Description: Computer Systems and Communications Protocols

Subject    Cat-Nbr    Class    Term    Mode    Units    Campus
ELE        3305      10604    1, 2002  WEB     1.00     TWMBA

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

STAFFING
Examiner: John Leis
Moderator: John Grant-Thomson

PRE-REQUISITES
Pre-requisite: ELE1301 Co-requisite: 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 successful completion of this course the student will be able to:

- explain the structure of an operating system and identify the function and interrelationship of processor management, device management, memory management and file management;
- explain the operation of a Memory Management System and indicate the significance of cache and associative memory;
- have a good understanding of the principles and system-level operation of modern computer operating systems;
• demonstrate an awareness of standards such as CCITT/ITU, IETF and W3C recommendations;
• describe the principle of operation of common items of digital communications equipment;
• explain and contrast common digital modulation methods and describe their limitations;
• explain the protocols and formats used for synchronous and asynchronous serial data communication;
• explain the operation of widely used data communications protocols such as Ethernet and TCP/IP.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Operating Systems</td>
<td>25.00</td>
</tr>
<tr>
<td>2. Hardware and Architecture</td>
<td>15.00</td>
</tr>
<tr>
<td>3. Data Communications and Protocols</td>
<td>60.00</td>
</tr>
</tbody>
</table>

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 *The Design of the Unix Operating System*, Prentice Hall.
Silberschatz *Operating System Concepts*, Addison-Wesley.
Stalling *Local and Metropolitan Area Networks*, MacMillan.

STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private Study</td>
<td>100</td>
</tr>
</tbody>
</table>
ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
<th>(see note 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSIGNMENT 1</td>
<td>200.00</td>
<td>20.00</td>
<td>Y</td>
<td>04 Mar 2002</td>
<td></td>
</tr>
<tr>
<td>ASSIGNMENT 2</td>
<td>200.00</td>
<td>20.00</td>
<td>Y</td>
<td>04 Mar 2002</td>
<td></td>
</tr>
<tr>
<td>3 HOUR CLOSED</td>
<td>600.00</td>
<td>60.00</td>
<td>Y</td>
<td>END S1</td>
<td>(see note 3)</td>
</tr>
</tbody>
</table>

NOTES:
1. Further details about the due dates are detailed in the assessment section of the Course Specifications.
2. Further details about the due dates are detailed in the assessment section of the Course Specifications.
3. Further details about the due dates are detailed in the assessment section of the Course Specifications.

OTHER REQUIREMENTS
1. In order to complete this course successfully a student must normally obtain 50% of the marks in both the individual assessments and overall.
2. A minimum standard of communication skills must be demonstrated in order for a passing grade to be achieved.
3. The due date for an assignment is the date by which a student must submit the assignment to the USQ. The onus is on the student to provide proof of the submit date, if requested by the Examiner.
4. Students must retain a verbatim copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.
5. 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.
6. Students who wish to apply for an extension to any assignment due date must do so in writing before the due date.
7. If students submit assignments after the due date without prior approval then a penalty of up to 10% of the total marks for the assignment will apply for each working day late.
8. The final grades for students will be assigned on the basis of the aggregate of the marks obtained for each of the assessments in the course.
9. A closed examination is an examination where the candidates are allowed to bring only writing and drawing instruments into the examination.
10. The Faculty of Engineering and Surveying does not offer supplementary examinations.
11. 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.

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; IDSM (Incomplete Deferred Examination and Make-up).