EDCU12039 *Design and Digital Technologies*
Term 1 - 2021

Profile information current as at 29/04/2024 06:59 pm

General Information

Overview

Design and Digital Technologies introduces students to both the nature of learning in Design and Technology and Digital Technologies to enhance problem solving, innovation and creative thinking skills for 21st century learners. Students develop deep understanding of the thinking processes of planning, producing and evaluating which are essential processes in Design and Technology, and defining, organising and implementing which are essential processes in Digital Technology. They engage in design and digital challenges to build their own content and process knowledge in the learning area and reflect on the value of technological ways of thinking and learning for sustainability and innovation. Students explore a range of digital tools that support their engagement in the Design and Digital Technologies Curriculum content and pedagogy.

Details

Career Level: *Undergraduate*
Unit Level: *Level 2*
Credit Points: *6*
Student Contribution Band: *7*
Fraction of Full-Time Student Load: *0.125*

Pre-requisites or Co-requisites

There are no requisites for this unit.
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 - 2021

- Bundaberg
- Cairns
- Gladstone
- Mackay City
- Online
- Rockhampton
- Townsville

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: 50%
2. **Presentation**
Weighting: 50%

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, reflections, and emails

Feedback
Unit demands

Recommendation
Review student resources.

Unit Learning Outcomes

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

1. Participate in individual and collaborative learning processes to improve professional understanding of content knowledge and teaching and learning in the Design and Digital Technologies learning area
2. Use current research and examples to explain the value, nature and pedagogical practices appropriate to the Design and Digital Technologies learning area
3. Recommend Information and Communications Technologies on the basis of their purposeful application to learning and student engagement in the Design and Digital Technologies curriculum learning area
4. Produce digital content by making effective and purposeful use of Information and Communications Technology to model Design and Digital Technologies curriculum learning goals.

Successful completion of this unit provides opportunities for students to engage with the Australian Professional Standards for Teachers (Graduate Career Stage) focus areas of:
1.2 Understand how students learn
2.1 Content and teaching strategies of the teaching area
2.6 Information and Communication Technology (ICT)
3.3 Use teaching strategies
3.4 Select and use resources
4.5 Use ICT safely, responsibly and ethically
5.2 Provide feedback to students on their learning
6.3 Engage with colleagues and improve practice
6.4 Apply professional learning and improve student learning

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 - 50%	•	•		
2 - Presentation - 50%	•		•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication	•	•		•
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 - 50%	•	•	•	•	•	•				
2 - Presentation - 50%	•	•	•	•	•	•				

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)

Referencing Style

All submissions for this unit must use the referencing style: American Psychological Association 7th Edition (APA 7th edition)
For further information, see the Assessment Tasks.

Teaching Contacts

Brendan Jacobs Unit Coordinator
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Daren Mallett Unit Coordinator
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Schedule

Week 1: Introduction to Design Technologies and Digital Technologies - 08 Mar 2021

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Design Technologies and Digital Technologies	Access eReading List for: • Andresen, L., Boud, D., & Cohen, R. (2000). Experience-based learning. In Foley, G. (Ed.), *Understanding adult education and training* (2nd ed., pp. 225-239). Taylor & Francis.	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Complete Welcome and Overview. • Complete Entry Quiz. • Commence Design Challenge Project.

Week 2: Design Thinking - 15 Mar 2021

Module/Topic	Chapter	Events and Submissions/Topic
Design Thinking	Access eReading List for: • Mawson (2003) • McCormick (2004) • Jones, Buntting, & de Vries (2013)	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Complete phase 1 of design challenge project.

Week 3: Design and Sustainability - 22 Mar 2021

Module/Topic	Chapter	Events and Submissions/Topic

Design and Sustainability	Access Moodle for: • Canty, Seery, Hartell, & Doyle (2017)	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Complete design challenge project. • Post completed challenge to campus design challenge evaluation forum.

Week 4: The Technologies Curriculum and the ICT General Capability - 29 Mar 2021

Module/Topic	Chapter	Events and Submissions/Topic
Assessment 1 overview The Technologies Curriculum and the ICT General Capability • What is technology? • Aims and Rationale • Two subjects: 1. Design and Technologies 2. Digital Technologies	Access eReading List for: • Advancing education: An action plan for education in Queensland (2016)	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Complete Peer Evaluation task in Design Challenge Evaluation forum.

Week 5: The Australian Curriculum (Digital Technologies) - 05 Apr 2021

Module/Topic	Chapter	Events and Submissions/Topic
The Australian Curriculum (Digital Technologies) • Assessment 2 overview and reflection	Access eReading List for: • Bell, Witton, & Fellows (2015). [This is an excellent resource full of classroom technology activities which do not require computers. Just skim through it to get a feel for this approach.]	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Complete 'Reflective Questionnaire - The affective domain mid-unit'. • Complete embedded Portfolio Artefact 1: Excel. **Journal and Research Inquiry** Due: Week 5 Thursday (8 Apr 2021) 11:45 pm AEST

Vacation Week - 12 Apr 2021

Module/Topic	Chapter	Events and Submissions/Topic

Week 6: Digital Technologies and Data - 19 Apr 2021

Module/Topic	Chapter	Events and Submissions/Topic
Digital Technologies and Data • Data representation • Binary code, colours and images	Access eReading List for: • English (2019)	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Complete embedded Portfolio Artefact 2: Data and images.

Week 7: Computational Thinking - 26 Apr 2021

Module/Topic	Chapter	Events and Submissions/Topic
Computational Thinking	Access eReading List for: • Barr & Stephenson (2011)	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Complete embedded Portfolio Artefact 3: Computational thinking through Code Studio activity

Week 8: Coding and Programming (Game Design) - 03 May 2021

Module/Topic	Chapter	Events and Submissions/Topic
Coding and Programming (Game Design)	Access eReading List for: • Fryer (2013). [Please look over this resource. You don't have to read it all.]	• Engage with the Moodle unit materials and tutorials. Commence all activities as outlined in these materials. • Commence embedded Portfolio Artefact 4: Programming.

Week 9: Coding and Programming (Robotics) - 10 May 2021

Module/Topic	Chapter	Events and Submissions/Topic
Coding and Programming (Robotics)	Access eReading List for: • Thinkersmith (2013). [Please look over this resource. You don't have to read it all.]	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Complete embedded Portfolio Artefact 4: Programming.

Week 10: Digital Communication (Digital Tools to Integrate Media) - 17 May 2021

Module/Topic	Chapter	Events and Submissions/Topic
Digital Communication • Communicating with Digital Media • Digital Tools to Integrate Media	Access eReading List for: • Brusic & Steinmacher (2015) • Hummell (2015) • Cantu (2015)	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Examine and enhance Assessment 2 website to meet curriculum requirements for digital communication.

Week 11: Digital Communication (Virtual Reality and Augmented Reality) - 24 May 2021

Module/Topic	Chapter	Events and Submissions/Topic
Digital Communication • Legal, Safe and Ethical Practice • Virtual Reality and Augmented Reality	Access eReading List for: • Fasso & Knight (2020)	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. • Examine and enhance Assessment 2 website to meet curriculum requirements for digital communication. • Complete 'Reflective Questionnaire - The affective domain end-unit'.

Week 12: Year 7 and beyond - 31 May 2021

Module/Topic	Chapter	Events and Submissions/Topic
Year 7 and beyond	Access eReading List for: • Stager (2016)	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials. **Digital portfolio** Due: Week 12 Thursday (3 June 2021) 11:45 pm AEST

Review/Exam Week - 07 Jun 2021

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 14 Jun 2021

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Journal and Research Inquiry

Assessment Type
Practical and Written Assessment

Task Description
Assessment 1 requires the submission of three reflective components:
You will submit a 2,600-word written piece that is both reflective and referenced. This written piece will be submitted through the assessment link as a PDF file for feedback and grading. However, without supporting documentation in your Google site and in the Moodle Assessment 1 Peer Feedback Forum, your submitted reflections will be void, and not

assessed as having been drawn from personal experience. Your assessment submission will include three sections:
a) A focused reflection (approximately 700 words) on the technology design process of the design challenge, and the peer evaluation process that links your own experience as both provider, and recipient of evaluation to your growing understanding of the process and production skills of the design and technologies subject. This reflection should be drawn from and elaborate on your responses to the reflection prompts provided in the Moodle materials. It should draw from the curriculum expectations, as well as the readings provided in the unit on collaborative feedback.
b) An examination of your completed Technology Design Challenge, and how this may be adapted for use in your own classroom with insight into your pedagogy.
c) A referenced reflection identifying a critical issue of sustainability related to your design challenge, with details of your pedagogy that will support futures thinking and ethical design in your classroom. Sustainability, preferred futures, and ethics are at the heart of the design and technologies curriculum. They are based on knowledge and values, which must be developed in your technologies classroom. Therefore you should consider pedagogies that will develop this type of thinking in your students.
Details of each component are provided in the Moodle unit materials.

Assessment Due Date
Week 5 Thursday (8 Apr 2021) 11:45 pm AEST
Submit online through Moodle

Return Date to Students
Week 7 Thursday (29 Apr 2021)
This assignment will be returned to students with sufficient time to allow for academic support and advice where necessary, prior to the submission of the next assessment task.

Weighting
50%

Assessment Criteria

- Use participation and critical reflective processes to develop professional understanding of content knowledge, and teaching and learning in the Digital Technologies learning area.
- Ability to seek and respond to constructive feedback to identify professional learning needs.
- Development of questions to guide professional learning. Focused research into teaching strategies that support the development of conceptual knowledge and technological thinking processes.

Referencing Style

- American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
This task should be uploaded in PDF format using the Assessment 1 link in Moodle. Your document should include a link to your Weebly website (or alternative) in which your design challenge is presented.

Learning Outcomes Assessed

- Participate in individual and collaborative learning processes to improve professional understanding of content knowledge and teaching and learning in the Design and Digital Technologies learning area
- Use current research and examples to explain the value, nature and pedagogical practices appropriate to the Design and Digital Technologies learning area

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

2 Digital portfolio

Assessment Type
Presentation

Task Description
Overview
This is a portfolio task. You will accumulate artefacts that evidence and demonstrate your learning about the Digital Technologies curriculum each week. These will be collected in a digital portfolio in your Google Sites website.

- The portfolio will include an introduction, and a collection of four artefacts. Each artefact will contain evidence of your practical exploration of the activity, and a reflection on the classroom pedagogy which could be associated with the activity.
- Your portfolio will also include a discussion of the decisions you made with regard to digital communication of the elements of your portfolio. The portfolio will also be assessed on the quality of the digital communication of the artefacts.

Artefacts overview
The following artefacts will be included, in the form and modality of your choice, in your portfolio. Each artefact will include practical evidence of your own exploration of the relevant technologies, and a reflection on the way this activity will be configured to reflect the Australian Curriculum Technologies: Digital Technology, in your classroom.

- Introduction: Initial Reflection
- Portfolio Artefact 1: Data representation (Excel activity)
- Portfolio Artefact 2: Binary code and data as images (exploration of images, pixels, resizing and colour
- representation in binary)
- Portfolio Artefact 3: Algorithmic and computational thinking (Code Studio activity)
- Portfolio Artefact 4: Coding and Programming a robot or game (Scratch game design)

Digital Communication overview

- The Australian curriculum Technologies outlines expectations of digital communication in the primary school that includes formatting, digital data representation and analysis, the use of online and web-based tools for sharing, the use of media (including audio, images, and video), concept maps, charts and infographics. You will become familiar with some representative tools that support communication in this fashion. You will make decisions about the purposeful use of a selection of these tools and modalities of communication that best suit the materials and data that you are presenting in your website. Your site will therefore evidence creative and purposeful use of digital communication to share your information and thinking with an audience. This element of the assessment will include:

- Evidence of your own digital communication choices in the sophistication of decisions based on settings, formatting, use of colour and images, layout and structure of the site.

- A brief (200 word) reflection that draws together what you have learned about the curriculum expectations of digital communication.

- This reflection should include considerations of legal, safe and responsible use of ICT by your students.

- It is also expected that, as outlined in the Australian Curriculum: Technologies, you adhere to legal, safe and ethical principles in your website as outlined in the unit materials.

Further information about each artefact is available in Moodle, distributed through the unit materials.

Assessment Due Date
Week 12 Thursday (3 June 2021) 11:45 pm AEST
Submit online through Moodle

Return Date to Students
Week 12 Thursday (3 June 2021)
Feedback on this final assessment response will be provided following University Assessment policy.

Weighting
50%

Assessment Criteria

- Demonstrate knowledge of a range of digital resources and tools for improving student engagement and learning through the selection and use of data representation and programming tools.
- Recommend Information and Communications Technologies on the basis of their purposeful application to learning and student engagement in the Technologies curriculum learning area making explicit links between the technologies activities, curriculum and pedagogy.
- Produce digital content by making effective and purposeful use of Information and Communications Technology for digital communication.

Referencing Style

- American Psychological Association 7th Edition (APA 7th edition)

Submission
Online

Submission Instructions
The URL for your portfolio should be entered into the box under Assessment Task 2 in Moodle.

Learning Outcomes Assessed

- Participate in individual and collaborative learning processes to improve professional understanding of content knowledge and teaching and learning in the Design and Digital Technologies learning area
- Recommend Information and Communications Technologies on the basis of their purposeful application to learning and student engagement in the Design and Digital Technologies curriculum learning area
- Produce digital content by making effective and purposeful use of Information and Communications Technology to model Design and Digital Technologies curriculum learning goals.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence

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