The purpose of this practice course is to provide experimental support for the 2nd level of day programs, and the 4th level of all external programs in Electrical & Electronic Engineering. This practice course provides equipment familiarisation and safety information, experience with prototyping together with experimental work in Rotating Machines, Transformers and Power Systems, Electronic Circuit Testing, Component and Circuit Characteristics, Waveform Analysis and Transmission Lines. The principle objectives are to allow the student to develop practical skills; a knowledge of devices, equipment and techniques; reinforce the learning of theory; develop observation and interpretation skills; stimulate interest and develop self confidence.

OBJECTIVES
On completion of this course, students should be able to:

1. measure the transmission characteristics of cables and waveguides, and compare the results with theoretical predictions;
2. analyse the frequency spectra of communication signal waveforms and compare the results with theoretical predictions;
3. interpret and apply manufacturers' data for electronic devices;
4. select and use appropriate test equipment and procedures from a wide range of possibilities;
5. measure the characteristics and/or performance of a wide range of electrical and electronic circuits and devices;
6. analyse and interpret test results and measurements on electric and electronic circuits, in terms of theoretical models, and by comparison with the results of simulations;
7. predict the performance of electric and electronic circuits from device characteristics;
8. design electronic circuits to perform simple functions.

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Equipment familiarisation and safety information</td>
<td>8.00</td>
</tr>
<tr>
<td>2. Rotating machines</td>
<td>10.00</td>
</tr>
<tr>
<td>3. Transformers</td>
<td>10.00</td>
</tr>
<tr>
<td>4. Power Systems</td>
<td>10.00</td>
</tr>
<tr>
<td>5. Electronic circuit testing</td>
<td>10.00</td>
</tr>
<tr>
<td>6. Component and circuit characteristics</td>
<td>10.00</td>
</tr>
<tr>
<td>7. Electronic Amplifiers</td>
<td>10.00</td>
</tr>
<tr>
<td>8. Waveform analysis</td>
<td>10.00</td>
</tr>
<tr>
<td>9. Transmission lines</td>
<td>22.00</td>
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</tbody>
</table>

**TEXT and MATERIALS required to be PURCHASED or ACCESSED:**

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at http://bookshop.usq.edu.au click 'Semester', then enter your 'Course Code' (no spaces).

**REFERENCE MATERIALS:**

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

_ELE2601 Telecommunication Principles, ELE2503 Electronic Systems or ELE2504 Electronic Design and Analysis, and ELE2702 Electrical Measurement and Analysis (Bachelor of Engineering students excepted), External Study Packages, USQ Publication, Toowoomba._

**STUDENT WORKLOAD REQUIREMENTS:**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tr>
<td>Laboratory or Practical Classes</td>
<td>40.00</td>
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<tr>
<td>Report Writing</td>
<td>10.00</td>
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</table>

**ASSESSMENT DETAILS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg(%)</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>REPORTS</td>
<td>1.00</td>
<td>100.00</td>
<td>29 Oct 2004</td>
</tr>
</tbody>
</table>

(see note 1)

**NOTES:**
1. Students will be advised of the due date when each assessment item is issued.

**IMPORTANT ASSESSMENT INFORMATION**

1 Attendance requirements:
   This course requires attendance at a residential school. It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) scheduled for them, and to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration. Students must attend and complete the requirements of the Workplace Health and Safety training program for this course before they are able to undertake any practical work in the electrical laboratories.

2 Requirements for students to complete each assessment item satisfactorily:
   To complete the practical component satisfactorily, students must submit, by the due date, a practical report which meets the requirements of the assessment scheme.

3 Penalties for late submission of required work:
   Practical reports submitted after the due date will not be assessed.

4 Requirements for student to be awarded a passing grade in the course:
   To be assured of receiving a passing grade, students must complete at least 80% of the practical and other activities at a satisfactory standard at the Residential School for the course, as stated in 2 above.

5 Method used to combine assessment results to attain final grade:
   As P is the only passing grade available for this course, all students who are qualified for a passing grade, under the requirements in 4 above, will be given a
grade of P. Other students will be given either a Failing grade or an Incomplete grade.

6 Examination information:
   There is no examination in this course.

7 Examination period when Deferred/Supplementary examinations will be held:
   Not applicable.

8 University Regulations:
   Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL http://www.usq.edu.au/corporateservices/calendar/part5.htm or in the current USQ Handbook.

ASSESSMENT NOTES

1 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.

2 Students must retain a copy of each item submitted for assessment. This must be despatched to USQ within 24 hours if required by the Examiner.

3 In accordance with University's Assignment Extension Policy (Regulation 5.6.1), the examiner of a course may grant an extension of the due date of an assignment in extenuating circumstances.

4 The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media.

5 The Faculty will NOT accept submission of assignments by facsimile.

6 Students who do not have regular access to postal services or who are otherwise disadvantaged by these regulations may be given special consideration. They should contact the examiner of the course to negotiate such special arrangements.

7 In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.

8 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non-directed personal study.

9 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination; IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).