/ENGR 121 Design II

Term – Spring 2018 (201801)

Instructor

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Office Hours

Days:
Time:
Location:

Course Objectives

- 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 quizzes and questions.

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.

Costs (prices are approximate)

Software	Can be downloaded for free from VEX robotics website. (http://www.vexrobotics.com/vexedr/software) You will need to create an account on the VEX website. (https://www.vexrobotics.com/customer/account/login/)
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.

ENGR120 (Design Lectures)

A-Section(s): A01-A06 / CRN 21279-21284
Days: Tuesday
Time: 14:30-15:20
Location: DTB A120

A-Section(s): A07-A12 / CRN 21285-21290
Days: Tuesday
Time: 14:30-15:20
Location: DTB A120

ENGR 121 (Design Lectures)

A-Section(s): A01 / CRN 21305
Days: Tuesday
Time: 14:30-15:20
Location: DTB A120

A-Section(s): A07-A12 / CRN 21285-21290
Days: Tuesday
Time: 15:30-16:20
Location: DTB A120

Labs held in ELW B336

B-Section(s):	Days:	Times:	CRN(120)	CRN(ENGR121)	TA:
B01	M	14:30-16:20	21291	21307	Philip Baback Alipour
B02	M	16:30-18:20	21292	21308	Babak Manouchehrinia
B03	T	8:30-10:20	21293	21309	Atousa Tangestanipour
B04	T	11:30-13:20	21294	21310	Hamed Assadi
B05	T	16:30-18:20	21295	21311	Sara Salem Hesari
B06	W	12:30-14:20	21296	21312	Sara Salem Hesari
B07	W	14:30-16:20	21297	21313	Atousa Tangestanipour
B08	W	16:30-18:20	21298	21314	Onyekachi Nwamuo
B09	R	14:30-16:20	21299	21315	Ghazele Behboud
B10	R	16:30-18:20	21300	21316	Birjesh Jethva
B11	F	10:30-12:20	21301	21317	Jaimin Modi
B12	F	12:30-14:20	21302	21318	Narges Attarmoghaddam
B13	F	14:30-16:20	21303	21319	Babak Manouchehrinia
B14	T	18:30-20:20	21304	21320	Sanaua Haque

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%
Lab Quizzes	10%
<u>Design Final Project:</u>	<u>50%</u>
Total	100%

* All labs and assignments will be weighted equally.

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/calendar2018-01/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%
Lab Quizzes	10%
<u>Design Final Project:</u>	<u>50%</u>
Total	100%

* All labs and assignments will be weighted equally.

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.

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There will be no supplemental examination for this course.

Notes for ENGR 120 and 121:

Note to students: 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/calendar2018-01/undergrad/info/regulations/religious-observanc.html>

Policy on Inclusivity and Diversity:

<https://web.uvic.ca/calendar2018-01/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/calendar2018-01/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.