SAMPLE COURSE OUTLINE

Creation date: November 30, 2020
Revision date:

Course Code, Number, and Title:

CPSC 1491: Control Systems and Sustainable Engineering Design

Course Format:
[Course format may vary by instructor. The typical course format would be:]

Lecture 2.0 h + Seminar 0.0 h + Lab. 2.0 h

Credits: 3.0 **Transfer Credit:** For information, visit bctransferguide.ca

Course Description, Prerequisites, Corequisites:

The design of engineering systems strives to integrate mechanical, electronic, and computer technologies in order to create optimal products. Students expand on their understanding of engineering design and explore the design of systems comprising of electrical, mechanical, and software sub-systems. They apply scientific principles and technical knowledge in student-led and student-driven team collaborative projects with specific practical goals. Projects require teams to document and present their project design solutions and to illustrate key aspects of their solution using projected slides, engineering graphics, and live demonstrations. Students also learn the concept of sustainability and its impact on engineering design as well as engineering ethical practices.

Students will receive credit for only one of CPSC 1490 or 1491.

Prerequisite(s): A minimum "C" grade in CPSC 1150 or 1155. CPSC 1091 is recommended.

Learning Outcomes:

Upon successful completion of this course, students will be able to…

- Apply the engineering design process to open-ended engineering design problems
- Apply mechanical and electrical concepts, modelling tools, and software principles to the understanding and analysis of engineering problems, and to the design of potential solutions
- Participate equitably as a member of a team, demonstrating initiative, professionalism, and effective intra-team communication
- Prepare and deliver effective technical poster presentations, oral presentations, and technical reports
- Apply the principles of sustainability to engineering design and decision making

- Define the phrases “cradle-to-grave” and “cradle-to-gate” and apply the concept of a product life cycle as well as the process of impact assessment in terms of inputs and outputs of both energy and matter
- Apply engineering tools, including CAD tools and microcontroller programs, to create and control physical embodiments of an engineering design
- Demonstrate ethical behaviour and describe the importance of engineering codes of ethics, both at the student and professional level

Instructor(s): TBA
Office: TBA **Phone: (604) 323-XXXX** **Email: TBA**

Office Hours: TBA
Textbook and Course Materials:
[Textbook selection may vary by instructor. An example of texts and course materials for this course might be:]

For textbook information, visit https://mycampusstore.langara.bc.ca/buy_courselisting.asp?selTerm=3|8

Note: *This course may use an electronic (online) instructional resource that is located outside of Canada for mandatory graded class work. You may be required to enter personal information, such as your name and email address, to log in to this resource. This means that your personal information could be stored on servers located outside of Canada and may be accessed by U.S. authorities, subject to federal laws. Where possible, you may log in with an email pseudonym as long as you provide the pseudonym to me so I can identify you when reviewing your class work.*

Assessments and Weighting:
Final Exam 35%
Other Assessments 65%
(An example of other assessments might be:)

Project 25%
Midterm Exam 15%
Assignments 10%
Lab Work 10%
Participation 5%

Grading System:
Specific grading schemes will be detailed in each course section outline.

Information unavailable, please consult Department for details.

Topics Covered:
[Topics covered may vary by instructor. An example of topics covered might be:]

- Engineering Design Process

- Project Management: work-breakdown structure (WBS) & Gantt Chart and Critical Path
- Human Design Factors
- Risk Management
- Engineering Fundamentals: Applied Electronics, Sensors and Actuators and Microcontrollers
- Designing for the Environment
- Pillars of Sustainability
- Life Cycle Assessment
- Impact of human activity on health, safety, and environmental systems
- Engineering Ethics
- Describe the Engineering Code of Ethics
- Apply Ethical Conflict Resolution

As a student at Langara, you are responsible for familiarizing yourself and complying with the following policies:

College Policies:

E1003 - Student Code of Conduct
F1004 - Code of Academic Conduct
E2008 - Academic Standing - Academic Probation and Academic Suspension
E2006 - Appeal of Final Grade
F1002 - Concerns about Instruction
E2011 - Withdrawal from Courses

Departmental/Course Policies:

Information unavailable, please consult Department for details.