



## Electronic & Electrical Engineering.

### EEE160 COURSEWORK YEAR 1

**Credits: 20**

#### Course Description including Aims

Through the use of practical work, including individual and group projects, this course aims

1. to provide experience in the use of instruments for the analysis of Electronic and Electrical systems, including an appreciation of the accuracy and applicability of these instruments; develop skills in the carrying out of experimental work, making an intelligent choice of data measured, understanding of measurement accuracy, and the ability to critically evaluate the data;
2. to reinforce technical concepts introduced in other courses through exposure to these in a practical setting;
3. to provide opportunities to apply basic electronic concepts to the design of circuits and other systems;
4. to develop skills in reporting technical results in a variety of formats, including graphical and other presentation of experimental data, technical reports and oral presentations;
5. to develop an appreciation of good computer programming style including an introduction to programming in the C language;
6. to develop personal organisational and project management skills;
7. to engender and encourage an enthusiasm for the subject by introducing practical applications of scientific and engineering concepts.

#### Outline Syllabus

(a) **Laboratory Work:** Workstation Familiarisation Exercises I and II; Fabrication of a Light Emitting Diode; AC Circuits; Computer Aided Design Exercise; Logic Circuit Design; DC Machines; Transformers; Spectrum Analyser; Bipolar Transistor; Individual Project; Group Project.

(b) **Computing:** Introduction to the C Computing Language, Instructions, Structured Programming, File Handling.

(c) **Professional Skills:** Report Writing Skills; Oral Presentation Skills, Presentation of Data; Use of the Library; Good Experimental Practice, Principles of Error Analysis.

#### Time Allocation

- |                          |  |
|--------------------------|--|
| (a) Laboratory work:     | 60 hours of practical work plus 33 hours of report writing |
| (b) Computing:           | 12 hours of lectures, plus 24 hours of practical work.     |
| (c) Professional skills: | 10 hours of lectures.                                      |

#### Recommended Previous Courses

Entry Qualifications

## Assessment

Continuous assessment by a variety of short reports, full technical reports and oral reports, and attendance in certain laboratories and at personal tutorials.

## Recommended Books

Taylor J.R.            *An Introduction to Error Analysis*

OUP

Barrass              *Scientists Must Write*

Chapman and Hall

## Objectives

By the end of this module successful students will be able to:

1. carry out experiments to a prescribed set of instructions.
2. make appropriate use of equipment available and make sensible choices in the measurements made
3. critically analyse results and estimate measurement uncertainties.
4. use the C computer language to produce structured programmes.
5. report their results in a variety of forms, both oral and written, in a concise and clear manner.
6. work effectively in a group to produce a design under identified constraints.
7. plan their study time effectively,