



Loyola

HIGH SCHOOL

Secondary 4 Introduction to Engineering Course Outline

Teacher: Mr. C. Hannan

Voice mail: (514) 486-1101 ext. 650

E-mail: hannanc@loyola.ca

Required Materials:

Non-programmable calculator
40-page Canada graph paper notebook
Geometry set
12" / 30 cm ruler with both imperial/metric units
iPad (stylus if desired)

Course Information

The general objective of the secondary four introduction to engineering course is to reinforce and enrich the knowledge and skills students gained in the first year. While continuing to emphasize the engineering design process, students will be exposed to the fields of electrical, software, drafting and robotic engineering. Students engage in the design and construction of prototypes and learn to appropriately build connections between moving and non-moving parts. Projects include building structures, vehicles and digital designs. The course is STEM (science, technology, engineering & mathematics) and project-based, with emphasis on critical thinking, problem solving, creativity, communication and collaboration. There is a strong hands-on laboratory and advanced software focus in the course. As there is no textbook, students will be encouraged, in groups and independently, to explore and research topics using available literature and the course website resources.

Evaluation

The course makes use of Project-Based Learning (PBL) for the acquisition of knowledge and the development of skills. The course is composed of 4 long-term projects:

Term	Project and Timing	Year Value
1 – 20%	Project 1 – Sept & Oct	20%
2 – 20%	Project 2 – Nov to Jan	20%
3 – 60%	Project 3 – Jan to Mar	30%
	Project 4 – Mar to June	30%

In PBL, both the process and the product of the project are evaluated.

For each project:

Project Log (group mark)	20%
Content Quizzes (individual mark)	20%
Design Portfolio (individual mark)	30%
Final Project Artefact (group mark)	20%
Self-Peer-Teacher-Reflection (individual mark)	10%

Extra Help / Office Hours

Extra time to complete projects is available on an as-need basis. The teacher is also available on Day 8 at lunch. Students may contact the teacher directly by email to determine a mutually convenient time for extra help or extra time.

Technology

As the course content is delivered via Moodle, a sufficiently charged iPad is required for all classes. Students must check the website and their school email daily.

The iPad is a learning tool that significantly enhances the classroom experience when used appropriately. Students are required to follow the Acceptable Use Policy.

Homework & Active Learning

There is no assigned homework within the framework of the class, with two exceptions:

1. If a student is absent, they are required to make up lost time by the next class.
2. If a student or team falls significantly behind, they may be asked to make up the time under certain circumstances.

This policy has one objective: to promote active learning. Students are expected to work diligently and collaboratively at all times in class. As we meet as a learning community only 2 to 3 hours per week on average, there is no time to delay the learning.

Late Policy

Late work has significant repercussions on the ability of a team to advance together and achieve success. Late submissions are accepted at the beginning of the class after they are due at a penalty of 20%. Projects submitted after that time shall receive a mark of zero.