The University of Southern Queensland

Course specification

This version produced 20 Dec 2007.
The current and official versions of the course specifications are available on the web at
Please consult the web for updates that may occur during the year.

<table>
<thead>
<tr>
<th>Description: Electrical and Electronic Practice D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subject</td>
</tr>
<tr>
<td>ELE</td>
</tr>
</tbody>
</table>

**Academic group:** FOENS
**Academic org:** FOES04
**Student contribution band:** 2
**ASCED code:** 031300

**STAFFING**

Examiner: David Parsons
Moderator: Jim Ball

**OTHER REQUISITES**

Recommended prior or concurrent study: ELE3506 and ELE3805 and ELE3803

**RATIONALE**

This course provides an opportunity for students to have practical experience with equipment and concepts associated with higher level electrical and electronic courses, while at the same time developing some other skills needed to perform satisfactorily in the workforce.

**SYNOPSIS**

This course provides experience with a range of advanced electrical and electronic equipment of the kind not likely to be available for analysis in industry. This equipment includes advanced electronic test equipment, electromagnetic compatibility measuring equipment, automatic electronic test equipment programmed with graphical programming software and programmable logic controllers, power electronic systems such as motor drives and rectifiers and a variety of electrical machines. Work during the course will be in small teams and students are expected to perform satisfactorily in this context.

**OBJECTIVES**

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

1. use bench test equipment including both analog and digital oscilloscopes, spectrum analysers, signal sources and digital multimeters;
2. devise, implement and evaluate test procedures on electronic devices using a graphical programming language such as HP VEE or Labview, and automatic test equipment;
3. evaluate a broad range of design criteria for typical electrical or electronic products;
4. describe the operation of programmable logic controllers and write PLC programs;
5. operate and test aspects of power electronics circuits including rectifiers, dc to dc converters and adjustable-speed motor drives;
6. measure the characteristics of electrical machines;
7. co-operate in a team environment to achieve objectives in a given timeframe;
8. present a short seminar to a group of their peers;
9. prepare evaluative reports on work undertaken; and
10. engage in informed discussions about design criteria for electrical and electronic equipment, including sustainability.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Electronic test equipment</td>
<td>16.00</td>
</tr>
<tr>
<td>2. Automatic Test Equipment</td>
<td>16.00</td>
</tr>
<tr>
<td>3. Programmable logic controllers</td>
<td>8.00</td>
</tr>
<tr>
<td>4. Electrical machinery and power systems</td>
<td>16.00</td>
</tr>
<tr>
<td>5. Power electronics circuits</td>
<td>16.00</td>
</tr>
<tr>
<td>6. Specifying electrical/electronic products</td>
<td>16.00</td>
</tr>
<tr>
<td>7. Working in teams</td>
<td>6.00</td>
</tr>
<tr>
<td>8. Engineering Communication</td>
<td>6.00</td>
</tr>
</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.

ELE3803 Electrical Plant External Study Package, USQ Publication, Toowoomba.
ELE3805 Power Electronics External Study Package, USQ Publication, Toowoomba.

STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory or Practical Classes</td>
<td>45.00</td>
</tr>
<tr>
<td>Report Writing</td>
<td>5.00</td>
</tr>
</tbody>
</table>
**ASSESSMENT DETAILS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wt(%</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>COMPLETED ACTIVITY COMP LOG</td>
<td>100.00</td>
<td>100.00</td>
<td>28 Sep 2007</td>
</tr>
</tbody>
</table>

**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 may mean that a final grade for the course will not be available in the current year.

4. **Requirements for student to be awarded a passing grade in the course:**
   To be assured of receiving a passing grade, students must satisfactorily complete (as defined in Statement 2) at least 90% of the practical and other activities.

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).

10 This is a communication benchmark course and a major component of the assessment of this course will be associated with the demonstration of communication skills.