



Physics 1026
Physics for Engineering Students
Course Information: 2009/2010

Note: This Course Information sheet is a living document. Check for updates to this information on the course website.

1. Course Description

A calculus-based course which discusses kinematics, Newton's laws of motion, work, energy, linear momentum, simple harmonic motion, electrostatics, d.c. circuits, magnetic fields and electromagnetic induction

Antirequisite(s): Physics 1020, 1021, 1024, 1028A/B, 1029A/B.

Prerequisite(s): Grade 12U (SPH4U) Physics; Grade 12U Calculus and Vectors (MCV4U) or the former Grade 12U Advanced Functions and Introductory Calculus (MCB4U) or Mathematics 0110A/B.

Corequisite(s): Applied Mathematics 1413.

Pre-or Corequisite(s):

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites

Formal Time-commitment: 2 lecture hours, 3 laboratory hours, 2 tutorial hours. 1.0 course. Extra commitment will be required in your own time.

Note: Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Timetable

Physics 1026	Section 1	Section 2
Lecture Times:	Tue, Thu 8:30 – 9:20 am MC 110	Mon, Wed 8:30 – 9:20 am WSC 55
Web Site:	http://webct.uwo.ca ** You will need this web site for checking marks, obtaining lecture material, doing sample problems and obtaining solutions.	
FALL TERM:		
Instructor	Prof. S.R. Valluri	Prof. L. Goncharova
Emails (please use this ONLY if you cannot access WebCT mail)	valluri@uwo.ca	lgonchar@uwo.ca
Phone	X86499	X81558
Office	PAB 311	PAB 202B/A
WINTER TERM:		
Instructor	Prof. P. Brown	Prof. W.K. Hocking
Emails (please use this ONLY if you cannot access WebCT mail)	pbrown@uwo.ca	whocking@uwo.ca
Phone	X86458	X83652
Office	PAB 238	PAB 301

3. Course Materials

The following course materials can be purchased at the UWO Bookstore - get the package specifically listed for Physics 1026:

Textbook: Fundamentals of Physics, 8th edition, Parts 1 and 3, plus Chapter 15, by Walker et al. *Earlier versions may be used, but it is the student's responsibility to adjust for page changes, question number changes and other alterations between editions.* References to the text and questions in lectures will be in regard to the 8th edition *only*.

Lab Manual: Physics Laboratory Manual 2009–2010 for Physics 1020, 1024 and 1026. Be sure to buy the correct package, as it is not refundable.

Personal Response Unit: Interwrite PRS “clicker” (note that old-style clickers cannot be used – you MUST purchase the Interwrite one).
 Personal Response Units (or “clickers”) will be used to evaluate class participation. Clickers and enrolment codes are available at the UWO Bookstore. Note that you only need one clicker (and enrolment code) for all courses using clickers at UWO.

Calculator: *Sharp EL-510RB Scientific Calculator.*
 This is the only calculator allowed in tests or exams.

In addition, on-line materials, including lecture notes, are available from the course web site.

4. Course Content

The course content is outlined in the following tables:

TERM 1 (Fall)		
Chap.	Sections	Topic
2	All	Motion in 1D
3	All	Vectors
4	All	Motion in 2D & 3D
5	All	Force & Motion I
6	All	Force & Motion II
7	All except 8	Kinetic Work & Energy
8	All except 6	Potential Energy & Conservation of energy
9	All except 12	Centre of Mass & Linear Momentum
10	All	Rotation
11	1-3, 6-11	Torque & Angular Momentum

TERM 2 (Winter)		
Chap.	Sections	Topic
15	1-7	Oscillations
21	All	Electric Charge
22	1-5, 8-9	Electric Fields
23	All	Gauss' Law
24	All except 8	Electric Potential
25	1-5	Capacitance
26	1-7	Current and Resistance
27	All	Circuits
28	All except 7	Magnetic Fields
29	All	Magnetic Fields due to Currents
30	1-5, 7-8	Induction and Inductance

5. Evaluation

Your final grade in this course will be derived approximately according to:

Laboratory **15%**

Tutorial Tests (8/10) **16%**

Participation **5%**

Midterm Examination **30%**

Final Examination **34%**

The December Midterm Examination will cover the material discussed in class during the first term. The Final Examination will primarily cover the material discussed in class during the second term, but certain fundamental concepts from term I (e.g. Newton's laws, distance-velocity-acceleration relations, etc.) may be necessary to complete the final exam.

It is possible (but not recommended) to pass the course while failing the midterm or final examination.

Failing the laboratory component means a failing grade in this course regardless of your performance on the tests and examinations.

6. Laboratories

The laboratories will be held in the new Material Sciences Addition (MSA), rooms M2220, M2230, M2240 and M2250. The Material Sciences Addition are adjacent the Chemistry Building, and can be accessed through there. **Dr. K. Kaluarahchi (MSA room M2203)** is the Director/Supervisor in charge of the laboratory. Direct all laboratory questions to her (email kanthi@uwo.ca or telephone to 519-661-2111 x86446), not to your instructor. Your instructor is NOT involved in the day-to-day running of the labs.

Information on the laboratory is posted on the lab webCT and lab site:

<http://webct.uwo.ca/>

<http://www.physics.uwo.ca/firstyearlab/>



Laboratory Orientation Lecture

A laboratory orientation lecture will be posted on the lab webCT site by the first week of September. You must visit the web site and familiarize yourself with the contents of this lecture before attending your first lab.

Laboratory Schedules

Each Physics 1026 lab section — 003, 004 and 005 — is divided into three laboratory subsections A, B and C, which meet on alternate weeks throughout the year. The laboratory timetables for these lab sections are posted at the above lab webCT site. The timetables are also posted on the second floor of the Material Sciences Addition.

Laboratory subsection assignments will be posted on the lab webCT site by student last name. You must find your correct lab section, lab subsection and the correct laboratory timetable before attending the first lab. Please attend the correct lab class on the correct date as we do not give permission to attend lab classes outside your laboratory schedule.

If you have difficulty following the timetable scheduled for your lab sub-section, please contact the laboratory director/supervisor, Dr. K. Kaluarachchi (contact details given above).

If you have taken the course previously and want to know if you have to repeat the labs, contact Dr. Kaluarachchi as soon as possible.

In order to pass the course, a student must obtain a passing grade in the laboratory.

7. Tutorials and Tutorial Tests

In the weeks alternating with the laboratory, there will be tutorials covering topics discussed in class during the preceding two weeks. At the end of the tutorial period there will be a 45 minute tutorial test. A total of ten tutorial tests will occur throughout the year, five in each semester. The tests consist of multiple choice problems and longer answer - type questions. **You will receive a final mark based on the best eight out of 10 of your tutorial tests.** As a result of this policy, no makeups will be provided for these tests.

For the tutorial tests you will be divided into the same subsections as your lab subsections. You must write the tutorial test in the subsection you are assigned - no exceptions. The tutorial schedule, timing and material to be covered at each tutorial will be posted to the WebCT class site in advance of the test dates.

8. Participation

The Class Participation Grade will be evaluated using a “Classroom Response System,” in which students use Personal Response Units (commonly known as “clickers”) to register their responses to questions posed in class. A clicker is a small radiofrequency transmitter that resembles a TV remote. Students purchase their clicker in the



bookstore and register it against their student number for use in all classes at UWO using this technology. In class, instructors can ask a variety of structured questions to which students may respond by pressing the appropriate button on their respective clickers. Individual responses are collected and displayed as a graph at the front of the room, and are saved for future analysis.

See the instructions at the presswestern.uwo.ca site for details of how to program your Western UserID into the unit and confirm that it is working properly Used clickers may also be available. It is very important that you use your UserID (which can be found from your email address as userid@uwo.ca) and NOT your student number. Be sure to replace the batteries and don't forget to program them with your unique UserID. Students using their student number may receive a participation grade of zero.

Exclusivity: The only clickers that can be used from this class are the Interwrite PRS clickers. These are available from the Western Bookstore along with an enrolment code. (Although clickers may be obtained from alternate sources, your enrolment code must be purchased in the Western Bookstore). You only need one clicker and enrolment code for all of your courses in a given term. The older EInstruction clickers cannot be used.

Responsibility: It is your responsibility to ensure that your clicker is functioning properly. See the instructions in the box or the <http://presswestern.uwo.ca> site for details of how to program your Western UserID into the unit and confirm that it is working properly. If you have problems with your clicker, consult the ITS HelpDesk in the Services Building. Since all clickers on campus look identical, it may be best for you to customize yours in ways that make it identifiable to you. If you have to replace a lost or defective clicker during the term, please inform your instructor. Questions or comments regarding clicker use should be posted to the course WebCT Discussion Board.

Evaluation: The total participation grade is 5%, and is divided into 2.5% for Term 1 and 2.5% for Term 2. The score you obtain is based on the number and accuracy of your clicker responses. A perfect score in any one term can be achieved by obtaining 20 points in that term. Any lecture in which you register a response to at least half of the questions asked counts as 1 point, regardless of your answers. A lecture in which you answer any question correctly gives you a 0.1 point bonus, up to a maximum of 20 points per semester. It is thus possible to receive a perfect participation grade without answering a single question correctly if you attend at least 20 lectures.

Because your clicker use will become part of your academic record, it will be afforded the same degree of security, confidentiality and transparency that is customary for test marks, etc. You can review your clicker record through the appropriate link on the course web site. Any errors must be reported to your instructor within two weeks of their initial posting.

Although your instructors intend to invite clicker use in every lecture, it may be necessary (e.g., due to technical problems or instructor absence) to occasionally exclude their use.

Privacy: Although clickers may be used in the classroom for polling opinions (e.g., "did you understand that explanation?") and/or collecting some types of personal data, such responses will not become part of your academic record and will not "count" toward your clicker participation grade. Such non-academic data will either be recorded anonymously or not at all. (A simple anonymization exercise will invite you to swap clickers with a neighbour for that particular question.)

Research: We want to ensure that clickers are used in ways that are most helpful to your learning. We have therefore invited independent researchers from the Registrar's Office and Faculty of Education to investigate your experience of this technology. You may be invited to participate in this research project. Such participation is completely voluntary and will have no bearing on your course grades. Your clicker data will not be used for any non-academic or research purpose without your consent. As course instructors, we will never know who agrees to participate, nor will we know who gives any particular comment. Further details will be available from the researchers. This research will not replace the usual end of term Course.

Clicker Evaluation: given by the University, if required.

Academic Integrity: Since clicker records are used to compute a portion of course grades, the use of a clicker other than your own is an academic offence. Possession of more than one clicker, or one registered to another student, in a lecture will be interpreted as intent to commit an academic offence. Penalties range from disabling the clicker codes for an extended period to formal disciplinary action.

9. Documentation for Medical or other serious emergencies

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to the Dean's office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from the Dean's Office immediately.

For further information please see:

<http://www.uwo.ca/univsec/handbook/appeals/medical.pdf>

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services.

The form can be found here:

https://studentservices.uwo.ca/secure/medical_document.pdf

10. Examinations: Mid-year and Final

Exam times will be posted on the course web site when available. Students who are making travel arrangements for the holidays are advised to book a travel date after the end of the examination period. **No makeup exams will be given to accommodate travel!**



No extra sheets, PDAs, advanced calculators, computers, cell phones, etc., may be accessible to you during exams.

Exams will consist of a combination of multiple-choice problems, designed to test conceptual understanding of topics covered in class, and numerical problems (which may consist of multiple parts), which test problem-solving abilities. Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

Calculators: The **only** calculator that may be brought into an exam is the Sharp EL-510RB calculator, which is available from the UWO Bookstore. The only exception is any Sharp model EL-5xx (where xx is typically 00 or 10R). If you are in doubt about your calculator, show it to us before the examination

Accommodations for Religious Holidays

When scheduling unavoidably conflicts with religious holidays which (a) require an absence from the University or (b) prohibit or require certain activities (i.e., activities that would make it impossible for the student to satisfy the academic requirements scheduled on the day(s) involved), no student will be penalized for absence because of religious reasons, and alternative means will be sought for satisfying the academic requirements involved. It is the responsibility of such students to inform themselves concerning the work done in classes from which they are absent and to take appropriate action.

A student who, for either of the situations outlined in paragraph one above (a or b), is unable to write examinations and term tests on a Sabbath or Holy Day in a particular term shall give notice of this fact in writing to his or her Dean as early as possible but not later than November 15th for mid-year examinations and March 1st for final examinations, i.e., approximately two weeks after the posting of the mid-year and final examination schedule respectively. In the case of mid-term tests, such notification is to be given in writing to the instructor within 48 hours of the announcement of the date of the mid-term test. The instructor(s) (in the case of mid-term tests) and the dean (in the case of mid-year and Spring final examinations) will arrange for special examination(s) to be written at another time. In the case of mid-year and Spring final examinations, the accommodation must occur no later than one month after the end of the examination period involved. It is mandatory that students seeking accommodations under this policy give notification before the deadlines, and that the Faculty accommodate these requests.

For purposes of this policy the University has approved a list of dates which are recognized religious holidays which require members of those religions to be absent from the University; this list is updated annually and is available at <http://www.uwo.ca/equity/docs/mfcalendar.htm>.

11. Make-up Policy

a) Lab Marks. Grading policies for the laboratory are given in the Notes to Students in your lab manual package.

b) Tutorial Tests. As your mark is based on the best eight out ten tutorial tests, no make up tests will be given. Note that this schedule allows you to miss approximately 1 month of tutorials due to illness without penalty.



c) Participation Grades. Because a perfect participation grade for a single term can be achieved in as few as 18 lectures, no opportunity to make up missed lectures will be provided. It is your responsibility to verify that your clicker is operating correctly and that your responses are being recorded. Your clicker grade will be updated approximately weekly on the course WebCT Owl site.

d) Mid Year Examination. The Department will provide one make-up test that may be written only with the permission of the Associate Dean, Faculty of Engineering.

e) Final Examination. In accordance with Senate Policy, a Special Examination will be held within thirty days of the regular final examination for students who are unable to write the regular examination for medical or other documented reasons. Requests for such a Special Examination must be made to the Associate Dean, Faculty of Engineering Science.

12. Tutorials and Help

In addition to the regularly scheduled tutorial periods, help is available in the "Resource Room" of the Material Sciences Addition. Times will be announced in class and on the class website. Tutorials will be given before the mid-year exam and the final exam, without an associated tutorial test, to provide a more complete review of the semester's material.

13. Class Web Site

All on-line materials (lecture notes, tutorial material, access to interim grades, announcements, etc.) are available through the course web site. To access this site, you will need to go to <http://webct.uwo.ca> and log on using your UWO username and password. If you need information about setting up and using your account (or forwarding your mail from uwo.ca to other mail services), all the information you need is at the ITS web site, <http://www.uwo.ca/its/>.

Some aspects of the web site require Adobe Acrobat Reader (5.0 or higher), which is available for free.

14. Cheating (Scholastic Offences)

Cheating

University policy states that cheating is a scholastic offence. The commission of a scholastic offence is attended by academic penalty, which may include expulsion from the program. If you are caught cheating, there will be no second warning. Possession or use of more than one clicker during a lecture will be considered cheating. Cheating includes having available any other electronic devices than a watch and the

Sharp calculator discussed previously during a test or exam. You may not have a cell phone accessible, even to use it as a calculator or watch. Complete information on the University policy on academic offenses can be found at <http://www.uwo.ca/univsec/handbook/>.

Plagiarism

Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western Academic Calendar).

15. Classroom Conduct

Disruptive behaviour will not be tolerated in class (or the chat room). Please respect the rights of your classmates to benefit from the lecture by limiting your conversations to those essential to the class. Students who persist in loud or rude behaviour will be asked to leave and may have their clicker codes disabled for an extended period.

16. Complaints and Suggestions

If you have a concern about something, please let us know. We rely on your feedback. Please contact initially the person most directly concerned; this will usually be your instructor. If that is not satisfactory, or if there is something more general bothering you, talk it over with the Chair of Undergraduate Affairs or the Physics & Astronomy Department Chair (for contact information see <http://www.physics.uwo.ca>).

17. Contacting Us

The simplest way to contact us outside of lectures is by the “mail” function of the class WebCT Vista site (<http://webct.uwo.ca>). Please allow 2–3 working days for a response. We will not read or respond to emails from any source other than WebCT or addresses that do not end in “@uwo.ca”! Note in particular that emails sent from non-UWO accounts will not be answered.