The University of Southern Queensland

Course specification

The current and official versions of the course specifications are available on the web at <http://www.usq.edu.au/coursespecification/current>.
Please consult the web for updates that may occur during the year.

Description: Computer Graphics

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
CSC	3406	86223	1, 2009	EXT	1.00	Toowoomba

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

STAFFING

Examiner: Richard Watson
Moderator: Stijn Dekeyser

REQUISITES

Pre-requisite: CSC1401 or USQIT16 or Students must be enrolled in one of the following Programs: MCOP or MPIT

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 obtain general knowledge of computer graphics fundamentals in mathematics and rendering algorithms in addition to practical skills using C/C++ with OpenGL.

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

	Description	Weighting (%)
1.	Introduction	5.00
2.	Programming in a 2D graphics package	10.00
3.	Algorithms for drawing 2D primitives	10.00
4.	Graphics hardware and interaction techniques	10.00
5.	Geometrical transformations	15.00
6.	3D view specification and algorithms	10.00
7.	Graphics standards and graphics software packages	10.00
8.	Methods for modelling curves, surfaces, and solids	15.00
9.	Visual realism and shading	15.00

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).

Hill, F S & Kelley, S M 2007, *Computer Graphics Using OpenGL*, 3rd edn, Addison Wesley, Reading, MA.

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.

Foley, J D 1994, *Introduction to Computer Graphics*, Addison Wesley, Reading, MA.

(ISBN: 0-201-60921-5)

Hill, F S 2001, *Computer Graphics Using OpenGL*, 2nd edn, Prentice Hall, Upper Saddle River, NJ.

(ISBN: 0-02-354856-8)

Neider, J, Davis, T & Woo, Mason 1993, *OpenGL Programming Guide: The official guide to learning OpenGL*, Addison-Wesley, Reading, MA.

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

Newmarch, J 1992, *X Windows and Motif: A fast track approach*, Addison-Wesley, Reading, MA.
(ISBN:0-201-60921-5)

Nye, A 1990, *Xlib Programming Manual*, O'Reilly and Assoc, Sebastapol, California, Vol 1.
(ISBN: 0937175137 (set))

OpenGL Architecture Review Board 1993, *OpenGL Reference Manual: The official reference document for OpenGL*, Addison-Wesley, Reading, MA.
(Release 1 ISBN:0-201-60921-5)

OpenGL Architecture Review Board 1996, *OpenGL Reference Manual: The Official Reference Document to OpenGL*, 2nd edn, Addison-Wesley Developers Press, Reading.
(Version 1.1)

Watt, A 2000, *3D Computer Graphics*, 3rd edn, Addison-Wesley, Reading, MA.
(ISBN:0-201-60921-5)

STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessments	100.00
Private Study	68.00

ASSESSMENT DETAILS

Description	Marks out of	Wtg (%)	Due date
ASSIGNMENT 1	100.00	5.00	18 Mar 2009
ASSIGNMENT 2	100.00	10.00	15 Apr 2009
ASSIGNMENT 3	100.00	20.00	06 May 2009
ASSIGNMENT 4	100.00	30.00	27 May 2009
ASSIGNMENT 5	100.00	35.00	17 Jun 2009

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 of the examiner then a penalty of 5% of the total marks gained by the student for the assignment may apply

for each working day late up to ten working days at which time a mark of zero may be recorded. No assignments will be accepted after model answers have been posted.

4 Requirements for student to be awarded a passing grade in the course:
To be assured of receiving a passing grade a student must achieve at least 50% of the total weighted marks available for the course.

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:
There are no examinations in this course.

7 Examination period when Deferred/Supplementary examinations will be held:
As there are no examinations in this course, there will be no deferred or supplementary examinations.

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.