CAMOSUN COLLEGE
School of Trades & Technology
Electronic & Computer Engineering Technology

ECET 293
Industrial System Design
2024 Fall

COURSE OUTLINE

The calendar description is available @   http://camosun.ca/learn/calendar/current/web/ecet.html

Ω *Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

1. Instructor Information

(a) Instructor	Justin Curran	
(b) Office hours		
(c) Location	Tech 216A	
(d) Phone	250-370-4432	**Alternative:**
(e) E-mail	jcurran@camosun.bc.ca	
(f) Website		

2. Intended Learning Outcomes

Students will be introduced to industrial system design methods and techniques in this course. Students will learn how to analyze a requirement specification and break it down into a modular design following both the Canadian Electrical Code and equipment manufacturing standards.

3. Required Materials

(a) Texts

N/A

(b) Other

4. Course Content and Schedule

(Can include: Class hours, Lab hours, Out of Class Requirements and/or Dates for quizzes, exams, lecture, labs, seminars, practicums, etc.)

OFFERED:	Semester 3 Fall
CREDIT:	3
IN-CLASS WORKLOAD:	4 Hrs lecture, 2.5 Hrs lab per week
OUT-OF-CLASS WORKLOAD:	6 hours /week

PREREQUISITES: ECET 141

5. Basis of Student Assessment (Weighting)
(Should be directly linked to learning outcomes.)

a)	Labs (14)	20%
b)	Assignments and Quizzes	20%
c)	Midterm Exam	20%
d)	Final Exam	40%

Course Content

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1. Successful Products   4 hours
1.1. Characteristics
1.2. Who designs and develops?
    1.2.1.   Duration and Cost of Product Development
    1.2.2.   Challenges of Product development

2. Opportunity Identification
2.1. What is an Opportunity?
2.2. Opportunity Identification
2.3. Screen Opportunities
2.4. Select Excellent Opportunities
2.5. Reflect on the Results and the Process

3. Product Development   8 hours
3.1. The Process
3.2. Concept Development
3.3. Adapting Generic Processes
3.4. Product Process Flows

4. Product Planning   8 hours
4.1. The Product Planning Process
    4.1.1.   Types of Product development
4.2. Evaluate and Prioritize
4.3. Allocate Resources and Plan Timing
4.4. Complete Pre-Project Planning
4.5. Reflect on the Results and the Process

5. Identifying Needs   **4 hours**
    5.1. The Importance of Latent Needs
    5.2. Organize the Needs into a Hierarchy
    5.3. Establish the Relative Importance
    5.4. Considerations for Wire Sizing

6. Product Specifications   **4 hours**
    6.1. What are Specifications
    6.2. When are Specifications Established?
    6.3. Establishing Target Specifications
    6.4. Setting the Final Specifications

7. Concept Generation   **4 hours**
    7.1. The Activity of Concept Generation
    7.2. Clarify the Problem
    7.3. Search Externally
    7.4. Search Internally
    7.5. Explore Systematically

8. Concept Selection   **4 hours**
    8.1. Concept Selection is Integral
    8.2. Concept Screening
    8.3. Concept Scoring
    8.4. Caveats

9. Product Architecture   **4 hours**
    9.1. What Is Product Architecture?
    9.2. Implications of the Architecture
    9.3. Establishing the Architecture
    9.4. Delayed Differentiation
    9.5. Platform Planning

10. Industrial Design   **4 hours**
    10.1.   What is Industrial Design?
    10.2.   The Impact of Industrial Design
    10.3.   The Industrial Design Process
    10.4.   Assessing the Quality of Industrial Design

6. Grading System
(If any changes are made to this part, then the Approved Course description must also be changed and sent through the approval process.)
(Mark with "X" in box below to show appropriate approved grading system – see last page of this template.)

    [X]   Standard Grading System (GPA)

    [ ]   Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

https://www.csagroup.org/resources-insights/

https://www.electricalindustry.ca/latest-news/1589-guide-to-the-canadian-electrical-code-part-i-instalment-5

8. College Supports, Services and Policies

Immediate, Urgent, or Emergency Support
If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ http://camosun.ca/about/mental-health/emergency.html or http://camosun.ca/services/sexual-violence/get-support.html#urgent

College Services
Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at http://camosun.ca/

College Policies
Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at http://camosun.ca/about/policies/. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS *http://www.camosun.bc.ca/policies/policies.php*

The following two grading systems are used at Camosun College:

1. **Standard Grading System (GPA)**

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at http://www.camosun.bc.ca/policies/E-1.5.pdf for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	*Compulsory Withdrawal*: A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.