

Physics 1E03

Course Outline, January 2018

Physics 1E3 is an introduction to electromagnetism and waves for students in Year I Engineering. Lectures focus on a few of the ideas and concepts, with demonstrations and discussions in class. Short quizzes during the lecture, using the “i>clicker” system, are integrated with discussion of concepts.

Lab and tutorials are every other week, alternating. Tutorial sessions develop skills for solving physics problems, and test students on the LON-CAPA assignments they have completed. Labs develop measurement and data analysis skills related to the course. During the three-hour lab period, students complete the measurements and write the report, handing it in before leaving.

Instructors:

C01, C02: Dr. Reza Nejat	ABB–235	nejat@physics.mcmaster.ca
C03: Dr. Waldemar Okon	ABB–236	okon@physics.mcmaster.ca
C04: Dr. David Chettle	NRB–106	chettle@mcmaster.ca

Course Home Page: <http://www.physics.mcmaster.ca/phys1e03/>

Prerequisites: Registration in Engineering I and completion of Physics 1D03.

Text (required):	Physics for Scientists and Engineers, ninth edition, by Serway and Jewett, published by Brooks/Cole Cengage Learning
Courseware (required):	Physics 1D3/1E3 September 2017 Lab Manual.
Calculator (required):	Only the McMaster prescribed calculator (Casio <i>fx-991MS</i> or MS+) is permitted in tests and final exam.
“i>clicker” (required)	The “i>clicker” response unit is on sale at the bookstore.

Marks: Grade weightings are given below. Averaging and combining of marks is done on a 100-point scale.

Final examination	50% to 55%*	For each lab not completed before the end of term, your final grade will be <u>reduced by 3 percentage points</u> , in addition to a mark of zero on the lab. A make-up week is provided if a lab is missed (arrange with Dr. Buntar, <buntarv@mcmaster.ca>). Clicker Quizzes: . Full marks will be given for answering all of the quizzes, with a sufficient number of correct answers, in at least 85% of the lectures. Details may differ between lecture sections.
Two midterm tests	20% (10% each)	
Tutorials	6%	
LON-CAPA problems	4%	
Clicker Quizzes (in lectures)	0 to 5%*	
Labs	15%	

**The exam will be worth 55% if your clicker mark is zero. Otherwise, your clicker marks out of 5 will be added to your grade out of 100, and the weight of your exam will be reduced by that number of percentage points. For example, if your clicker mark is 4/5, your exam will count for 51%, and 4 marks will be added to this to get a mark out of 55. This will always be higher than, or at least equal to, your exam marks out of 55.*

Midterm Tests: Two tests of 80 minute each, in the evenings, at 7:00 pm, of Wednesday, Feb. 7 and Wednesday, March 7. Notice: **One mark will be deducted from tests missing ANY required student information.**

Laboratory: Students complete four labs during the term. **Refer to the lab schedule handed out in class** to know which week you have a lab, and which week you have a tutorial.

The instructor and university reserve the right to modify elements of the course during the term. Any necessary changes to dates, deadlines, marks weightings, etc. will be communicated to you through the course website and/or avenue.mcmaster.ca.

Physics 1E03 2017–18 Approximate Timetable			
Week		Topics	Text Sections
begins	Number		
Jan 01	1	Electric Forces and Fields	Ch. 23: 23.1–23.7
Jan 08	2	Gauss's Law	Ch. 24: 24.1–24.4
Jan 15	3	Electric Potential	Ch. 25: 25.1–25.6
Jan 22	4	Capacitance	Ch. 26: 26.1–26.5, 26.7
Jan 29	5	Current and Resistance	Ch. 27: 27.1–27.3; 27.6
Feb 05	6	DC circuits; Test-1, Feb 7	Ch. 28: 28.1–28.4
Feb 12		Magnetic Fields	Ch. 29: 29.1–29.5
Feb 19	7	Study Week – Mid-Term Recess	No classes
Feb 26	8	Ampère and Biot-Savart Laws	Ch. 30: 30.1–30.5
Mar 5	9	Induction and Inductance; Test-2, March 7	Ch. 31: 31.1–31.3; Ch. 32: 32.1–32.3
Mar 12	10	Continue Inductance; begin Waves	Ch. 16: 16.1–16.5
Mar 19	11	Waves, Interference	Ch. 18: 18.1–18.6
Mar 26	12	Interference and Diffraction of Light	Ch. 37: 37.1–37.3; Ch. 38: 38.1–38.4
April 2	13	Diffraction	Ch. 38: 38.1–38.4

Help: Help with physics is available in BSB-B119 at several times during the week from TAs and student volunteers in the Physics Help Initiative (PHI).

Lab exemptions: If you are repeating the course, and have completed all the labs, you can **apply at the Physics Office (ABB-241)** to be exempt from the lab portion of the course. You should do this before the first lab. All students must attend the tutorials; **there is no tutorial exemption.**

Missed work: For **one brief absence due to minor illness**, you may use the MSAF self-reporting system at <http://mcmaster.ca/msaf>. You may use this **only once per term**, and only for a brief absence due to medical reasons. **In all other cases**, you must take appropriate documentation to the Engineering student advisors in JHE/H305. Put **Tina Stewart's <tstewar@mcmaster.ca>** email in the MSAF form. Missed labs must be made up by the end of term; arrange it with Dr. Viktor Buntar, <buntarv@mcmaster.ca>. For missed tutorials or midterms weight is added to the final exam. See the Physics 1E03 Avenue to Learn page for more detail (<http://avenue.mcmaster.ca>).

Academic Dishonesty: Academic dishonesty consists of misrepresentation by deception or other fraudulent means and can result in serious consequences, *e.g.*, a 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 kinds of academic dishonesty, please refer to <http://www.mcmaster.ca/academicintegrity/>. As well, read the specific rules in the Physics 1D3/1E3 Lab Manual, and on the course Avenue to Learn page.

The following illustrates only three forms of academic dishonesty:

1. Having in the lab room, or referring to in the lab, a previously-written lab report.
2. Communicating or collaborating during a test, or allowing another student to see your work.
3. Using a friend's clicker to submit answers on his behalf.