The University of Southern Queensland

Course specification

Description: Electrical and Electronic Practice D

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<tr>
<th>Subject</th>
<th>Cat-nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
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<td>ELE</td>
<td>3914</td>
<td>30550</td>
<td>1, 2004</td>
<td>ONS</td>
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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 ELE 3803

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
Primarily 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, automatic electronic test equipment programmed with a graphical programming logic controllers. Bachelor of Engineering (Electrical and Electronic) and Bachelor of Engineering Technology (Electrical and Electronic) students will also have experience with a variety of power electronic systems such as motor drives and rectifiers. Work during the course will be in small teams and students are expected to perform satisfactorily in this context. Some time will also be spent sharing knowledge and views on social or environmental aspects of the electrical engineering industry.

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

- use bench test equipment including both analog and digital oscilloscopes, spectrum analysers, signal sources and digital multimeters;
• devise, implement and evaluate test procedures on electronic devices using the graphical programming language HP VEE and automatic test equipment;
• examine ethical dilemmas encountered in the electrical engineering industry;
• describe the operation of programmable logic controllers and write PLC programs;
• operate and test aspects of power electronics circuits including rectifiers, dc to dc converters and adjustable-speed motor drives;
• measure the characteristics of electrical machines;
• co-operate in a team environment to achieve objectives in a given timeframe;
• present a short seminar to a group of their peers;
• prepare evaluative reports on work undertaken during the residential school.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Bench test equipment</td>
<td>16.00</td>
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<td>2. Automatic Test Equipment</td>
<td>16.00</td>
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<td>3. Programmable logic controllers</td>
<td>8.00</td>
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<td>4. Electrical machinery and power systems</td>
<td>16.00</td>
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<td>5. Power electronics circuits</td>
<td>16.00</td>
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<td>6. Ethics in engineering</td>
<td>16.00</td>
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<td>7. Working in teams</td>
<td>6.00</td>
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<tr>
<td>8. Engineering Communication</td>
<td>6.00</td>
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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>
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<tbody>
<tr>
<td>Directed Study</td>
<td>5.00</td>
</tr>
<tr>
<td>Laboratory or Practical Classes</td>
<td>37.00</td>
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<tr>
<td>Report Writing</td>
<td>5.00</td>
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<td>Seminars</td>
<td>3.00</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>
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<tbody>
<tr>
<td>ETHICS/SEMINAR</td>
<td>100.00</td>
<td>10.00</td>
<td>11 Jun 2004</td>
</tr>
<tr>
<td>FORMAL REPORT</td>
<td>200.00</td>
<td>20.00</td>
<td>11 Jun 2004</td>
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<tr>
<td>TEAM WORK</td>
<td>100.00</td>
<td>10.00</td>
<td>29 Oct 2004</td>
</tr>
<tr>
<td>PRACTICAL WORK</td>
<td>600.00</td>
<td>60.00</td>
<td>29 Oct 2004</td>
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IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
   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.

2 Requirements for students to complete each assessment item satisfactorily:
   (i) To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assessment item.
   (ii) To complete the practical component satisfactorily, students must submit a practical report and obtain at least 50% of the marks available (or at least a grade of C-) for the report.

3 Penalties for late submission of required work:
   If students submit assignments after the due date without prior approval then a penalty of 1% of the total marks available for the assignment will apply for each working day late.

4 Requirements for student to be awarded a passing grade in the course:
   (i) To be assured of receiving a passing grade students must complete at least 80% of the practical and other activities at a satisfactory standard, as stated in 2 above.
   (ii) Students who do not qualify for a Passing grade may, at the discretion of the Examiner, be assigned additional work to demonstrate to the Examiner that they have achieved the required standard. It is expected that such students will have gained at least 45 % of the total marks available for all summative assessment items.
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
   produced within five days 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.