

SYLLABUS

PHY1025F – Introductory Physics

2022

- Instructors:** Dr. Katie Cole (Coord) / RW James 4.04 / 650.3344 / katie.cole @uct.ac.za
Dr. James Keaveney / RW James 5.06 / 650.7180 / james.keaveney @uct.ac.za
- Class:** The course will begin with daily Vula Lessons for the Mechanics module, which will be posted to guide you through the course material. These lectures will be delivered as Voice over Powerpoint slide videos, supplemented with other materials. We are planning to return to face-to-face lectures for the Heat & Properties of Matter module (TBD).
- Textbook:** Physics: Principles with Applications by Giancoli (Prentice Hall, 7th Edition).
- Web Page:** The course page will be on Vula (PHY1025F, 2022). You will find course information, lecture notes, tutorials, previous tests and exams, and weekly problem sets here.
- Course Outline:** Mechanics: Chapters 1-4, 6-9 (17 lectures)
Kinematics, vectors, 2D motion, Newton's laws, work and energy, conservation of energy, center of mass, torque, static equilibrium
Heat & Properties of Matter: Chapters 10, 13-15 (9 lectures)
Density, pressure, equation of continuity, viscosity, specific heat, calorimetry, heat transfer, ideal gas law, thermodynamics, metabolism
Optics: Chapters 23, 25 (5 lectures)
Reflection, refraction, Snell's law, thin lenses, magnification
Vibrations & Waves: Chapters 11-12 (8 lectures)
Principle of superposition, simple harmonic motion, sound waves, Decibels, Doppler effect
Electricity: Chapters 16-19 (8 lectures)
Electric charge, Coulomb's law, electric field, electric potential, Ohm's law, circuits
- Course Tutor:** There will be two course tutors Serge Tomety (serge.tomety@uct.ac.za) and Rayhaan Perin (prmog001@myuct.ac.za). They will be available during tutorials and run a weekly online help session on Fridays at 13h00 via MS Teams, if you wish to discuss difficulties with the problem sets and any course matters.
- Practicals:** Physics practicals will be conducted online and administered separately by the PHYLAB1 team. Consult the practical guides for further information.
Students are expected to complete all practical laboratories for the course and complete all laboratory reports. A minimum of 50% for your overall laboratory grade is required for a DP.
- Tutorials:** Physics tutorials will be held in the RW James Building on Upper Campus from 09h20-10h40. The venues are PHYLAB and Room 3B. The class will be split into two groups: Group K will do tutorials on Mondays and Group M will do tutorials on Tuesdays. Students will be assigned a day, venue and partner randomly to work through a series of challenge questions on a whiteboard. The class and partner groups will be posted on Vula and may be updated throughout the course. Attendance at the tutorials is monitored with a student card reader and is required for DP.
- Problem Sets:** There are no compulsory problem sets, but additional problems will be set weekly.
- Class Tests:** There will be two invigilated class tests during the semester and will take place on 4 March and 8 April (18h00-19h30 and venue TBC). **No medical exemptions** are awarded for tests, and students missing a test on medical grounds will need to complete the *Missed Activities* form and write a make-up test, otherwise they will be awarded 0 (zero) for the test.
If you miss a test, you must contact Dr Cole within 24 hours for further instructions.
- Assessment:** Class Tests (2 x 15%) – 30%, Laboratory Record – 10%, Final Exam – 60%. To pass the course, a student must obtain a final (aggregate) mark of 50%.

DP Certificate: In order to obtain a duly performed (DP) certificate (i.e. to be allowed to write the final exam) students must have obtained an average of 35% for the two class tests, have averaged over 50% for the practicals and attended all the tutorials.

COVID: Any changes to the course due to the ongoing pandemic will be communicated via Vula.

COURSE SCHEDULE

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2022

Lectures online / NLCLT Period 2 W,Th / JAMES LT3A Periods 6,7 F				
Monday	Tuesday	Wednesday	Thursday	Friday
14 Feb M1	15 M2	16 M3	17 M4	18 M5+6
21 Feb K: Tut 1	22 M: Tut 1	23 M7	24 M8	25 M9+10
28 Feb K: Tut 2	01 Mar M: Tut 2	02 M11	03 M12	04 Test 1
07 Mar K: Tut 3	08 M: Tut 3	09 M13	10 M14	11 M15+16
14 Mar M17	15	16 H1	17 H2	18 H3+4
21 Mar Human Rights	22	23 H5	24 H6	25 H7+8
28 Mar	29	30	31	01 Apr
Mid Term Break				
04 Apr K: Tut 4	05 M: Tut 4	06 H9	07 O1	08 Test 2
11 Apr K: Tut 5	12 M: Tut 5	13 O2	14 O3	15 Good Friday
18 Apr Family Day	19	20 O4	21 O5	22 V1+2
25 Apr K: Tut 6	26 M: Tut 6	27 Freedom Day	28 V3	29 V4+5
02 May Workers Day	03	04	05 V6	06 V7+8
09 May K: Tut 7	10 M: Tut 7	11 E1	12 E2	13 E3+4
16 May K: Tut 8	17 M: Tut 8	18 E5	19 E6	20 E7+8
23 May	24	25 Exam	26	27
Consolidation		Other Exams		

Lectures:
 M: "Mechanics" lecture (Cole)
 H: "Heat & Properties of Matter" lecture (Cole)
 O: "Optics" lecture (Cole)
 V: "Vibrations & Waves" lecture (Keaveney)
 E: "Electricity" lecture (Keaveney)

Tutorials: Tutorial meet in RW James Course I Laboratory (PHYLAB1) and Room 3B. Groups Kelvin and Moles.