ESE-4009 Embedded System Design Project

Computer Studies

Course Number:	Co-Requisites:	Pre-Requisites:
ESE-4009	N/A	ESE-3005 and ESE-3014 and ESE-3025
Prepared by:	Jay Nadeau, Outline Creator	
Approved by:	Chris Slade, Dean School of Business	
Approval Date:	Tuesday, May 26, 2020	
Approved for Academic Year:	2020-2021	
Normative Hours:	135.00	

Course Description

Students develop and apply sound engineering design principles and methodology to the solution of an open-ended design project. Students will experience all phases of the design process, including: problem definition, generation and evaluation of concepts, engineering analysis and testing, as well as the creation of design documentation and test plans. Project management and communications skills are emphasized to prepare students for employment in industry. Suitable design projects may be defined by students, faculty, or industry sponsors. Students should also have good oral and written communication skills, and should be able to function effectively in a design team. The student or student teams are expected to meet with the project supervisor during mutually agreed upon times and are required to attend each in-class session during the week.

Course Learning Outcomes

1. Correctly recognize and synthesize an embedded software engineering design problem.
2. Perform the necessary research to determine the current state of the art and emerging technology.
3. Combine the knowledge obtained from previous courses to develop viable solutions to solve an engineering design problem.
4. Based on a set of multiple solutions, correctly evaluate and compare the alternatives and select the appropriate solution to fit the problem based on the problem constraints.
5. Use appropriate tools and engineering knowledge to analyze the engineering design problem and solution.
6. Validate engineering designs through mathematical modeling, simulation and prototype testing.
7. Perform budget and resource analysis to correctly provide cost and time estimates and develop a reasonable schedule.
8. Identify relevant engineering standards, codes and practices and apply them where appropriate.
9. Consider the environmental, legal and ethical ramifications of the design decisions made.

10. Document the project using professional quality drawing, bills of materials, schematics and diagrams as necessary.

11. Employ appropriate industry standard tools to support all phases of the design, implementation and testing process.

Relationship to Essential Employability Skills

This course contributes to your program by helping you achieve the following Essential Employability Skills:

EES 1.1	Communicate clearly, concisely and correctly in the written, spoken and visual form that fulfills the purpose and meets the needs of the audience. (T, A,)
EES 3.4	Apply a systematic approach to solve problems. (T, A,)
EES 3.5	Use a variety of thinking skills to anticipate and solve problems. (T, A,)
EES 4.6	Locate, select, organize and document information using appropriate technology and information systems. (T, A,)

Learning Resources

English Department Lambton College (2017) APA Document Guide: Setting Up Research Papers (12ed) Sarnia, ON: Lambton College.

https://www.mylambton.ca/Library/Home/

Student Evaluation

Section1: WEEKLY DELIVERABLES (70%)
(Weeks 1 - 14, each week 5% for weekly deliverables and daily logs) Total 70%

Section2: FINAL PROJECT (30%)
Week 15 - Evaluation
Final Presentation File 5%
Final Project Presentation, Q&A Session with expert's panel 25%

Grade Scheme

The round off mathematical principle will be used. Percentages are converted to letter grades and grade points as follows:

Mark (%)	Grade	Grade Point	Mark (%)	Grade	Grade Point
94-100	A+	4.0	67-69	C+	2.3
87-93	A	3.7	63-66	C	2.0
80-86	A-	3.5	60-62	C-	1.7
77-79	B+	3.2	50-59	D	1.0
73-76	B	3.0	0-49	F	0.0
70-72	B-	2.7			

Prior Learning Assessment and Recognition

Students who wish to apply for prior learning assessment and recognition (PLAR) need to demonstrate competency at a post-secondary level in all of the course learning requirements outlined above. Evidence of learning achievement for PLAR candidates includes:

- Not Applicable: This course is not eligible for Prior Learning Assessment.

Course Related Information

The course is designed deliver an emphasis on hands on experience. Students will work in teams and have access to guidance from professors and/or industry mentors.

College Related Information

Academic Integrity

Lambton College is committed to high ethical standards in all academic activities within the College, including research, reporting and learning assessment (e.g. tests, lab reports, essays).
The cornerstone of academic integrity and professional reputation is principled conduct. All scholastic and academic activity must be free of all forms of academic dishonesty, including copying, plagiarism and cheating.

Lambton College will not tolerate any academic dishonesty, a position reflected in Lambton College policies. Students should be familiar with the Students Rights and Responsibilities Policy, located at lambtoncollege.ca. The policy states details concerning academic dishonesty and the penalties for dishonesty and unethical conduct.

Questions regarding this policy, or requests for additional clarification, should be directed to the Lambton College Student Success Department.

Students with Disabilities

If you are a student with a disability please identify your needs to the professor and/or the Accessibility Centre so that support services can be arranged for you. You can do this by making an appointment at the Accessibility Centre or by arranging a personal interview with the professor to discuss your needs.

Student Rights and Responsibility Policy

Acceptable behaviour in class is established by the instructor and is expected of all students. Any form of misbehaviour, harassment or violence will not be tolerated. Action will be taken as outlined in Lambton College policy.

Date of Withdrawal without Academic Penalty

Please consult the Academic Regulations and Registrar's published dates.

Waiver of Responsibility

Every attempt has been made to ensure the accuracy of this information as of the date of publication. The content may be modified, without notice, as deemed appropriate by the College.

Students should note policies may differ depending on the location of course offering. Please refer to campus location specific policies:

LAMBTON COLLEGE POLICIES – applicable to all Lambton College students.

- Student Rights & Responsibilities & Discipline policy (2000-5-1)
- Test & Exam Writing Protocol (2000-1-6)

- Evaluation of Students (2000-1-3)
- (https://www.lambtoncollege.ca/custom/Pages/Policies/Policies.aspx)

CESTAR COLLEGE:

- https://www.lambtoncollege.ca/Programs/International/Lambton_in_Toronto/Student_Policies/

QUEENS COLLEGE:

- https://www.lambtoncollege.ca/Programs/International/Lambton_in_Mississauga/Student_Policies/

Note: It is the student's responsibility to retain course outlines for possible future use to support applications for transfer of credit to other educational institutions.