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:

- write programs in the C language to solve a variety of basic to intermediate problems;
- compile and run C programs in either a UNIX or Windows/DOS environment;
- design algorithms to develop simple software;
- explain how programs manipulate computer memory to produce results.

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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</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>
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<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>
</tr>
<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>
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<tr>
<td>10. Text files</td>
<td>5.00</td>
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<tr>
<td>11. Structuring data</td>
<td>10.00</td>
</tr>
<tr>
<td>12. Recursion</td>
<td>5.00</td>
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</tbody>
</table>

**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.


**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 1, 2003 (available from the USQ Bookshop). This CD set contains course material, Windows and Linux Software relevant to this course offering only. For more information about the CD sets and their use, please refer to http://www.sci.usq.edu.au/cdrom

Course Web Site: http://www.sci.usq.edu.au/courses/CSC1401/
STUDENT WORKLOAD REQUIREMENTS

ACTIVITY       HOURS
Directed Study  52
Examinations    3
Private Study   107

ASSESSMENT DETAILS

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<tr>
<td>COMPULSORY TUTORIAL QUESTIONS</td>
<td>100.00</td>
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<td>03 Aug 2003</td>
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<tr>
<td>ASSIGNMENT 1</td>
<td>100.00</td>
<td>10.00</td>
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<td>31 Aug 2003</td>
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<tr>
<td>ASSIGNMENT 2</td>
<td>100.00</td>
<td>10.00</td>
<td>Y</td>
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</tr>
<tr>
<td>ASSIGNMENT 3</td>
<td>100.00</td>
<td>10.00</td>
<td>Y</td>
<td>02 Nov 2003</td>
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<tr>
<td>3 HOUR CLOSED BOOK EXAMINATION</td>
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<td>50.00</td>
<td>Y</td>
<td>END S2</td>
</tr>
</tbody>
</table>

NOTES:
- Compulsory exercises are due in the week following the week in which they are set. Refer to the Study Schedule for more information.
- Examination dates will be available during the Semester. Please refer to the examination timetable when published.

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 20% 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 attempt all of the summative assessment items, achieve at least 50% in the examination, achieve an aggregated mark of at least 50% of the total marks allocated for the assignments, 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:
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

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 must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner.

11 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.

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.