

COURSE SYLLABUS

COURSE TITLE: ELEN 170 Tools for Circuit Analysis CLASS

SECTION: X01A

TERM: 2023S

COURSE CREDITS: 4

DELIVERY METHOD (S): ONLINE



Camosun College campuses are located on the traditional territories of the Ləkʷəŋən and W SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here. Learn more about Camosun's [Territorial Acknowledgement](#).

The COVID-19 pandemic has presented many challenges, and Camosun College is committed to helping you safely complete your education. Following guidelines from the Provincial Health Officer, WorkSafe BC, and the B.C. Government to ensure the health and wellbeing of students and employees, Camosun College is providing you with every possible protection to keep you safe. Our measures include COVID Training for students and employees, health checks, infection control protocols including sanitization of spaces, PPE and ensuring physical distancing. For details on these precautions please follow this link: <http://camosun.ca/covid19/faq/covid-faqs-students.html>. However, if you're at all uncomfortable being on campus, please share your concerns with your Instructor. If needed, alternatives will be discussed.

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.

INSTRUCTOR DETAILS

NAME: Dr. Raju Sapkota

EMAIL: sapkotar@camosun.ca

OFFICE: Remote

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

This course covers topics necessary for students to successfully complete circuit analysis and electronics devices courses. Following a review essential math topic, the course prepares students to analyze the behavior of electrical signals and electronic circuit components.

COURSE LEARNING OUTCOMES / OBJECTIVES

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

- Apply basic mathematical techniques to analyze AC and DC electronic circuits.
- Apply basic trigonometry techniques to electrical circuits.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Website: D2L website for ELEN 170
Text: Basic Technical Mathematics with Calculus, 11th Edition
Allyn J. Washington

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

HOURS	ACTIVITY or TOPIC	TEXT REFERENCES
7	Review <ul style="list-style-type: none">• Numeric expressions• Exponents and radicals• Algebraic expressions and equations• Factoring and fractions• Basic trigonometry• Complex numbers	Sections 1.1 & 1.2 Sections 1.4 to 1.6 Sections 1.7 to 1.11 Chapter 6 Chapter 4 Chapter 12
6	Quadratic equations <ul style="list-style-type: none">• Solution by factoring• Completing the square• Quadratic formula• Problems using quadratic equations	Section 7.1 Section 7.2 Section 7.3 Chapter 7
10	Trigonometry <ul style="list-style-type: none">• Degrees and radians• Solution of oblique triangles (Laws of Sines and Cosines)• Graphing the sine, cosine and tangent functions• Trigonometric equations	Section 8.3 Sections 9.5 & 9.6 Sections 10.1 to 10.4 Section 20.5
6	Analytic geometry <ul style="list-style-type: none">• Functions• Straight line and slope• Distance formula• The circle	Chapter 3 Section 5.1 Sections 21.1 to 21.3

HOURS	ACTIVITY or TOPIC	TEXT REFERENCES
13	Differential calculus <ul style="list-style-type: none"> • Limits • Slope of a curve • Derivative delta process • Power rule • Derivative as rate of change • Distance, speed, acceleration • Minimum and maximum points • Product and quotient rules • Chain rule • Higher order derivatives 	Section 23.1 Section 23.2 Sections 23.3 & 23.4 Section 23.5 Section 23.6 Section 23.7 Section 23.9
3	Derivatives of transcendental functions <ul style="list-style-type: none"> • Trigonometric functions • Logarithmic functions • Exponential functions 	Section 27.1 Section 27.5 Section 27.6
13	Integral calculus <ul style="list-style-type: none"> • Indefinite integral • Power rule for integration • Basic differential equations • Area Under a Curve • Integration of trig functions • Integration of exp and log functions • Definite Integral • Mean and RMS Values • Electrical applications of calculus (capacitor and inductor behaviour, op amp integrators, PID control) 	Section 25.2 Section 28.1 Sections 31.1 to 31.2 Sections 25.3 & 25.4 Sections 28.2 to 28.5
6	Tests and midterms	
14	Review and tutorials	

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines scan be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Online assignments	30%
Tests (3) (Subject to change date): Friday 26 May 2023 (week 4) Friday 23 June 2023 (week 8) Friday 21 July 2023 (week 12)	30%
Final exam: week of 8-16 August 2023	40%
TOTAL	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information.
<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

COURSE GUIDELINES & EXPECTATIONS

Your success will be greatest if you regularly do assigned homework and ask questions frequently.

SCHOOL OR DEPARTMENTAL INFORMATION

Electronics & Computer Engineering Technology
 Chair: James Van Oort

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Support Service	Website
Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop

Support Service	Website
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the “Attendance” section under “Registration Policies and Procedures” (<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun’s Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student’s right to choose what is right for them. For more information see Camosun’s Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College’s Student Misconduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College’s expectations of academic integrity and student behavioural conduct.

Changes to this Syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.