

PHY1013S: Physics B for Engineers

Course Information: 2019

PHY1013S: Physics B for Engineers (Oscillations & Waves / Electricity & Magnetism) 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 information regarding the course is posted on [PHY1013S Vula site](#): copies of the lecture slides, supplemental course material, copies of past examination papers, weekly problem sets (WPS), tutorials, tests, as well as model solutions for WPS. Course announcements will appear under Announcements, and will usually also be emailed to students' *UCT email addresses* (so make sure your address is working!). All lectures are recorded and usually appear under Lecture Recordings within 48 hours.

Syllabus

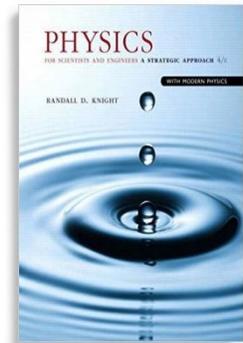
The syllabus is that of a standard calculus-based introductory physics course for engineers. Details can be found on the PHY1013S Vula site under [Course Outline](#).

Textbook

The prescribed text for PHY1012F / PHY1013S is

Randall D. Knight, *Physics for Scientists and Engineers, A Strategic Approach* (4th Ed). Pearson, Addison Wesley.

(Earlier editions will usually suffice.)



Course Coordination

- The PHY1013S **Course Convener** and **lecturer** is Mr Dieter Geduld. (Room 3.05, RW James Building, email: dieter.geduld@uct.ac.za). All administrative queries and questions about material covered in lectures should be directed to him during his designated [consultation times](#) (see Vula under Resources/Admin).
- The PHY1013S **Laboratory Coordinator** is Mr Dieter Geduld. (Room 3.05, RW James Building, email: dieter.geduld@uct.ac.za), 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.
- The PHY1013S **Course Tutors** for 2019 are Paul Orim (ormpau001@myuct.ac.za) and Matthew Segal (sglmat001@myuct.ac.za), who will run Hotseat sessions and be available at designated times to be determined (see Vula under Resources/Admin).

Lectures

Engineering Stream	Venue	Day	Period	Times
Civil, Mechanical	LT4A	Mon to Fri	1 st	08h00 – 08h45
Electrical (i.e. ALL EEE students)	LT4A	Mon to Fri	2 nd	09h00 – 09h45
All repeating students	LT4A	Mon to Fri	2 nd	09h00 – 09h45

Laboratory/Tutorial sessions

Laboratory and tutorial sessions alternate weekly, and will take place on Wednesday, Thursday and Friday afternoons between 14h00 and 17h00. The [PHY1013S Lab/Tut/ Calendar](#) (on Vula under Resources/Lab) 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 days 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 not be published on Vula for the tutorial sessions.

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 the 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 approach the course tutor 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 08:45 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. 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.

Model 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!

Attendance and Exemptions

Attendance at practicals, tutorials, class tests and examinations are 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 Activity Excuse Form](#) (available under Resources/Admin) and submitted to the Course Convener/Lecturer **within a day of your return to classes.**

In the case of a valid excuse, the Course Convener reserves the right to administer a make-up classtest within a week from the missed class test.

In the case of a missed laboratory practical the student must arrange with Mr. Christians to do a make-up lab.

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 course mark will be made up as follows:

Assessment	Description	Weighting	Comment
Test record	Test 1	15%	(See Vula for scope of test.)
	Test 2	15%	(See Vula for scope of test.)
Weekly Problem Sets		5%	
Laboratory record	Laboratory reports	7.5%	
	Laboratory test	7.5%	Test based on practicals covered.
Final examination		50%	Details to follow.
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: John Day and PHYLAB 1 (Allocation by surname to be announced)

Dates: Test 1 Tuesday 13 August
Test 2 Tuesday 01 October

Duly Performed (DP) Requirements

In order to be regarded as having Duly Performed (DP) the work of the course, and therefore to 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 (see **Attendance and Exemptions** section for exceptions).

Reassessment

The Physics Department will normally reassess students who achieve an overall mark of between (and including) 45% and 49% for PHY1013S, 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 full Tutored Reassessment Programme (TRP, or “Supp Camp/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 examination paper, which will have the same structure (and cover the same material) as the final examination. The Supplementary/Deferred Examination is held *on one day* during the two weeks preceding the next semester. Please do not make irreversible plans (such as flight bookings) during this period.

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.