

# PHY1012S

## Course Information Sheet

July 21, 2024

### Course Description:

PHY1012S is the first semester introductory physics course for engineers taught in the second semester of the academic year.

### Entrance Requirements:

Consult the engineering handbook.

### Course Outline:

Vectors, kinematics, dynamics, work, energy, power, conservative and non-conservative forces, friction, impulse, momentum, collisions, rotation, rotational dynamics, torque, rotational inertia, rotational energy, angular momentum, fluids, pressure, buoyancy, fluid dynamics, elasticity, elastic moduli, phases of matter, temperature, phase changes, ideal gas laws, heat, calorimetry, heat transfer.

### Logistics:

Lecture Room:	James LT4B
Lecture Time:	9am – 9:45am
Lecture Days:	M – F
Tutorial Time:	2pm-5pm, Thursday and Friday
Tutorial Room:	PHYLABI (Upstairs)
Laboratory Time:	2pm-5pm, Thursday and Friday
Laboratory Room:	PHYLABI (Upstairs)
Textbook:	Knight <i>Physics for Scientists and Engineers: A Strategic Approach</i> , 5th Ed.
Website:	<a href="https://amathuba.uct.ac.za/d2l/home/78479">https://amathuba.uct.ac.za/d2l/home/78479</a>

Other potentially useful textbooks include:

- *Fundamentals of Physics* – Halliday, Resnick and Walker (Wiley)
- *University Physics* – Young and Freedman, (Addison-Wesley)
- *Physics for Scientists and Engineers* – Serway and Jewett, (Brooks Cole)

### Marks:

Lab Reports:	7.5%
Lab Exam:	7.5%
Weekly Problem Sets:	10%
2 Class Tests:	25%
Exam:	50%

#### Code of Honour:

You will be required to read and accept the Faculty of Science Code of Honour. In particular, you agree that “I understand that although I may work with others, all laboratory reports, weekly problem sets, and other assessments I submit online will be my own work.”

#### Code of Conduct:

You will be required to read and accept the Faculty of Science Code of Conduct. In particular, you agree to help foster “an environment that is inclusive and free from discrimination, violence, bullying and harrassment for everyone, regardless of gender, race, sexual orientation, disability, country of origin, physical appearance, age, mental or physical health, HIV-status, political opinion or religion,” that “discrimination, violence, bullying or harrassment, in any form” will not be tolerated, and that “all communication should be professional and appropriate.”

You may find a copy of the Faculty of Science Code of Conduct under Resources on Amathuba.

Weekly Problem Sets: WPS will be online through the Pearson service. Please see the form on Amathuba if you are not on the Pearson site for the course already.

#### Test Schedule:

Test 1: Thursday, September 12, 2024 at 18h00 (TBC)

Test 2: Friday, October 11, 2024 at 18h00 (TBC)

#### Examinations:

The final exam will be held during the usual November examination period.

#### Laboratory:

There will be a full complement of lab activities for PHY1012S, including a lab test. The PHY1012S lab/tut calendar can be found on Amathuba under Resources. You may ask for exemption for any lab activities (labs, lab reports, and lab test) you’ve already participated in. You may request an exemption by sending a filled out ‘PHYlab exemption application form.pdf’ found on Amathuba under Resources to Mr. Mark Christians ([Mark.Christians@uct.ac.za](mailto:Mark.Christians@uct.ac.za)). **You must submit your exemption application by Monday, Aug 5, 2024.** Late exemption applications will be automatically denied.

#### Medical certificates:

Participation in all practicals, weekly quizzes, and tests is mandatory. If you are ill and miss any grade-carrying activity, then an electronic copy (i.e. scan or picture) of a medical certificate from a *registered medical practitioner* must be emailed to the course convenor as soon as possible, and no later than the day of the activity; the medical certificate further needs to be presented or emailed to Ms. Jill Patel ([jill.patel@uct.ac.za](mailto:jill.patel@uct.ac.za)) on the day of return to classes *at the latest*, and a short form—found under Amathuba/Admin—must be completed. A medical certificate must include the date(s) for which the medical professional found in their professional opinion that the student was unfit to attend university activities. Students

missing a test due to illness will be asked by the course convener to write a make-up test within a few days. Plans will also be made to hand in missed homework. Exceptions are only granted in very rare circumstances. Exemptions from laboratory activities are handled by Mr. Mark Christians ([Mark.Christians@uct.ac.za](mailto:Mark.Christians@uct.ac.za)) and not the overall course convener.

Note that for mental health, EBE has a dedicated student counsellor, Nazeema Ahmed, who is a clinical psychologist. She can be contacted at 021 650 2413 or by email [nazeema.ahmed@uct.ac.za](mailto:nazeema.ahmed@uct.ac.za).

#### Short leave from the course:

If a student wishes to be granted an exemption or extension for a course requirement associated with a planned (future) short absence from the course, then there is a form to complete (available on the course Amathuba site). This form needs to be submitted to Ms. Jill Patel ([jill.patel@uct.ac.za](mailto:jill.patel@uct.ac.za)) at least 3 working days prior to the period in question. Irreversible plans (such as flight bookings) must not be made before approval of leave is granted. Completion of the form is not required for medical certificates obtained on the day of unplanned illness (see section above).

#### DP:

To be awarded a Duly Performed (DP) and be invited to the final examination, students must:

- Receive a class record of at least 35% (based on all grades available at the time of publishing DP lists)
- Participate in all class tests,
- Complete and submit all lab activities, with an overall average of at least 50%,
- Submit at least 90% of the online homework sets

#### Regrades and Reassessment:

Regrade requests must be made within one week of the posting of marks or solutions, whichever comes first.

There are no reassessments.

#### Communication:

You may wish to consider the following valuable resources when constructing formal communications between yourself and the hard-working academic team assigned to this course:

<https://www.insidehighered.com/views/2015/04/16/advice-students-so-they-dont-sound-silly-emails-essay>

<https://medium.com/@lportwoodstacer/how-to-email-your-professor-without-being-annoying-af-cf64ae0e4087>

Lecturers:

A/Prof. W. A. Horowitz (Convenor)

wa.horowitz@gmail.com

R. W. James, Room 4.06

Consultations: Thursdays, 1pm-2pm and by appointment

Mr. Matome Malatji

mltmat016@myuct.ac.za

Studio 1, Chemical Engineering Building

Consultations: Thursdays, 1pm-2pm and by appointment

Tutor:

Mr. Tafadzwa Mashamba

MSHTAF011@myuct.ac.za

Class Rep:

TBD