MMST12019 *3D Computer Graphics*
Term 1 - 2020

Profile information current as at 29/04/2024 01:04 am

General Information

Overview
This unit of study provides an introduction to three-dimensional (3D) computer graphics. You will learn how to use a variety of tools and techniques to create 3D assets for use in real-time rendering platforms. You will develop the necessary skills to produce 3D assets for animation, visual effects and games using industry-standard software.

Details
Career Level: *Undergraduate*
Unit Level: *Level 2*
Credit Points: *6*
Student Contribution Band: *8*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites
Prerequisite: Minimum of 36 credit points
Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the Assessment Policy and Procedure (Higher Education Coursework).

Offerings For Term 1 - 2020

- Brisbane
- Cairns
- Mackay
- Noosa
- Online
- Rockhampton
- Sydney

Attendance Requirements
All on-campus students are expected to attend scheduled classes – in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Website
This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

Regional Campuses
Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

Metropolitan Campuses
Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Practical and Written Assessment**
Weighting: 40%
2. **Practical and Written Assessment**
Weighting: 60%

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the University's Grades and Results Policy for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the CQUniversity Policy site.
You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the CQUniversity Policy site.

Previous Student Feedback

Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

Feedback from Student Evaluations

Feedback
The content of some of the video lectures needs to be updated.

Recommendation
All video lectures in this unit will be replaced for the next offering.

Feedback from Student Evaluations

Feedback
Some students feel that the Arnold renderer (a Maya plug-in) should be introduced in the curriculum.

Recommendation
The Arnold renderer will be introduced in the learning resources for this unit.

Unit Learning Outcomes

On successful completion of this unit, you will be able to:

1. Apply the principles of design to 3D asset creation
2. Produce 3D models suitable for real-time rendering using industry-standard software
3. Produce asset texture maps suitable for real-time rendering using industry-standard software
4. Produce simple materials suitable for real-time rendering using industry-standard software.

Not applicable

Alignment of Learning Outcomes, Assessment and Graduate Attributes

— N/A Level • Introductory Level • Intermediate Level • Graduate Level ◦ Professional Level ◦ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Practical and Written Assessment - 40%	•	•	•	•
2 - Practical and Written Assessment - 60%	•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication	•	•	•	•

Graduate Attributes	Learning Outcomes			
	1	2	3	4
2 - Problem Solving	•	•	•	•
3 - Critical Thinking	•	•	•	•
4 - Information Literacy	•	•	•	•
5 - Team Work				
6 - Information Technology Competence	•	•	•	•
7 - Cross Cultural Competence	•			
8 - Ethical practice	•			
9 - Social Innovation				
10 - Aboriginal and Torres Strait Islander Cultures				

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Practical and Written Assessment - 40%	•	•	•	•		•	•	•		
2 - Practical and Written Assessment - 60%	•	•	•	•		•	•	•		

Textbooks and Resources

Textbooks

There are no required textbooks.

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Adobe Acrobat Reader (free browser plug-in)
- Adobe After Effects CC
- Adobe Photoshop CC
- Adobe Premiere CC
- Google Chrome
- Graphics Tablet (Recommended)
- Microsoft Word
- Maya 2019 above

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Qing Huang Unit Coordinator
q.huang@cqu.edu.au

Schedule

Week 1 - 09 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Unit Overview, Asset Creation Workflows, Principles of Design, Painting in Photoshop	Asset Design (Perspective and Orthographic) in Photoshop (with Graphics Tablet)	

Week 2 - 16 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Modelling - Workflows, Terminology, Tools and Techniques (Part 1)	Maya User Interface, Modelling Assets (Basic Forms)	

Week 3 - 23 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
Modelling - Workflows, Terminology, Tools and Techniques (Part 2)	Modelling Assets (Details)	

Week 4 - 30 Mar 2020

Module/Topic	Chapter	Events and Submissions/Topic
UVs - What They Are, Workflows, Terminology, Tools and Techniques	Unwrapping Assets UVs	

Week 5 - 06 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Textures - What They Are, Workflows, Terminology, Tools and Techniques	Creating Assets Textures (Colour, Specular, Height/Bump/Normals) in Photoshop and Using Materials (and Lights) in Maya	

Vacation Week - 13 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 20 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Rendering - Real time vs. Traditional (Differences, Pros and Cons, Post-processing, PBR, AR, VR)	Publishing to Sketchfab - Models, Textures, Materials, Lights and Post-processing	**3D Asset Pack and Self Assessment** Due: Week 6 Friday (24 Apr 2020) 11:00 pm AEST

Week 7 - 27 Apr 2020

Module/Topic	Chapter	Events and Submissions/Topic
Modular Assets - What They Are, Workflows, Terminology, Tools and Techniques	Sets and Modular Asset Design (Perspective and Orthographic) in Photoshop (with Graphics Tablet)	

Week 8 - 04 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
None	Modelling Sets and Modular Assets (Basic Forms)	

Week 9 - 11 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
None	Modelling Sets and Modular Assets (Details)	

Week 10 - 18 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
None	Unwrapping Sets and Modular Assets UVs	

Week 11 - 25 May 2020

Module/Topic	Chapter	Events and Submissions/Topic
None	Creating Sets and Modular Assets Textures (Colour, Specular, Height/Bump/Normals) in Photoshop and Using Materials (and Lights) in Maya	

Week 12 - 01 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic
None	Animation (Basic) and Publishing to Sketchfab - Models, Textures, Materials, Lights and Post-processing	**3D Diorama and Self Assessment** Due: Week 12 Friday (5 June 2020) 11:00 pm AEST

Review/Exam Week - 08 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 15 Jun 2020

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

None

Assessment Tasks

1 3D Asset Pack and Self Assessment

Assessment Type
Practical and Written Assessment

Task Description
This assessment requires you to publish six (6) 3D assets to a real time rendering platform, and complete a written review of your work. The assets and document must adhere to the technical specifications and submission requirements specified in the assessment criteria. Video tutorials are provided to guide you through the process.

Assessment Due Date
Week 6 Friday (24 Apr 2020) 11:00 pm AEST
Please refer to the unit website (Moodle) for a detailed assessment description and criteria.

Return Date to Students
Week 8 Friday (8 May 2020)

Weighting
40%

Assessment Criteria

- Adherence to technical specifications and submission requirements
- Application of principles of design
- Suitability of models for real-time rendering
- Suitability of textures for real-time rendering
- Use of real-time rendering materials and post-processing tools
- Effort and engagement
- Creativity and innovation

- Communication (written)

Please refer to the unit website (Moodle) for detailed assessment criteria.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
You must submit a URL for your published 3D Asset Pack, and upload a document for your Self Assessment, directly to the unit website (Moodle).

Learning Outcomes Assessed

- Apply the principles of design to 3D asset creation
- Produce 3D models suitable for real-time rendering using industry-standard software
- Produce asset texture maps suitable for real-time rendering using industry-standard software
- Produce simple materials suitable for real-time rendering using industry-standard software.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

2 3D Diorama and Self Assessment

Assessment Type
Practical and Written Assessment

Task Description
This assessment requires you to publish a 3D diorama to a real time rendering platform, and complete a written review of your work. The diorama and document must adhere to the technical specifications and submission requirements specified in the assessment criteria. Video tutorials are provided to guide you through the process.

Assessment Due Date
Week 12 Friday (5 June 2020) 11:00 pm AEST
Please refer to the unit website (Moodle) for a detailed assessment description and criteria.

Return Date to Students
Exam Week Friday (19 June 2020)

Weighting
60%

Assessment Criteria

- Adherence to technical specifications and submission requirements
- Application of principles of design
- Suitability of models for real-time rendering
- Suitability of textures for real-time rendering
- Use of real-time rendering materials and post-processing tools
- Effort and engagement
- Creativity and innovation
- Communication (written)

Please refer to the unit website (Moodle) for detailed assessment criteria.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
You must submit a URL for your published 3D Diorama, and upload a document for your Self Assessment, directly to the unit website (Moodle).

Learning Outcomes Assessed

- Apply the principles of design to 3D asset creation
- Produce 3D models suitable for real-time rendering using industry-standard software
- Produce asset texture maps suitable for real-time rendering using industry-standard software
- Produce simple materials suitable for real-time rendering using industry-standard software.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the **Student Academic Integrity Policy and Procedure**. This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?
A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?
A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?
For academic advice and guidance, the Academic Learning Centre (ALC) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?

Be Honest
If your assessment task is done by someone else, it would be dishonest of you to claim it as your own

Seek Help
If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)

Produce Original Work
Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem