

ENG PHYS 2E04
Analog and Digital Circuits
Winter 2018

Course Outline (as of 5 January 2018; subject to change)

INSTRUCTOR OFFICE HOURS AND CONTACT INFORMATION

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Term 2:

	Monday	Tuesday	Wednesday	Thursday	Friday
09:30	Office Hour!	Office Hour!	Office Hour!	Office Hour!	Office Hour!
10:30	2E04 Prep	Office Hour!	2E04 Prep	Office Hour!	Office Hour!
11:30	2E MDCL/1309	Office Hour!	2E MDCL/1309	Office Hour!	Office Hour!
12:30	Office Hour!	Office Hour!	Office Hour!	Office Hour!	2E04 Prep
13:30	Check	Check	Check	Office Hour!	2E MDCL/1309
14:30	Check	Check	Check	Office Hour!	Check
15:30	Check	Check	Check	Office Hour!	Check
16:30	Check	Check	Check	Office Hour!	Check

Note: The “Check” times may *also* be office hours – please feel free to drop in if I’m here. However, these times are sometimes used by irregular meetings or course deliverables. You can email me to make sure I’ll be available and/or to reserve any “Office Hour!” or “Check” time for you or your group. I will always be present during an “Office Hour!” time, emergencies notwithstanding.

TEACHING ASSISTANT OFFICE HOURS AND CONTACT INFORMATION

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COURSE WEBSITE/ALTERNATE METHODS OF COMMUNICATION

The primary method of communication will be

1. Avenue To Learn (ATL, <http://avenue.mcmaster.ca/>) news postings for announcements - make sure to set your ATL email settings so it emails these to you.
2. Email for individual messages.

COURSE INTENDED LEARNING OUTCOMES

Upon successful completion of the course, you will be able to:

1. Analyze analog and digital electrical circuits;
2. Simulate analog and digital circuits using software-based tools;
3. Design, implement and test analog and digital electrical circuits using simulation software and laboratory measurement equipment.
4. Perform circuit measurements taking into account the specifications of electrical measuring equipment.

MATERIALS AND FEES

LAPTOP COMPUTER:

Students should have a laptop capable of simultaneously running an equation solver (e.g., Maple, MATLAB, Python, etc.), a circuit solver (e.g., MultiSim, SPICE, etc.) and Microsoft Word (windows machines are recommended, price point of \$300 or up should be fine). You are required to use this for the lab tests.

REQUIRED TEXTBOOK: 1`

Principles and Applications of Electrical Engineering, 6th edition, Giorgio Rizzoni, McGraw Hill
(Tests and the final exam in this course are open-book and open-note).

OTHER MATERIALS:

NI Multisim simulation software (required for the laboratory tests)
Course notes (free on ATL)
Any McMaster standard calculator

COURSE SCHEDULE

See ATL for a colour schedule, list of suggested practice problems for each lecture topic, and other useful resources.

ASSESSMENT

Component	Weight
Lecture Tests	33% (3% each * 11)
Lecture Quizzes	Bonus: 3%
Laboratory Tests	24% (3% each * 8)
Laboratory Design Project	18%
Final Exam	25%
Total	100%

ADDITIONAL DETAILS REGARDING COURSE MANAGEMENT AND ASSESSMENT

1. Class attendance mandatory. There is a strong correlation between class attendance and performance in the course.

2. Lecture Tests every Monday will cover the material from the previous two lectures; you will need to have read the course notes, the textbook, and completed practice problems in order to succeed within the available time.
3. Lecture Quizzes will occur randomly within the lecture as a means of taking attendance and encouraging participation.
4. The Final Exam spans the knowledge from the Lecture Tests over the whole term. Sample exams will be provided in ATL.
5. Each Laboratory Test covers the material from the immediately preceding Lecture Test, and expects you to work in a group of 2 to solve a similar circuit three ways:
 - a. analytically,
 - b. with Multisim, and
 - c. by physically building and measuring it.
6. The Design Project will be released after Lab 8, and will require you to apply your skills from the lab over the entire term.

ACCREDITATION LEARNING OUTCOMES

The Learning Outcomes defined in this section are measured for Accreditation purposes only, and will not be taken into consideration in determining a student's actual grade in the course.

Outcomes	Indicators
The students will learn the basic methods of circuit analysis	1.3
The students will learn the fundamental circuit theorems	1.3
The students will apply linear differential equations to solving first order circuits	2.2
The students will apply complex number fundamentals to analyzing circuits in the phasor domain	2.2
The students will learn to recognize and follow an engineering design process to implement their final design project	4.1
The students will learn to use simulation software to design a digital/analog circuit	5.2
The students will learn to follow technical and non-technical instructions to design, implement, and test a digital/analog circuit	7.1
The students will learn to plan and effectively manage time, resources, and scope to address the design requirements and constraints of the design project	11.2

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <http://www.mcmaster.ca/academicintegrity>.

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

ACADEMIC ACCOMMODATIONS

Students who require academic accommodation must contact Student accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contact by phone at 905.525.9140 ext. 28652 or e-mail at sas@mcmaster.ca.

For further information, consult McMaster University's Policy for [Academic Accommodation of Students with Disabilities](#).

NOTIFICATION OF STUDENT ABSENCES AND SUBMISSION OF REQUEST FOR RELIEF FOR MISSED ACADEMIC WORK

From <http://mcmaster.ca/msaf/> :

1. This is a self-reporting tool for Undergraduate Students to report absences DUE TO MINOR MEDICAL SITUATIONS that last up to 3 days and provides the ability to request accommodation for any missed academic work. Please note, this tool cannot be used during any final examination period.
2. You may submit a maximum of 1 Academic Work Missed request per term. It is YOUR responsibility to follow up with your Instructor immediately (NORMALLY WITHIN TWO WORKING DAYS) regarding the nature of the accommodation.
3. If you are absent for reasons other than medical reasons, for more than 3 days, or exceed 1 request per term you MUST visit your Associate Dean's Office (Faculty Office). You may be required to provide supporting documentation.
4. This form must be submitted during the period of absence or the following day, and is only valid for academic work missed during this period of absence.
5. It is the prerogative of the instructor of the course to determine the appropriate relief for missed term work in his/her course.
6. You should expect to have academic commitments Monday through Saturday but not on Sunday or statutory holidays. If you require an accommodation to meet a religious obligation or to celebrate an important religious holiday, you may submit the Academic Accommodation for Religious, Indigenous and Spiritual Observances (RISO) Form to the Associate Dean's Office. You can find all paperwork needed here: <http://www.eng.mcmaster.ca/current/documents.html>

For Eng Phys 2P04, any MSAF'd material will have its weight moved to the final exam.

NOTICE REGARDING POSSIBLE COURSE MODIFICATION

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

ON-LINE STATEMENT FOR COURSE REQUIRING ONLINE ACCESS OR WORK

In this course, we will be using Avenue to Learn. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.