

PHY1012F: Physics A for Engineers Course Information: 2018

PHY1012F: Physics A for Engineers (Mechanics & Thermodynamics) is a half-year course for first-year students registered in the Faculty of Engineering and the Built Environment. The course consists of lectures and problem solving, laboratory and tutorial sessions. The Physics Department is located in the RW James Building, University Avenue. All lectures, laboratory sessions and tutorials will take place in this building.

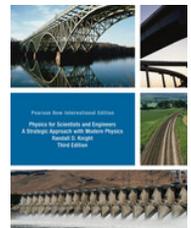
All course information and Announcements are posted on the [PHY1012F Vula site](#), which includes, *inter alia*, Lecture Videos, a Q&A facility and a Resources section which contains the all-important Administration sub-folder, as well as copies of the lecture slides, laboratory information and material, supplemental material and links, copies of past test and examination papers (with answers), and model solutions to current weekly problem sets (WPSs), tutorials and tests, etc... (Announcements are usually also emailed to students' *UCT email addresses*, which must therefore be active and working!)

Syllabus

The syllabus is that of a standard calculus-based introductory physics course for engineers. Details can be found on the PHY1012F Vula site under [Course Outline](#).

Textbook

The prescribed text for PHY1012 / PHY1013 is Randall D. Knight, *Physics for Scientists and Engineers, A Strategic Approach* (3rd Ed). Pearson, Addison Wesley. (Earlier editions will usually suffice.)



Course Coordination

- The PHY1012F **Course Convener** is Mr Gregor Leigh.
(Room 3.05, RW James Building, email: gregor.leigh@uct.ac.za).
All administrative queries should be directed to him.
- There may be several PHY1012F **course lecturers** during the semester.
All queries about material covered in lectures should be referred to the current lecturer during his/her designated [consultation times](#) (see Vula under Resources/Admin).
- The **Laboratory Coordinator** is Prof Andy Buffler, but Mr Mark Christians (Prep Room, behind the chalkboard in the Physics 1 laboratory) is the Laboratory Assistant to whom ALL laboratory related administrative queries should be addressed in the first instance.

This year's PHY1012F **Course Tutors** are Amakan Agoni (agnama001@myuct.ac.za) and (Martins Maigari (mgrmar004@myuct.ac.za), who will run Hotseat sessions and be otherwise available at [designated times](#) (see Vula under Resources/Admin).

Declaration on Plagiarism

Plagiarism is the practice of using someone else's work and passing it off as your own. It is immoral and unacceptable. Every student **must** complete the [Plagiarism Declaration](#) (in the form of a quiz under Tests & Quizzes on the course Vula site) before the end of the first fortnight of lectures.

Lectures

Engineering Stream	Venue	Day	Period	Times
Civil, Chemical, Mechanical	LT3A & LT4B	Mon to Fri	1 st	08h00 – 08h45
Electrical (i.e. ALL EEE students)	LT3A	Mon to Fri	2 nd	09h00 – 09h45
ALL Repeating Students	LT3A	Mon to Fri	2 nd	09h00 – 09h45

Laboratory/Tutorial sessions

Laboratory and tutorial sessions alternate weekly, and will take place on Monday, Wednesday, Thursday and Friday afternoons between 14h00 and 17h00. The [PHY1012F Lab/Tut Calendar](#) contains, *inter alia*, the schedule of laboratory practicals and tutorials. Laboratory sessions will take place in the Physics 1 laboratory (PHYLAB 1). Every other week, on the same day of the week as the labs, tutorial sessions will be held in James 3B, where students, in groups of three, will work through assigned problems on white boards. The lecturer and tutors will be present during these sessions to discuss difficulties encountered and to assist if necessary. Full solutions will be published on Vula under Resources/Tutorial Solutions at the end of each tutorial week.

Attendance at practicals and tutorials is compulsory. Exemption from any of these will be considered **ONLY** on medical or compassionate grounds and will normally require a medical certificate or an official letter of support. This documentation must be stapled behind a completed [Missed Lab/Tut Excuse Form](#) and submitted to the Course Convener within a day of the student's return to classes. *In the case of a missed practical the student must arrange with Mr Christians to do a make-up lab.*

Weekly Problem Sets (WPSs)

Each Friday morning a sheet of questions will be handed out before the lecture. (Copies of these WPSs will also be found on Vula under Resources/WPS.)

- Students are to work through all the problems (and are strongly encouraged to attempt the extra, textbook problems listed at the bottom of the sheet as well) by the end of the next week. (Students may consult with each other and should approach the course tutors for help if necessary.)
- Before the deadline (08:00 the next Friday) students must declare on Vula (under Tests & Quizzes) whether or not they have made a reasonable attempt at answering all the questions (1 = Yes, 0 = No).
- Between 08:40 and 09:05 that next Friday, a number of randomly chosen students will be required to hand in immediately their hand-written solutions to the problem set, stapled in the top left hand corner, with the student's *full name and student number in the top right hand corner.*

If a student has declared a 1, but, *for ANY reason*, his/her solutions are not handed in on request, or are found to be inadequate (or a copy of someone else's work) he/she will score 0 *and lose all the 1s he/she has accumulated up to that point!* (If the name of a student who declared a 0 is drawn there is no penalty other than scoring 0 for that WPS.) *Solutions do not need to be 100% correct!* It will be sufficient that all the problems on the sheet have been reasonably attempted (see note above about seeking help from the course tutors). The declarations (1 or 0) made by the remainder of the class will be accepted as correct. Marks thus obtained for these weekly problem sets will contribute 5% towards the final course mark.

Worked solutions to the questions will be published in due course on Vula under Resources/WPS Solutions. *Note: These weekly problem sets and the tutorials are a good indicator of the type and standard of questions which can be expected in tests and exams.*

Short Leave

If a student wishes to be granted an exemption or extension for a course requirement as a consequence of a planned short absence from the course, a completed [Short Leave Application Form](#), with supporting documentation stapled behind it, must be submitted to the Course Convener at least three (3) working days prior to the period in question. Irreversible plans (such as flight bookings) must not be made before such leave has been approved.

Assessment

The final mark will be made up as follows:

Assessment	Description	Weighting	Comment
Test record	Test 1	15%	(See Vula Calendar for scope of test.)
	Test 2	15%	(See Vula Calendar for scope of test.)
Weekly Problem Sets		5%	
Laboratory record	Laboratory reports	7.5%	Each report marked out of 20
	Laboratory test	7.5%	Test based on practicals covered
June examination		50%	2 h; 60 marks (7 MCQs, 4 10 mark Qs)
Total		100%	

An aggregate of 50% is required to pass the course. There are no sub-minima in any of the separate assessments. The weighted total of all currently available marks (other than the final examination) constitutes a student's **Class Record** – which may be used for providing interim confidential reports to legitimate stakeholders (e.g. sponsors, bursary providers).

Test Schedule

Time: 18:00 – 19:30

Venues: James: 3A, 4A and PHYLAB 1 (Allocation by surname to be announced)

Dates: Test 1 Tuesday 20 March (See Vula Calendar for scope of test.)

Test 2 Tuesday 8 May (See Vula Calendar for scope of test.)

Students who miss a test through illness must submit their medical certificates to the Course Convener within a day of return to classes. *In the case of a valid excuse, the Course Convener reserves the right to administer a make-up test, otherwise the student's one test mark will count for both tests.*

Duly Performed (DP) Requirements

In order to be regarded as having Duly Performed (DP) the work of the course, and thereby qualify to write the final examination, a student must have:

- achieved a Class Record (based on the weighted average of all marks available at the time of publishing DP lists) of at least 35%; and
- participated in ALL assessments and activities unless excused by the Course Convener.

Reassessment

The Physics Department will normally reassess students who achieve an overall mark of between (and including) 45% and 49% for PHY1012F, i.e. students who are graded with an S (e.g. 47S). In addition, the Faculty of Engineering and the Built Environment may also offer students in the range of 40% to 44% a *tutored* reassessment opportunity. Such students will qualify for re-examination only if they attend the complete Tutored Reassessment Programme (TRP, or “Supp, or Boot Camp”), which takes place in the week prior to reassessment (see below).

Both categories of “supplementary” candidates (as well as deferred examination candidates) will write the same examination paper, which will have exactly the same structure (and cover the same material) as the May/June examination (a 2-hour paper, comprising 7 multiple choice items, a set of short questions worth 10 marks and a choice of three out of four 10 mark questions, for a total of 60 marks). The Supplementary/Deferred Examination is held *on one day* one or two weeks prior to the next semester.

As with the final examination, students' Class Record marks are combined with their reassessment marks (with 50-50 weighting) to calculate their final subject mark. For “supplementary” candidates, any aggregate of 50% or above is graded 50UP – a so-called “unclassified” pass in the subject.