Description: Computer Systems and Communications Protocols

Subject Cat-Nbr Class Term Mode Units Campus
ELE 3305 20604 1, 2003 ONC 1.00 TWMBA

Academic Group: FOENS
Academic Org: FOES04
HECS Band: 2
ASCED Code: 031305

STAFFING
Examiner: John Leis
Moderator: John Grant-Thomson

OTHER-REQUISITES
Pre-requisite: Recommended ELE1301 Co-requisite: Recommended ELE2303

SYNOPSIS
In recent times, computing and data communications have tended to converge, such that data communications has become an integral part of almost every computer system. This course is based around two central themes. The first is the logical extension of the material covered in the preceding Computer Engineering courses. This involves a more detailed study of advanced computer design including memory management, virtual memory, process management, cache memory, processor architectures and performance. The second theme is the design, implementation and use of data communication systems. This section, comprising approximately half the course, covers local area network protocols such as Ethernet, together with higher level protocols such as TCP/IP. An in-depth understanding of the theoretical and practical operation of these protocols is emphasised by implementation examples.

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

- analyse the structure of a given operating system kernel, and identify the relationship between the various subsystems;
- predict the expected performance of memory and disk systems, and interpret the measured performance of disk/memory cache systems;
- justify the presence of kernel-level services;
- select and justify appropriate methods of data compression, encryption and error checking for local- and wide-area networks;
- interpret data communications standards documents from international bodies such as the CCITT/ITU, IETF and W3C;
- interpret protocol frames found in a data communications system, and provide explanations for the observed behaviour of communicating entities.

**TOPICS**

<table>
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<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Operating Systems</td>
<td>25.00</td>
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<tr>
<td>2. Hardware and Architecture</td>
<td>15.00</td>
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<td>3. Data Communications and Protocols</td>
<td>60.00</td>
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**TEXT and MATERIALS required to be PURCHASED or ACCESSED:**

Books can be ordered by fax or telephone. For costs and further details use the ‘Book Search’ facility at http://bookshop.usq.edu.au by entering the author or title of the text.

*ELE3305 Computer Systems and Communications Protocols External Study Package*, USQ Publication,

Computer Systems and Communications Protocols Course Notes, via http://www.usq.edu.au/users/leis/

**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.

Bach, M. 1986, *The Design of the Unix Operating System*, Prentice Hall,

**STUDENT WORKLOAD REQUIREMENTS**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Assessment</td>
<td>52</td>
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<tr>
<td>Examinations</td>
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<tr>
<td>Lectures</td>
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<td>Private Study</td>
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<td>Description</td>
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<td>3 HOUR CLOSED</td>
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NOTES:

. Student Administration will advise students of the dates of their examinations during the semester.

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 assignments satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for each assignment. (ii) To complete the examination satisfactorily, students must obtain at least 50% of the marks available (or at least a grade of C-) for the examination.

3. Penalties for late submission of required work:
   If students submit assignments after the due date without prior approval then a penalty of 10% 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:
   To be assured of a passing grade, students must demonstrate, via the summative assessment items, that they have achieved the required minimum standards in relation to the objectives of the course by: (i) satisfactorily completing the examination and assignments; and (ii) obtaining at least 50% of the total weighted marks available for all summative assessment items.

5. Method used to combine assessment results to attain final grade:
   The final grades for students will be assigned on the basis of the weighted aggregate of the marks (or grades) obtained for each of the summative assessment items in the course.

6. Examination information:
   In a Closed Examination, candidates are allowed to bring only writing and drawing instruments into the examination.

7. Examination period when Deferred/Supplementary examinations will be held:
   Any Deferred or Supplementary examinations for this course will be held during the examination period at the end of the semester of the next offering of this course.
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/SECARIAT/calendar/Part5/ or in the printed version of 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 The Faculty of Engineering and Surveying does not offer supplementary examinations.

OTHER REQUIREMENTS

1 Students will require access to e-mail and internet access to USQConnect for this course.