Faculty of Engineering, Science and Built Environment

Communication, Experiments and Applications 1

Unit Guide

Unit Data	
Unit ID:	DEN-1-112
Unit Level:	1
Unit Value:	One
Contact Hours:	45 Hours
Private Study Hours:	105 Hours
Prerequisites	None

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AIMS

- To enable students to develop skills of communication and personal and group management
- To develop skills in computing, report writing, experimental procedures, research techniques and public presentation.

2. LEARNING OUTCOMES

This unit is taught on courses which ultimately lead to Incorporated or Chartered Engineer status. The Engineering Council differentiates between the two:

Incorporated Engineer	**Chartered Engineer**
Know-how led but needs appropriate knowledge and understanding	Knowledge/Understanding led but needs appropriate know-how
Top class applications engineering	Top class innovative engineering

At the end of the unit the student will be able to :

Incorporated Engineer	**Chartered Engineer**
Work, organise and plan within a team	Work, organise and plan within a team
Plan experimental work from investigative reading to data acquisition and presentation of results intelligibly	Plan experimental work from investigative reading to data acquisition and presentation of results intelligibly
Display verbal, written and presentational skills appropriate to professional practice	Display verbal, written and presentational skills appropriate to professional practice
Use IT equipment and systems	Use IT equipment and systems

Students on the IEng and CEng route will cover all the learning outcomes above and differentiation will be made at assessment.

3. TEACHING AND LEARNING PATTERN

Study skills, Communication and Computing are taught by keynote lectures leading into assignments, which form part of the experimentation reports and presentations.

Experimentation is taught by small group tutorials. For each experimental topic the group will be given a briefing session by the tutor and the technician. The aim and objectives of the experiment will be discussed and a brief description of the equipment will be given. Some further reading will be suggested and a program of work will be agreed with the tutor.
It is required that the group will maintain a **Laboratory File** which should contain minutes of meetings with tutors, technicians and among group members together with any record of results.

4. INDICATIVE CONTENT

4.1 Study skills

- Introduction to study skills, planning and time management, reading skills
- Research methods and summarising
- Writing skills, report writing and planning.

4.2 Communication

- Methods of communication and their appropriate selection within groups and between individuals
- Preparation of reports and written records
- Information management, storage, transmission and security
- Meetings, conferences and working parties

4.3 Computing

- The principles of computing and the characteristics of peripheral devices
- Operation of PC network, bulletin boards and the use of e-mail and websites.
- Use of word processors and spreadsheets
- Use of graph plotting software for laboratory results and CAD.

4.4 Common Skills

The Edexel/BTEC Common Skills developed and assessed in this unit are:

- Managing and developing self
- Working with and relating to others
- Managing tasks and solving problems
- Applying technology
- Applying numeracy

4.5 Experimentation

- The theme of the first year program is measurement and students will work in groups to undertake four experiments. Two will be presented informally, one will be a formal written report and one will take the form of a public presentation. Typical experimental topics will be selected from the following:

Thermal radiation and temperature measurement
Calibration of anemometers
Measurement of illuminence and daylight factor.
Measurement of air flow rate in ducts.
Measurement of thermal comfort.
Noise survey and acoustics measurement.
Determination of Young's Modules in bending of beams.
Determination of modules of rigidity.
Moment of inertia of a flywheel.
Investigation into pressure sensors.
Range finding using optical and ultrasonic sensors.
Automatic component testing.
Interfacing electronics experiments with PC.

5. READING LIST

5.1 Core Reading

'Study Skills Survival Guide' , SBU Learning and Development Centre.
Vidal-HallJ. 'Report Writing' Industrial Society Press, 1991
Janner G. 'The Complete Speech Writer', 1987
Legg R. 'Notes on Experimentation', SBU/ESD 1990

5.2 Background Reading

King G. 'Good Grammar in One Hour', Mandarin 1993
Barnes R. 'Successful Study for Degrees', Routledge, 1992
Smith P. 'How to Write an Assignment', How to Books 1996
Microsoft Manuals
Excel and Word software
MathCad software

5.3 Optional Reading

Emden J 'Report Writing', McGraw Hill 1987

6. ASSESSMENT

The unit is assessed entirely by coursework. There are tree element of assessment : *Study skills, Computing and Experimentation* as outlined below. An overall aggregate of 40% must be satisfied for the unit.
The coursework elements carry the following weightings:

6.1 Study skills 25%
There will be one piece of coursework, which will comprise of a written report. The report must be prepared individually and it will be assessed on an individual basis.

6.2 Computing 25%
A computing assignment will be set and must be **individually carried out and submitted.** The assignment will cover word processing, spreadsheets and data bases and will be based on the experimentation work being contacted.

6.3 Experimentation 50%
Four experiments will be carried out and assessed. **The assessment for the first three experiments will be a group assessment.** The assessment for the fourth experiment will be partly a group assessment (for the experimentation part of the work and the group management) and partly individual assessment (for the verbal presentation part of the assessment). The table below shows how the marks are allocated for each of the experiments.

Experiment	Total marks	Group assessment	Individual assessment
1 informal report	10	10	-
2 informal report	10	10	-
3 formal report	10	10	-
4 public present/n	20	10	10

It is the responsibility of the group as a whole to manage the group effectively, allocate the work to each individual and ensure that the work is completed to a satisfactory standard, by each individual, before the deadline.
In the event that a member of the group is not performing to the expected level, it is important to try and rectify the situation by consultation and assistance in the first place.

If an individual lets the group down (by let's say not attending pre-agreed meetings and failing to have a valid reason) the following procedure must be followed.

- s/he must be given a written warning, signed by each of the group members, that s/he will be reported to the tutor.
- If the individual does not correct their behaviour then the group must report the student to their allocated tutor, in writing, and the report must be signed and dated by the remaining members of the group.
- In the event that a student is excluded from a group s/he will have to do the experiment on his/her own as well as all the subsequent work. In addition he/she will be penalised on the aspects of assessment for the common skills of *working with and relating to others.*

7. USEFUL NOTES

An **informal report** should include:

- a clear statement of the aim and objectives of the experiment
- brief description of the apparatus used
- the record of measurements taken
- a record of results
- the method used to calculate the results
- a brief discussion on the results and conclusions

It is important to read the section *Report Writing* in page 26 of the *Study Skills, Survival Guide* provided to you and follow its recommendations for the preparation of your report.

The two informal reports will be assessed in the laboratory, face to face with your tutor who may ask you further questions relevant to the work undertaken and also give you comments on the presentation of the report.

The **formal report** should contain all of the contents for the informal report with:

- additional detail on the apparatus used
- elaborate discussion of the results

The formal report must be submitted to the school office, addressed to your laboratory tutor. **Do not forget to keep a copy of the submitted work and also the stamped receipt, given to you on submission.**

The report will be marked and returned to you within two weeks after the submission deadline.

Late submission of work will be penalised according to the regulations of the university (stated in your course handbook) unless an extension was granted by the unit co-ordinator in advance.

Public Presentation for experiment number 4.

Each group will be given 15 minutes to present their work. Each member of the group must participate in the presentation. Penalties will be applied each individual exceeding the allocated time. You must let your tutor know whether you require special equipment for the presentation, e.g. Power Point. We have a projector that can be used with a laptop and also we may be able to use the OHP/Computer in the

computer laboratory in B251 or a lecture room with a projector. You must ensure that your software is compatible with this equipment, or bring your own package. The normal classroom equipment like OHP, whiteboard, video project are available.

The presentation will be assessed on presentation structure, clarity of speech and interest factor and also on visual aids and on concise subject material.

8. WEEKLY TIMETABLE

Week Com/ng

29-09-03	week 1	Introduction to study skills, planning and time management, reading skills
6-10-03	week 2	Research methods and summarising
13-10-03	week 3	Writing Skills
20-10-03	week 4	Report writing and planning
27-10-03	week 5	Introduction to laboratory/ Start experiment 1 / Basic PC skills, Windows, File Manager, Net browser, Programs in windows
03-11-03	week 6	Complete experiment 1 / Create and layout of a document
10-11-03	week 7	**Assessment of experiment 1**/ start of experiment 2 / Use of tables, insertion of graphics, equations
17-11-03	week 8	Complete experiment 2 / Report writing, outlines, table of contents, report structure
24-11-03	week 9	**Assessment of experiment 2** / start of experiment 3 / Excel spreadsheets, cell reference, cutting and pasting, calculations, functions
01-12-03	week 10	Complete experiment 3 / Graph wizard, graph types, labelling and layout
08-12-03	week 11	**Submission of Formal Report on experiment 3**. Start experiment 4 /Worksheets, cross referencing, hyperlink
5-01-04	week 12	Complete experiment 4 / Data analysis, PowerPoint wizard
12-01-04	week 13	**Public presentations for experiment 4**
19-01-04	week 14	Exams
26-01-04	week 15	Exams