



Faculty of Engineering and Applied
Science

Course Outline ENGI 1040 (Electric Circuits)

Winter 2018

ENGINEERING 1040: Electric Circuits

(This outline describes only the Electric Circuits module of ENGI 1040.)

Instructor:	Dr. Howard Heys	Office: EN-3071
E-mail:	hheys@mun.ca	Phone: 864-2514
Office Hours:	Mon. 2:00-3:00 and Thu. 11:00-12:00	
Course Info Sites:	Course materials and information for the Electric Circuits module will be posted at www.engr.mun.ca/~howard/eng1040 .	
Communication:	Students may contact the course instructor using MUN email or by visiting the instructor's office. Detailed technical questions are best asked in person and may not be answered quickly through email.	

COURSE DESCRIPTION (Electric Circuits Module)

The broad aims of the course are to teach students 1) to learn the concepts and principles that apply to electric circuit analysis, and 2) to develop problem-solving skills by emphasizing the application of conceptual understanding to the solution of electric circuit problems.

COURSE EVALUATION

The final grade for the Circuits module of the course will be determined as follows:

Labs	In-class Questions (TopHat)	Midterm Test	Final Exam	Total*
6%	4%	12%	28%	50%

***Students must pass the Electric Circuits module and the TLE module independently. If a student fails either module (i.e. scores below 25 out of 50), the highest possible overall mark for the course will be 50%.**

COURSE SCHEDULE

Lectures/Tutorial: 8:00-8:50 am – Monday, Tuesday, Wednesday, Friday (Feb. 26 – Apr. 6)

Midterm Test: **Fri., Mar. 23, 8:00-8:50 am, rooms TBA**

Labs:

Lab	Due Date (all sections)	Lab Dates			
		Sec. 1 (Tue)	Sec. 2 (Wed)	Sec. 3 (Thu)	Sec. 4 (Mon)
1	Wed., Mar. 14	Mar. 6	Mar. 7	Mar. 8	Mar. 5
2	Wed., Mar. 28	Mar. 20	Mar. 14	Mar. 15	Mar. 19
3	Wed., Apr. 4	Mar. 27	Mar. 28	Mar. 29	Mar. 26

CALCULATOR POLICY

Only basic, non-programmable scientific calculators are allowed as aids during tests and exams. Other electronic aids, programmable calculators or calculators with symbolic manipulation, text storage and graphics capabilities (e.g. TI-83 and TI-84), as well as other aids (books, notes, formula sheets, electronic translators and devices, smart phones, etc.) are **NOT** allowed in tests and examinations. Unauthorized use of the above aids or devices during tests and examinations will be considered as an academic offence.

MAJOR TOPICS

- *Basic Circuits*
 - Fundamental electrical properties, including current, voltage, resistance, energy, and power
 - Ohm's law
 - Kirchhoff's voltage and current laws
 - Simple resistive circuits in series and parallel combinations
 - Basic applications of electrical circuits
- *Circuit Analysis*
 - Circuits with multiple sources
 - Techniques for analyzing circuits, including node-voltage and mesh-current analysis
 - Superposition
 - Thévenin and Norton equivalents; source transformation
 - Maximum power transfer

RESOURCES:

<i>TopHat:</i>	<u>All students are required to buy a subscription to the TopHat teaching platform at www.tophat.com. Students will use this to answer questions during class.</u>
<i>Lecture Notes:</i>	Partially completed Lecture Notes will be posted on the course website.
<i>Textbook:</i>	"Engineering 1040 - Electric Circuits", Nilsson & Riedel, Pearson CustomLibrary (Required for the course and available in MUN bookstore.)
<i>Practice Problems:</i>	The course will have unmarked problem sets associated with most topics. Completion of the problem sets is crucial to developing an understanding of the course material. The Engineering One Help Centre (EN-3076) staff will be available to assist with questions that arise from the problem sets. The practice problems will be posted on the course website.

LAB EXPERIENCE:

Students in groups of two will complete three mandatory lab experiments overseen by TAs and technologists. The lab experiments involve building resistive circuits, measuring circuit variables, and troubleshooting.

<i>Participation:</i>	Full participation in <u>all</u> of the labs is compulsory for <u>all</u> students. Failure to participate in all labs may result in a mark of INCOMPLETE for the course.
<i>Rooms:</i>	The Electric Circuits labs will take place in Room EN1038.
<i>Instructions:</i>	Instructions for the labs will be posted on the course website.
<i>Reports:</i>	Students are required to complete Pre-labs which involve circuit analysis prior to the beginning of each experiment. A written report (including Pre-lab) must be submitted by each group for each experiment with both students contributing to the report. Each report must adhere to the standards of academic integrity expected of students.
<i>Due Dates:</i>	Lab reports must be submitted in-class on the dates indicated. <u>A report will be considered late if it is not submitted in class on the indicated date.</u> Late lab reports will be given a mark penalty of at least 10% and may not be accepted.
<i>Lab Safety:</i>	Students are expected to demonstrate awareness of, and personal accountability for, safe laboratory conduct. <u>Safety glasses must be worn and must be provided by the student.</u> They may be purchased at the University bookstore.

ACADEMIC INTEGRITY AND PROFESSIONAL CONDUCT:

Students are expected to conduct themselves in all aspects of the course at the highest level of academic integrity. Any student found to commit academic misconduct will be dealt with according to the Faculty and University practices. For more, see www.mun.ca/engineering/undergrad/academicintegrity.php.