DEPARTMENT OF PHYSICS AND ELECTRONICS

PHYSICS 1E2

COURSE BROCHURE

2026

1 THE COURSE

Physics 1E2 is an Introductory Electronics course that runs in the second half of the year.

Any student accepted into the university may register for Introductory Electronics (Physics 1E2), which affords students in a wide range of disciplines an opportunity to gain an understanding of modern electronic devices. During this course you will receive an introduction to basic electricity and electronics. Entry into Physics 1E2 does not require that a student has attended or passed Physics 1E1.

2 OUTCOMES and ASSESSMENT

Learning outcomes for the Physics 1E2 course are specified below.

- **Basic knowledge**
  Students will know and apply the concepts and laws of electronics to understand and explain the operation circuits covered by the course as well as design several key circuits.

- **Skills**
  Students will develop the skills required for scientific and technological inquiry, for solving problems and for making informed decisions.

3 ADMINISTRATION

Physics 1E2 will be taught by Mr A Sullivan, he is also the course co-ordinator and can be found in room 39

4 LECTURES

You are **expected** to attend all lectures. All ectures will be held in the Physics Upper Lecture Theatre. Lecture Times:

Monday	10:30	(period 4)
Tuesday	11:25	(period 5)
Wednesday	07:45	(period 1)
Thursday	08:40	(period 2)
Friday	09:35	(period 3)

5 NOTICES

All notices for the course will be released via RUConnected. The onus is on you to check RUConnected regularly for assignment solutions etc.

6 PRACTICALS

You will be assigned to a particular group on a particular day of the week by the Dean of Science. Your practicals are held in Room 26 in the Physics Department.

Before each practical there is an introductory talk at 14:00 in the Physics Laboratory (Room 26). We expect you to have read the instructions for the correct practical beforehand.

For every practical, it is your responsibility to ensure that all **HURDLES** are signed in your practical manual by a demonstrator before you leave and that you are marked present. **Attendance of practicals and tutorials is compulsory.**

7 TEXTBOOKS

There is no prescribed textbook.

8 CALCULATORS

You are expected to have a scientific calculator, which you will need in all practicals, tests and examinations.

9 HANDOUTS

During the year, you will receive a considerable quantity of printed matter from us, such as the practical manual, test papers, pamphlets and the like. To cover the cost of printing, we debit your account with the University, R90.00

10 TESTS

There will be a test approximately every two weeks. You will sit the test during the usual lecture time on a Wednesday morning. These tests are intended to encourage you to keep up with the work and help you keep track of your progress. The average of your test marks in each semester make up the bulk of your Class Record Mark, **which is combined with your examination marks to give your final mark for the semester.**

The provisional dates of the tests are provided in the course notes.

Usually the test comprises 5 multiple choice questions and a "free-response" section. The marks are usually but not always divided in the ratio 40:60.

WARNING: Some may think it easy and convenient to cooperate with others writing a test. It certainly is easy to detect such attempts at collusion. Since the tests count directly towards your final result, attempts at cheating are taken seriously and the penalties

for cheating are very severe.

If you miss a test, you will be given a mark of zero unless you have obtained prior permission to miss the test from your lecturer or from the Head of Department, or an appropriate MEDICAL CERTIFICATE is provided, preferably by a doctor. The leave of absence should be handed in within 2 weeks of the missed test or practical or you will be counted as absent. See the official Department notice titled "LEAVE OF ABSENCE".

11 DP REQUIREMENTS

To be allowed to write the examinations, you must have "duly performed" the work of the class.
For each semester this means

(a) attending **at least 80 %** of of the practical sessions.

(b) obtaining a class record mark of **at least 40 %** for Physics 1E2.

(c) attending 80% of the lectures.

12 EXAMINATIONS, FINAL MARK AND SUBMINIMA

To be admitted to an examination, you must have met the DP requirements as indicated above.

The final examinations for each semester are held at the end of that semester. In the theory papers the marks are divided between a multiple-choice and a "free response" section. No choice of questions is allowed in any of the examination papers. This has the advantage from your point of view that you don't have to spend precious time in deciding which questions to answer.

The Physics 1E2 examinations in November consist of a 2-hour theory paper and a 2-hour practical.

In each semester the **final** mark is calculated as follows.

$$\text{Exam } \% = (2 \times \text{Theory } \% + \text{Prac } \%)/3$$

$$\text{Final } \% = (2 \times \text{Exam } \% + \text{Class Record } \%)/3$$

Inclusion of the Class Record mark implies that should your Class Record be a low mark, your written examination will have to be very much better, for you to pass.

The laboratory will NOT be accessible after the last practical or during Swot Week, or after the exam, but before the supplementary exam.

13 STUDY TECHNIQUES

In order to succeed at Physics, you are best advised to systematically and regularly work at the subject. We encourage you to study Physics at least an hour each day. This time should be spent:

(i) learning key concepts and definitions;

(ii) solving problems;

(iii) supplementing lecture notes using your textbook as necessary;

(iv) working on unfamiliar material.

The fact that we assign only a limited selection of assignment problems should not deter you from attempting others. The set problems are the minimum number to be attempted in order to master the work. Please pay attention to examples worked out during lectures, examples provided in the notes and in class as well as the problems set in the tutorials. Many such examples are usually the basis of the final examination paper.