



CAMOSUN COLLEGE
School
Department

**Course Abbreviation, Number
& Title** (long title, or short if no long title)
Term & Year
(2020 winter)

COURSE OUTLINE

The calendar description is available on the web @

www.camosun.ca

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	John YANG
(b) Office hours	TBA
(c) Location	TEC 2689
(d) Phone	250-370-4213 Alternative: _____
(e) E-mail	yang@camosun.bc.ca
(f) Website	http://camosun.ca/learn/programs/electronics-computer-engineering-technolog

2. Intended Learning Outcomes

(If any changes are made to this part, then the Approved Course Description must also be changed and sent through the approval process.)

Students will study basic circuit analysis theory, and the use of instrumentation found in an electronics lab. Students will be given an opportunity to explore various electronics circuits including digital circuits. Students will have an opportunity to explore the many diverse careers available in the networking, electronics and computer engineering industry.

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

- **Solve basic circuit analysis problems for passive circuits**
- **Use complex numbers where appropriate to calculate circuit parameters**
- **Identify a variety of basic electronics components as used in simple circuits**
- **Select and use appropriate test equipment to measure and verify correct operation of circuits**
- **Describe fundamental digital logic blocks**
- **Describe various careers in the electronics industry**

3. Required Materials

(a) Texts

- 1) There is no required text for this course. All the information is available online via D2L site (online.camosun.ca)
- 2) Student File Share: <\\elexsrv1\lesexpub\ecet 125>

(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.)

- 1. Nature of Electricity** **(Week 1)**
 - 1.1 Static Electricity
 - 1.2 Structure of the Atom
 - 1.3 Current, Voltage, and Resistance
 - 1.4 Conventional versus Electron Current Flow
- 2. Units and Notations** **(Week 1)**
 - 2.1 SI Units
 - 2.2 Scientific Notations
 - 2.3 Engineering Notations
 - 2.4 Metric Prefixes
- 3. Electronics Equipment and Tools** **(Week 2)**
 - 3.1 DC Power Supply
 - 3.2 Digital Multi-meter
 - 3.3 Function Generator
 - 3.4 Oscilloscope
 - 3.5 Hand Tools
- 4. Conductors, Insulators and Resistance** **(Week 2)**
 - 4.1 Overview of Conductors and Insulators
 - 4.2 Resistance and Resistors
 - 4.3 Resistor color codes
- 5. DC Circuit Fundamentals** **(Week 3-4)**
 - 5.1 Simple Series Circuits
 - 5.2 Simple Parallel Circuits
 - 5.3 Kirchhoff 's Voltage Law (KVL)

5.4 Kirchhoff 's Current Law (KCL)

5.5 Power in DC Circuits

6. Capacitor & Inductor Theory (Week 5-6)

6.1 Construction

6.2 Capacitance & Inductance

6.3 Charging/Discharging/Time Constant

7. Switches

7.1 Open/Short Circuits, Switches (Week 6)

8. Semiconductor Devices (Week 6)

8.1 Diodes Characteristics (Forward and Reverse Biased)

8.2 Diode Applications

8.3 Introduction to LEDs

Reading Break (Week 7)

9. AC Circuit Fundamentals (Week 8-9)

9.1 Complex numbers

9.2 Sine Waveform Signal and frequency

9.3 Average, Peak-to-peak and Root-mean-square (RMS) Values

9.4 Diode and Rectifying Circuit

10. Digital Circuit Fundamentals (Week 10-12)

10.1 Basic Number Systems and Codes (Decimal, Binary, Hexadecimal)

10.2 Logic Gates

10.3 Basic Boolean Algebra

10.4 Combinatorial Logic Circuits

11. Computer Concepts (Week 13-14)

11.1 Microprocessor and Microcontroller Systems

11.2 Sub-systems

11.3 I/O interfaces

11.4 Microcontroller Development Tools

11.5 Programming Environments

Lab Exercises

Week 1

Intro to Network Services & Lab Resources

Week 2

Intro to Breadboard, DMM meter, and Resistor color code

Week 3

Series Resistance Circuits

Week 4

Parallel Resistance Circuits

Week 5

Intro to Capacitors and Inductors

Week 6

Switches and Diodes DC Circuits

Week 7

Reading break - No formal lab

Week 8	Function Generator and AC Waveform
Week 9	Diode AC Applications
Week 10	Intro to Digital Logic Switches
Week 11	Intro to Digital Logic ICs
Week 12	Intro to Combinatorial Logic Circuits
Week 13	Intro to the Microcontroller
Week 14	Local industry tour – (To Be Determined)

5. Basis of Student Assessment (Weighting)

(Should be directly linked to learning outcomes.)

(a) Assignments	= 10%
(b) Labs	= 10%
(c) Quizzes	= 10%
(b) Term Test I	= 15%
(c) Term Test II	= 15%
(d) Final Exam	= 40%
Total	= 100%

(e) Other (e.g. Project, Attendance, Group Work)

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

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://camosun.ca/about/policies/index.html>

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://camosun.ca/about/policies/index.html> 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.