Description: Foundation Programming with C

<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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<tbody>
<tr>
<td>CSC</td>
<td>1401</td>
<td>62262</td>
<td>1, 2007</td>
<td>OYC</td>
<td>1.00</td>
<td>Toowoomba</td>
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Academic group: FOSCI
Academic org: FOS003
Student contribution band: 2
ASCED code: 020103

STAFFING
Examiner: David Lai
Moderator: Michael de Raadt

RATIONALE
Foundational programming skills are a primary and essential subject in Computer Science. This course covers program design using ANSI C - a standardised industrial strength programming language known for its power and portability. Besides providing the student with a competent foundation in the C programming language, the course contributes fundamental conceptual and practical principles about computer programming. The knowledge obtained in this course is necessary for subsequent advanced courses such as Object-Oriented Programming in C++, Operating Systems, Software Engineering and Database Systems. To these ends, this course provides the student with an introduction to programming practices at a professional level.

SYNOPSIS
This course covers fundamental to intermediate conceptual and practical principles that are essential knowledge for any student requiring an understanding of computer programming. The topics included in this course will provide the student with a solid foundation and operative skills in program design and elementary programming concepts by example using the C programming language. The knowledge obtained in this course is necessary for subsequent subjects and highly recommended for any student seeking a successful career where programming skills would be advantageous.

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

1. write programs in the C language to solve a variety of basic to intermediate problems (Assignments 1 to 6, Exam);
2. compile and run C programs in either a UNIX or Windows/DOS environment (Assignments 1 to 6);
3. design algorithms to develop simple software (Assignments 1 to 6, Exam);
4. explain how programs manipulate computer memory to produce results (Assignments 1 to 6, Exam).

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Developing programs</td>
<td>10.00</td>
</tr>
<tr>
<td>2. Invoking functions</td>
<td>5.00</td>
</tr>
<tr>
<td>3. Data types, variables, arrays</td>
<td>15.00</td>
</tr>
<tr>
<td>4. Writing functions with arguments and results.</td>
<td>10.00</td>
</tr>
<tr>
<td>5. Choices and conditions</td>
<td>10.00</td>
</tr>
<tr>
<td>6. Pointers and passing arguments by reference</td>
<td>5.00</td>
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<tr>
<td>7. Input: standard input, file redirection.</td>
<td>10.00</td>
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<tr>
<td>8. Repetition looping</td>
<td>5.00</td>
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<tr>
<td>9. Array processing and command-line arguments</td>
<td>10.00</td>
</tr>
<tr>
<td>10. Text files</td>
<td>5.00</td>
</tr>
<tr>
<td>11. Structuring data</td>
<td>10.00</td>
</tr>
<tr>
<td>12. Recursion</td>
<td>5.00</td>
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</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.

Department of Mathematics and Computing CDROM Set, S1 2007 (available from the USQ Bookshop). This CD contains course material, Windows and Linux Software for this and various other courses. For more information about the CD sets and their use, please refer to http://www.sci.usq.edu.au/cdrom.

STUDENT WORKLOAD REQUIREMENTS

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Examinations</td>
<td>2.00</td>
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<tr>
<td>Laboratory or Practical</td>
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<tr>
<td>Classes</td>
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<tr>
<td>Lectures</td>
<td>26.00</td>
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<tr>
<td>Private Study</td>
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ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg(%)</th>
<th>Due date</th>
</tr>
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<tbody>
<tr>
<td>ASSIGNMENT 1</td>
<td>8.00</td>
<td>8.00</td>
<td>23 Mar 2007</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(see note 1)</td>
</tr>
<tr>
<td>ASSIGNMENT 2</td>
<td>8.00</td>
<td>8.00</td>
<td>05 Apr 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 3</td>
<td>8.00</td>
<td>8.00</td>
<td>27 Apr 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 4</td>
<td>8.00</td>
<td>8.00</td>
<td>11 May 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 5</td>
<td>8.00</td>
<td>8.00</td>
<td>25 May 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 6</td>
<td>8.00</td>
<td>8.00</td>
<td>08 Jun 2007</td>
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<td>2 HOUR CLOSED EXAMINATION</td>
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<td>52.00</td>
<td>END S1</td>
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<td></td>
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<td>(see note 2)</td>
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NOTES

1. Assignments 1 - 6 are due 11:59:59pm Australian Eastern Standard Time on each due date.
2. Examination dates will be available during the Semester. Please refer to the examination timetable when published.

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:
   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, achieve at least 50% in the examination and at least 50% of the available weighted marks for the 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 obtained for each of the summative assessment items in the course.

6 Examination information:
Candidates are allowed to bring only writing and drawing instruments into the Closed
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/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.

10 Students may be required to provide a copy of assignments submitted for assessment
purposes. Such copies should be despatched to the USQ within 24 hours of receipt of a
request to do so.

11 In accordance with University Policy, the Examiner of a course may grant an extension
of the due date of an assignment in extenuating circumstances.

12 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.

OTHER REQUIREMENTS

1 Students will require access to an appropriate computer either via the student's own
arrangements or a USQ study centre.

2 No further assignments will be accepted for assessment purposes after assignments or
sample solutions have been released, except in extenuating circumstances.

3 Assignment 3 for this course will be available on the morning of its release date (specified
in the introductory booklet) from the CSC1401 website at:
http://www.sci.usq.edu.au/courses/CSC1401/

4 Students who apply for extension for the Assignment 3 will be awarded an incomplete
grade (IDM) at the end of the semester and can only do this assignment the next time the
course is offered. In the event of an extension being granted for this assignment, the student
is still required to sit the exam.

5 Students will require email and internet access for this course.

6 Assignment specifications are available on the course website.