The University of Southern Queensland

Course specification

Description: Computer Network Programming

<table>
<thead>
<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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<tr>
<td>CSC</td>
<td>4402</td>
<td>31264</td>
<td>1, 2004</td>
<td>EXT</td>
<td>1.00</td>
<td>TW MBA</td>
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Academic group: FOSCI
Academic org: FOS003
Student contribution band: 2
ASCED code: 020113

STAFFING
Examiner: Zhongwei Zhang
Moderator: Khaleel Petrus

REQUISITES
Pre-requisite: CSC2404 and CSC3407

RATIONALE
Programming using TCP/UDP transport layer interface is the base for developing all network software and applications. This course addresses the programming with TCP/UDP interface for client-server network applications on the Internet.

SYNOPSIS
This course addresses development of network applications and software on the Internet. It covers both the TCP/UDP transport layer programming interface and the methodology of design and implementation of real client-server network applications. Upon completion of this course, students will have a good understanding of the TCP/UDP network programming interface and be able to develop non-trivial robust client-server network applications on the Internet. The topics include: Socket address, Elementary TCP and UDP sockets, Design and implementation of TFTP, Daemon processes and inetd superserver, Reliable UDP communication and Multicasting. This course is normally offered only in odd years.

OBJECTIVES
On successful completion of this course students will be able to:

- understand the TCP/UDP network programming interface;
- understand the methodology of design and implementation of client-server network applications;
• develop non-trivial and robust network applications.

TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>1. Elementary TCP and UDP</td>
<td>40.00</td>
</tr>
<tr>
<td>1.1. Introduction to TCP/UDP (8%)</td>
<td></td>
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<tr>
<td>1.2. Sockets Introduction (8%)</td>
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<tr>
<td>1.3. Elementary TCP Sockets (8%)</td>
<td></td>
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<tr>
<td>1.4. TCP Client-Server Example (8%)</td>
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<td>1.5. Elementary UDP Sockets (8%)</td>
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<tr>
<td>2. Network Programming Design and Implementation of TFTP: a Case Study</td>
<td>30.00</td>
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<tr>
<td>3. Advanced Topics</td>
<td>30.00</td>
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<tr>
<td>3.1. Daemon Processes and inetd Superserver (10%)</td>
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<tr>
<td>3.2. Advanced UDP Sockets (10%)</td>
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<td>3.3. Multicasting (10%)</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).

This course requires UNIX/LINUX environment.

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.


STUDENT WORKLOAD REQUIREMENTS:

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
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<tbody>
<tr>
<td>Private Study</td>
<td>165.00</td>
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ASSESSMENT DETAILS

<table>
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<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg(%)</th>
<th>Due date</th>
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<tr>
<td>ASSIGNMENT 1</td>
<td>20.00</td>
<td>20.00</td>
<td>29 Mar 2004</td>
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<tr>
<td>ASSIGNMENT 2</td>
<td>20.00</td>
<td>20.00</td>
<td>10 May 2004</td>
</tr>
<tr>
<td>PROJECT</td>
<td>60.00</td>
<td>60.00</td>
<td>11 Jun 2004</td>
</tr>
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IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
   There are no attendance requirements for this course. However, it is the students' responsibility 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:
   To complete each of the assessment items satisfactorily, students must obtain at least 50% of the marks available for each assessment item.

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 receiving a passing grade a student must submit all of the summative assessment items and achieve at least 50% of the available marks for those 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 aggregate of the weighted marks obtained for each of the summative assessment items in the course.

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

7 Examination period when Deferred/Supplementary examinations will be held:
   There will be no Deferred or Supplementary examinations in 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/corporateservices/calendar/part5.htm or in the current USQ
   Handbook.

ASSESSMENT NOTES

9 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.

OTHER REQUIREMENTS

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