

# ELEC 3605, ELECTRICAL ENGINEERING

**INSTRUCTORS:** Calvin Plett, Room 5146 ME, calvinplett@cunet.carleton.ca  
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**OFFICE HOURS:** To be announced in class

**Lectures** Mon, Wed 13:05-14:25, MC 2000.  
First Class Thu Sept 6, Last Class Fri Dec 8 (Mon Schedule)  
Thanksgiving Holiday Mon Oct 9, Break Week Oct 23-27

**MARKING SCHEME:**

|             |     |
|-------------|-----|
| Tests:      | 25% |
| Assignments | 15% |
| Final Exam* | 60% |

\* For examination purposes only and will not be returned to the student.

\* All tests and examinations are open book,

Authorized memoranda for tests and exam:

Scientific Calculator

ELEC 3605 Course Pack with annotations, but no additional sheets of paper allowed

Course Text, Allan R. Hambley, *Elec Eng: Principles & Applications, Custom*

*Edition for Carleton University, ELEC 3605 – Electrical Engineering*

Cell phones are not allowed

**Assignments:** As review of the course material and preparation for the tests and final exam, there will be 3 on-line assignments through cuLearn, each worth 5%.

**TEST SCHEDULE:** Test #1, October 11 or 16 (tentative)

Test #2, Nov 13 or 15 (tentative)

**Test Marking:** 15% for the best test, 10% for the other test. If tests are missed for legitimate reasons (documentation will be required) marks will be transferred to the final exam.

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# **ELEC 3605, ELECTRICAL ENGINEERING**

## **COURSE DESCRIPTION**

DC circuits: elements, sources, analysis. Single phase AC circuits: phasors, RLC circuits, real and reactive power, impedance, network analysis, three phase systems. Power transformers. DC motors: operation and characteristics. AC motors: single phase and three phase.

## **LEARNING OUTCOMES**

By the end of this course the student should be able to:

- 1) Understand the fundamentals of electrical engineering.
- 2) Undertake analysis and solutions of rudimentary electrical engineering problems.
- 3) Engage in informed consultation with electrical engineers to resolve problems.
- 4) Recognize the limits of electrical engineering competence and the need to consult.

## **TEXTS**

- Course Text, Elec Eng: Principles & Applications by Allan R. Hambley  
Custom Edition for Carleton University  
ELEC 3605 – Electrical Engineering
- Course Pack, ELEC 3605, Electrical Engineering, Carl Kropp, Fall 2015

## **CONTENTS**

- 0.0 Fundamental Considerations, Physics 101
- 1.0 Fundamentals of Circuit Theory
- 2.0 Resistive Circuits
- 3.0 Inductance and Capacitance
- 4.0 Transients
- 5.0 Steady-State Sinusoidal Analysis
- 6.0 Magnetic Circuits and Transformers
- 7.0 DC Machines (Motor)
- 8.0 AC Machines (Motors)
- 9.0 Electrical Safety