



CAMOSUN COLLEGE
School Trades and Technologies
Electronics & Computer Engineering Department

ECET245: Electrical Drive Systems
Winter 2021

COURSE OUTLINE

The calendar description is available on the web @ <https://online.camosun.ca/d2l>

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	Ian Browning
(b) Office hours	See current D2L schedule
(c) Location	TEC267 (Interurban), P326 (Lansdowne)
(d) Phone	250 370 4015 Alternative: n/a
(e) E-mail	browning@camosun.ca
(f) Website	https://online.camosun.ca/d2l

2. Intended Learning Outcomes

Upon successful completion of this course a student will be able to:

1. Describe the characteristics and operation of power control devices and industrial electronic circuits.
2. Classify power devices according to speed, power, and control type.
3. Interpret power device specifications and specify power devices for a given application.
4. Calculate power device losses to specify appropriate heat-sink requirements
5. Explain the fundamental concepts of three phase power systems and grid-tying.
6. Describe the operation of AC and DC motors/generators, inverter circuits, controlled rectifier circuits, and DC and AC motor drives.
7. Describe the operation of circuits involving power diodes, thyristors, and controlled switches used in motor drive systems
8. Determine strategies for the protection and isolation of power devices
9. Perform calculations to determine suitable component values for power circuits.

Course description

Students will be introduced to the fundamentals of power electronic devices needed for industrial motor control, such as inverters, rectifiers, power diodes, thyristors, and switches. Students will learn how to control the speed and operation of DC and AC, single and polyphase motors. The course provide students opportunities to apply the knowledge and skills needed to specify the necessary equipment to manage and operate motors and motor drives.

3. Required Materials

- (a) Recommended Text: [Also used in pre-requisite course ECET244]
Electrical Machines, Drives and Power Systems, 6th Edition.
Theodore Wildi. Publisher: Pearson.
- (b) Course D2L website – Course notes and labs

4. Course Content and Schedule

Refer to Timelines document on D2L site.

5. Basis of Student Assessment (Weighting)

- (a) Labs 50% [Refer to ECET245 lab grading guide on D2L]
- (b) Quizzes 50%

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.)

- Standard Grading System (GPA)
- Competency Based Grading System

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

All materials provided through D2L site.

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	<i>Incomplete:</i> 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	<i>In progress:</i> 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	<i>Compulsory Withdrawal:</i> 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.