

## Course Outline

FACULTY:	<b>Faculty of Science and Technology</b>
PROGRAM(S):	<b>243.A0 Computer Engineering Technology</b>
DEPARTMENT:	<b>247 Computer Engineering Technology</b>
COURSE TITLE:	<b>PRODUCT DEVELOPMENT I</b>
COURSE NUMBER:	<b>247-506-VA</b>
COURSE SECTION(S):	00001
PONDERATION:	2h – 2h – 2h Lecture – Lab work - Homework
NUMBER OF CREDITS:	2 credits      2 credits
PREREQUISITE(S):	247-406-VA
SEMESTER/YEAR:	Semester 5, Fall 2021
TEACHER (THEORY):	Manijeh Khataie Office: K-309 Tel: 514-744-7500 Ex. XXXX E-mail: <a href="mailto:khataiem@vaniercollege.qc.ca">khataiem@vaniercollege.qc.ca</a> / Mio
AVAILABILITY:	Office Hours: Wednesday 11:00am to 12:30pm or by prior appointment.
TEACHER (LAB):	Manijeh Khataie Office: K-309 Tel: 514-744-7500 Ex. XXXX E-mail: <a href="mailto:khataiem@vaniercollege.qc.ca">khataiem@vaniercollege.qc.ca</a> / Mio
AVAILABILITY:	Office Hours: Wednesday 11:30am to 12:30pm or by prior appointment.
<b>Introduction</b>  <p>In this course, students will go through all steps of project planning required to develop a product. They will choose technological features and components according to a client's request. They will interpret product specifications, diagrams, assembly plans and drawings. They will search, analyze and present possible solutions to a fictitious client. Students will estimate the feasibility of possible solutions. They will also order all parts and components to realize their project and then do preliminary test on breadboard. They will do preliminary software function tests.</p> <p>They will specify safety and protective measures necessary when developing a product. Students will describe all steps involved and determine an effective working strategy when developing a new product.</p> <p>They will write proper documentation on the developed product.</p>	

<b>Statement of Competency</b>
<b>Competency 037M:</b> To plan a computerized system project. <b>Competency 037M:</b> To write computerized system procedures.
<b>Student Personal Resources Required</b> <ul style="list-style-type: none"><li>• Essential materials will be provided by the College.</li><li>• Project materials are purchased by the student for projects to a maximum value of \$150. Students will be required to provide proof of all purchases.</li></ul>
<b>Bibliography</b> (required according to MEES) <ul style="list-style-type: none"><li>• Class notes</li><li>• To be provided through the online resource.</li></ul>

<b>Course Content and Tentative Dates (see *Note1)</b>			
<b>Week</b>	<b>Week of</b>	<b>Theory</b>	<b>Lab</b>
1	Aug. 23	Demonstration of the expected final product (prototype and function)	Feasibility study, Business Requirements Document and Functional Requirements Document, Project planning
2	Aug. 30	Introduction to Product Development	preliminary design, Component's selection and ordering components
3	Sept. 6	Labor Day	Prototype Assembly
4	Sept. 13	The Project/product Management Life Cycle Prototyping	Prototype Testing and Troubleshooting
5	Sept. 20	Creating or Managing Market Uptake	Prototype Mockup and Final Fitting
6	Sept. 27	Understanding Customer and User Needs	Car's base CAD design and sending for fabrication.
7	Oct. 4	Product Design (1)	Product 3D CAD Design
	Oct. 11	Study break	
8	Oct. 25	Product Design (2)	Schematic Design & Component Sourcing
9	Nov. 1	Prototyping	Component Library Design PCB Design (1)
10	Nov. 8	Program Management for Product Design	PCB Design (2) & Manufacturing
11	Nov. 15	Design for Manufacturing	User Manual, Report and Presentation
12	Nov. 22	Product Testing & Reliability	Assembly & Testing (1)
13	Nov. 29	Packaging	Assembly & Testing (2)
14	Dec. 6	Product Launch	Presentation of Complete Product
15	Dec. 13	<i>Presentation/ Competition</i>	

*\*Note1: Dates and content may vary*

Course Structure		
THEORY:	2 hours/week:	Students must be present, taking their own notes and actively participating in classroom activities.
LABORATORY:	2 hours/week:	Students must be present and actively participating in the laboratory activity. They must demonstrate clearly that all tasks have been independently completed.
HOMEWORK:	2 hours/week:	Students are expected to devote 2h outside of class time in completing their projects and assignments.
ATTENDANCE		
THEORY:	Consistent attendance is required to fully benefit from the course. In the event of absence, students are responsible for obtaining and assimilating all material covered.	
LABORATORY:	Failure to complete all lab activities assigned in the designated lab class without just cause may result in a failure of the lab session and any results and/or Lab Report derived from the session. To successfully be evaluated on the course competencies, lab attendance is required.	
TESTS:	Absence will result in failure of the missed test (mark of 0). Students with a just cause for absence are encouraged to seek alternative arrangements with the instructor – beforehand if possible.	
EVALUATION		
	Project 100%	10% Logbook 15% Project Planning (BRD, FRD and Plan) 20% Prototype 10% Enclosure Design & Fitting / 3D design 10% Printed Circuit Board Design 10% Documents/ instruction manual 20% Final product
	Total: 100%	

**The following general rules apply:**

- **If log books do not have at least one 500-word entry per laboratory session or if a prototype does not have 100% functionality or the final submitted device does not have at least 80% function or complete documentation is not submitted complete and in the manner requested, then student will not pass the course (a maximum final grade of 55%).**
- At least one week's notice will be given for test dates or changes in test dates.
- Tests questions will not be re-graded after 24 hours of returning and any altered material will not be re-- graded
- Quizzes may be given without prior notice – there are no make-ups for quizzes.
- Students are expected to attend all their schedule classes.
  - Absence from any lab class where specific skills are being assessed will result in a failure of that skill.
- **Students are expected to conduct themselves in a professional manner at all times.** This includes but is not limited to:
  - Arriving to class (theory and laboratory) on time and prepared to do the required work;
  - Conducting themselves in an appropriate manner at all times (including being respectful to the teacher, classmates, and any guests);
  - Using professional language (no cursing and/or swearing and using appropriate vocabulary);
  - Arriving to class/lab with all necessary supplies (logbook, notebook, textbook, manual, paper, writing implements, calculator, etc.);
  - Turning off all personal communication/music/video electronics (removing headphones, earphones, ear buds etc.); and
  - Having all assigned work completed.

Remember that developing professional behaviours and habits now is an important aspect of preparation for entering a professional work environment in the future.

- Students are expected to take their own notes during classes.
- Calculators with memory for equations (for example graphing calculators) will not be allowed when writing tests.
- Reports must be typed and computer generated according to the guidelines provided by the teacher.
- When requested, Lab preparations and Lab Results/logbooks are to be handed in during the lab session. Late Lab Preparations/Lab Results may not be accepted, and a zero mark will be recorded.
- Reports are due two weeks after they are assigned unless the instructor provides a specific due date.
- Any assigned work submitted beyond 1 week late may not be accepted, and a zero mark may be recorded. Assigned work up to and including one week late may be reduced by up to 25% of the maximum mark.
- In-class assignments will only be accepted in the class in which they are assigned.
- Students who are consistently late for class (lab and/or theory) may be refused entry.
- All grades are reported on a numeric scale from 0% to 100%. The following categories briefly describe the relative value of these grades.

range	mean	Description
90 - 100	<b>95</b>	Excellent, mastery of the objectives
80 - 89	<b>85</b>	Very Good mastery of the objectives
65 - 79	72	Good, mastery of objectives
60 – 64	62	Fair mastery of objectives
0 - 59	n/a	Poor mastery of objectives

## Academic and other Resources

If at any point in the semester, you are concerned about the course or you realize that you are having academic difficulties; your first resource should be to talk to me, your teacher. Academic difficulties include problems with the understanding of the theory, to the development of the practical skills required by the course. The earlier you look for help, the greater your chances of succeeding in the course. If I don't feel I can provide you with the help you need then I may recommend one of the College resources below.

For other problems or difficulties, you may encounter while at Vanier there are a number of Services available to help you within the college. They are there for you to use. These include:

**Student Services (C203):** Some areas where they provide services and/or information are:

Services for students with disabilities (problems) Student Advocate (scholarships)	Counselling (personal and other Financial Aid (including aid and
Health Services (Nurse on staff)	Student Employment
Academic and Behaviour Policies	Lockers
Housing	Volunteering

Student Services is a great resource for questions about college life and any problems you encounter while at Vanier. If they do not have the answer, they can direct you to the right place to find it.

**Tutoring and Academic Success Center - TASC (F-300):** Student-orientated centre dedicated to promoting and aiding students' development and success in academics and in society.

Admissions and placement tests	S.T.A.R. Program
English Exit Exam	English conversation and pronunciation clubs
English Peer Tutoring	Scholarship information
Vanier Native Program	Diversity support

TASC is the main college resource for students with learning difficulties and for students with weak English language skills.

**Science, Technology, Engineering and Mathematics - STEM (D-301):** This Centre aims to promote student success in mathematics and science. The large interactive study space includes a hackerspace for hands-on applied projects such as robotics, and a study hub for collaborative group work. Teacher help, computers, and a large collection of math and science textbooks are equally available. We offer a number of activities, services and resources including:

Free drop-in peer tutoring	Drop-in help from teachers
Free private tutoring	Teacher-led review sessions
Computer access	Laptop borrowing

### **Mediation and Grades Review**

There are two committees available to the student for resolution of academic complaints.

1. The [Grades Review Committee](#) to review complaints concerning the grading of students' work.
2. The *Faculty Mediation Committee* to review academic complaints other than those dealing with student grades – see *Student Academic Complaints* below.

### **General College Academic Policies**

It is the student's responsibility to be familiar with and adhere to all Vanier College Policies. A summary of the course-level policies that apply in this and all other Vanier courses can be found under “Course-Level Policies” in **Important Vanier Links** on **Omnivox**, or by following this link: <http://www.vaniercollege.qc.ca/psi/course-level-policies/>. Complete policies can be found on the Vanier College website, under [Policies](#).