Description: Computer Graphics

<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>
</tr>
</thead>
<tbody>
<tr>
<td>CSC</td>
<td>3406</td>
<td>62278</td>
<td>1, 2007</td>
<td>EXT</td>
<td>1.00</td>
<td>Toowoomba</td>
</tr>
</tbody>
</table>

Academic group: FOSCI
Academic org: FOS003
Student contribution band: 2
ASCED code: 020115

STAFFING

REQUISITES

Pre-requisite: CSC1401 or USQIT16

OTHER REQUISITES

Recommended Pre-requisite: CSC2408

RATIONALE

Computer graphics is one of the most exciting and rapidly growing computer fields and has many applications, including user interfaces, data visualisation, computer-aided design, motion pictures, virtual reality, computer games, and image processing. This course concentrates on fundamentals of computer graphics and addresses the knowledge and skills in computer graphics development which are essential for computing professionals.

SYNOPSIS

This course covers 2D and 3D graphics programming, graphics standards, geometrical transformations, graphics hardware, and computer graphics applications including visualisation, image processing, and computer animation. Students will gain general knowledge of computer graphics and practical skills of graphics programming with modern graphics workstations.

OBJECTIVES

On successful completion of this course students will:

1. be able to demonstrate a thorough understanding of the theoretical aspects of computer graphics (All assessment items);
2. be able to implement algorithms which facilitate implementation of both 2D and 3D graphics using OpenGL (Assignments 1 to 3);
3. have gained a broad understanding of graphics standards and graphics API's through their use (All assessment items);
4. have practical experience using the OpenGL API to program 2D and 3D applications (Assignments 1 to 3);
5. be able to demonstrate the ability to program computer graphics applications to meet the requirements outlined by the examiner (Assignments 1 to 3).

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>5.00</td>
</tr>
<tr>
<td>Programming in a 2D graphics package</td>
<td>10.00</td>
</tr>
<tr>
<td>Algorithms for drawing 2D primitives</td>
<td>10.00</td>
</tr>
<tr>
<td>Graphics hardware and interaction techniques</td>
<td>10.00</td>
</tr>
<tr>
<td>Geometrical transformations</td>
<td>15.00</td>
</tr>
<tr>
<td>3D view specification and algorithms</td>
<td>10.00</td>
</tr>
<tr>
<td>Graphics standards and graphics software packages</td>
<td>10.00</td>
</tr>
<tr>
<td>Methods for modelling curves, surfaces, and solids</td>
<td>15.00</td>
</tr>
<tr>
<td>Visual realism and shading</td>
<td>15.00</td>
</tr>
</tbody>
</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).

Department of Mathematics and Computing CDROM SET 1, S1 2007 (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 set and its use, please refer to http://www.sci.usq.edu.au/cdrom and the course web site.

(ISBN:0-02-354856-8)

**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.

Course Web Site: http://www.sci.usq.edu.au/courses/CSC3406/

(ISBN: 0-201-60921-5)

(Release 1 ISBN:0-201-60921-5)

(ISBN:0-201-60921-5)

(ISBN: 0937175137 (set))

(Release 1 ISBN:0-201-60921-5)

-Version 1.1-

(ISBN:0-201-60921-5)

**STUDENT WORKLOAD REQUIREMENTS**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>100.00</td>
</tr>
<tr>
<td>Examinations</td>
<td>2.00</td>
</tr>
<tr>
<td>Private Study</td>
<td>68.00</td>
</tr>
</tbody>
</table>

**ASSESSMENT DETAILS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks out of</th>
<th>Wtg(%)</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASSIGNMENT 1</td>
<td>100.00</td>
<td>10.00</td>
<td>29 Mar 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 2</td>
<td>100.00</td>
<td>15.00</td>
<td>03 May 2007</td>
</tr>
<tr>
<td>ASSIGNMENT 3</td>
<td>100.00</td>
<td>20.00</td>
<td>07 Jun 2007</td>
</tr>
<tr>
<td>2HR RESTRICTED EXAMINATION</td>
<td>100.00</td>
<td>55.00</td>
<td>END S1</td>
</tr>
</tbody>
</table>

**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 total marks for the assessment items.

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 gained by the student 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 obtained for each of the summative assessment items in the course.

6 Examination information:
Candidates are allowed access only to specific materials during a Restricted Examination. The only materials that candidates may use in the restricted examination for this course are: writing materials (non-electronic and free from material which could give the student an unfair advantage in the examination); calculators which cannot hold textual information (students must indicate on their examination paper the make and model of any calculator(s) they use during the examination. Students whose first language is not English, may, with the Examiner’s approval, take an appropriate non- electronic translation dictionary (but not a technical dictionary) into the examination. Students who wish to use a translation dictionary MUST request and receive written approval from the Examiner at least one week before the examination date. Translation dictionaries will be subject to perusal and may be removed from the candidate's possession until appropriate disciplinary action is completed if found to contain material that could give the candidate an unfair advantage.

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 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.

10 The examiner may grant an extension of the due date of an assignment in extenuating circumstances.