SYLLABUS   PHY1025F – Introductory Physics   2025

Instructors: Prof Steve Peterson (Coord) / RW James 5.14 / 650.2377 / steve.peterson @uct.ac.za
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Class: 2nd Period (9:00 – 9:50) / Wed & Thur (Mon & Tues) / Anat LT1 (New Learning Centre)
6th & 7th Period (14:00 – 15:45) / Friday / RW James Lecture Theatre LT3A
Please bring a calculator and writing material as problems are solved during lectures.

Textbook: Physics: Principles with Applications by Giancoli (Prentice Hall, 7th Edition)

Web Page: The course page will be on Amathuba. You will find course information, lecture notes, tutorials, previous tests and exams, and additional problem sets here.

Course Outline: Mechanics: Chapters 1-4, 6-9 (18 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 (10 lectures)
Density, pressure, equation of continuity, viscosity, specific heat, calorimetry, heat transfer, ideal gas law, thermodynamics, metabolism
Vibrations & Waves: Chapters 11-12 (8 lectures)
Principle of superposition, simple harmonic motion, sound waves, Decibels, Doppler effect
Optics: Chapters 23, 25 (5 lectures)
Reflection, refraction, Snell's law, thin lenses, magnification
Electricity: Chapters 16-19 (8 lectures)
Electric charge, Coulomb's law, electric field, electric potential, Ohm's law, circuits

Course Tutors: The course tutors are Josiah De Klerk (DKLJOS001 @myuct.ac.za) and Moses Gororo (GRRMOS001 @myuct.ac.za). They will be available 13:00 – 14:00 on Fridays in RW James 3B, if you wish to discuss difficulties with the problem sets and any course matters.

Pracs & Tuts: Physics practicals and tutorials will be held from 9:20 – 11:20 on Mondays and Tuesdays in the RW James building; see the course schedule. The class will be split into two groups (A & B). Group A will do practicals on Mondays and tutorials on Tuesday while Group B will do the opposite. The class split will be posted on Amathuba.
All students are expected to attend all practical laboratories and white board tutorials for the course and complete all laboratory reports. A minimum of 50% for your overall laboratory grade is required for a DP. For absences, complete the application to miss an academic activity using the form on Amathuba ("*FHS Missed Activities Concession Form*"). Students must ensure that they are not late. Students will be required to hand in their completed laboratory report **strictly by 11.20** and late submissions will not be accepted without prior approval of the academic in charge.

Problem Sets: There are no compulsory problem sets, but additional problems will be set weekly.

Class Tests: There will be two class tests during the semester and will take place on 28 March (Sarah Baartman Hall, Upper Campus) and 09 May (Sarah Baartman Hall, Upper Campus). **No medical exemptions** are awarded for tests, and students missing a test on medical grounds will need to complete the *Missed Activities Concession* form and write a make-up test as soon as they recover, otherwise they will be awarded 0 (zero) for the test.
If you miss a test, <u>you must contact Prof Peterson within 24 hours for further instructions.</u>

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.

Lectures (2nd Period MTuWTh ANAT LT1 & 6th/7th Period F RWJ LT3A)				
Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**
17 Feb **M1**	18 **M2**	19 **M3**	20 **M4**	21 **M5+6**
24 Feb A: Prac 1 B: Tut 1	25 A: Tut 1 B: Prac 1	26 **M7**	27 **M8**	28 **M9+10**
03 Mar A: Prac 2 B: Tut 2	04 A: Tut 2 B: Prac 2	05 **M11**	06 **M12**	07 Mar **M13+14**
10 Mar A: Prac 3 B: Tut 3	11 A: Tut 3 B: Prac 3	12 **M15**	13 **M16**	14 **M17+18**
17 Mar **H1**	18 **H2**	19 **H3**	20 **H4**	21 *Human Rights*
24 Mar A: Prac 4 B: Tut 4	25 A: Tut 4 B: Prac 4	26 **H5**	27 **H6**	28 **Test 1**
31 Mar	01	02 *Mid Term Break*	03	04
07 Apr A: Prac 5 B: Tut 5	08 A: Tut 5 B: Prac 5	09 **H7**	10 **H8**	11 **H9+10**
14 Apr A: Prac 6 B: Tut 6	15 A: Tut 6 B: Prac 6	16 **V1**	17 **V2**	18 *Good Friday*
21 Apr *Family Day*	22 **V3**	23 **V4**	24 **V5**	25 **V6+7**
28 Apr *Feeedom Day*	29 **V8**	30 **O1**	01 May *Workers Day*	02 **O2+3**
05 May A: Prac 7 B: Tut 7	06 A: Tut 7 B: Prac 7	07 **O4**	08 **O5**	09 **Test 2**
12 May A: Prac 8 B: Tut 8	13 A: Tut 8 B: Prac 8	14 **E1**	15 **E2**	16 **E3+4**
19 May A: Prac 9 B: Tut 9	20 A: Tut 9 B: Prac 9	21 **E5**	22 **E6**	23 **E7+8**

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

Venues:
Practical experiments meet in RW James Course I Laboratory (PHYLAB1)
Tutorials meet in RW James Room 3B

Practicals:
1: Reaction Time
2: Hooke's Law
3: Linear Motion
4: Flywheel
5: Viscosity
6: Speed of Wave on String
7: Optics
8: Circuits
9: Electric Fields