



# EDCU12039 *Design and Digital Technologies*

## Term 1 - 2018

Profile information current as at 14/05/2024 10:04 pm

All details in this unit profile for EDCU12039 have been officially approved by CQUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

### 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 - 2018

- Bundaberg
- Cairns
- Distance
- Mackay
- Noosa
- Rockhampton

#### 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 Tutors and students

**Feedback**

Unit requirements

**Recommendation**

Unit requirements will remain consistent.

#### Feedback from Tutors and students

**Feedback**

Assessment Requirements

**Recommendation**

Additional support will be embedded into the Moodle site.

#### Feedback from Tutors

**Feedback**

The unit provides insight into the Technologies curriculum that is highly relevant to the learning needs of teachers in schools.

**Recommendation**

The unit will continue to be responsive to initiatives by governing bodies and the needs of schools.

## 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 the unit Design and Digital technologies provides opportunities for students to demonstrate the Australian Professional Standards for Teachers focus areas of 1.2, 2.1, 2.6, 3.3, 3.4, 4.5, 5.2, 6.3 and 6.4.

Assessment tasks for this unit may be included in a portfolio and used as evidence of progress towards meeting the standards at Graduate career stage with evidence specifically related to teaching and learning in the Design and Digital Technologies area of the curriculum. Unit assessment also provides evidence of competence in meeting the ICT elaborations of these standards.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### 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.**

#### Additional Textbook Information

There is no set text for this unit.

### 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 6th Edition \(APA 6th edition\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Wendy Fasso** Unit Coordinator  
[w.fasso@cqu.edu.au](mailto:w.fasso@cqu.edu.au)

## Schedule

### Week 1 - 05 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Nature of the Technology learning area.	Sites and resources on Moodle site. Anazagasty, J. (2014) What is Technology? In Cruz-Cruz & W. Frey (Eds) Civis Project – UPRM. ACARA (2014). Australian Curriculum: Technology Shaping Paper Acara (2014). Australian Curriculum: Technologies rationale, aims and organisation	Complete Welcome and Overview, and complete Entry Quiz. Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

### Week 2 - 12 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
The Technology Design Process	<i>Links and readings in Moodle, including:</i> Mawson, B. (2003). Beyond 'The Design Process'. An alternative pedagogy for technology education. International Journal Of Technology & Design Education, 13(2), 117-128. Education Queensland (2015). Curriculum activity risk management guidelines	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

### Week 3 - 19 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

Design Thinking	<p><i>Links and readings in Moodle, including:</i></p> <p>Jones, Bunting and de Vries (2013). The developing field of technology education: a review to look forward. International Journal of Technology Design Education 23, 191-212 – an important framing paper.</p> <p>Lewis, T. (2009). Creativity in technology education: Providing children with glimpses of their inventive potential</p> <p>Lewis, T. (2005). Creativity – A framework for the design/problem solving discourse in technology education.</p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.
-----------------	---	--

#### Week 4 - 26 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Design and Sustainability	<p><i>Links and readings in Moodle, including:</i></p> <p>MSA (2014). Sustainability in Practice: Product improvement and life cycle. University of Wollongong Faculty of Arts (nd). Clean, green technology. Ecodesigner (2013). Sustainability Resources</p> <p>Acaroglu, L. (2014). The Good Design Guide (overview only).</p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

#### Week 5 - 02 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
The Digital Technologies Curriculum Data 1	<p><i>Links and readings in Moodle, including:</i></p> <p>The Australian curriculum: Technologies. Digital Technologies. Bell, T., Witton, I. &amp; Fellows, M. (2010). Computer Science Unplugged. CS Unplugged.org.</p> <p>CSTA (2012). Special Issue: Computer science K-8: Building a strong foundation.</p>	<p>Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.</p> <p><b>Journal and Research Inquiry Due:</b> Week 5 Friday (6 Apr 2018) 11:59 pm AEST</p>

#### Vacation Week - 09 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

#### Week 6 - 16 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Data II	<p><i>Links and readings in Moodle, including:</i></p> <p>Barr, V. &amp; Stephenson, C. (2011). Computational thinking to K-12: What is involved and what is the role of the computer science education community. ACM Intoads, 2(1), 48-54.</p> <p>Computational thinking: <a href="http://learn.code.org/s/1/level/22">http://learn.code.org/s/1/level/22</a></p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

#### Week 7 - 23 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Computational Thinking	<p><i>Links and readings in Moodle, including:</i></p> <p>Scratched, Creative Computing; Computational Thinking connections</p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

**Week 8 - 30 Apr 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Coding and Programming	<p><i>Links and readings in Moodle, including:</i>  The Australian Curriculum: Technologies  <a href="#">Computational Thinking connections of Scratched</a>,  <a href="http://scratched.gse.harvard.edu/guide/download.html">http://scratched.gse.harvard.edu/guide/download.html</a> <a href="#">Creative Computing</a>  <a href="https://web.media.mit.edu/~mres/papers/Scratch-CACM-final.pdf">https://web.media.mit.edu/~mres/papers/Scratch-CACM-final.pdf</a>  <a href="#">Underpinning Design</a>  <a href="http://scratched.gse.harvard.edu/resources/all">http://scratched.gse.harvard.edu/resources/all</a>  <a href="http://scratched.gse.harvard.edu/resources/scratch-programming-concepts">http://scratched.gse.harvard.edu/resources/scratch-programming-concepts</a>  <a href="#">Starter Hopscotch curriculum</a>.</p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

**Week 9 - 07 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Coding and Programming	<p><i>Links and readings in Moodle, including:</i>  The Australian Curriculum: Technologies  <a href="#">Computational Thinking connections of Scratched</a>,  <a href="http://scratched.gse.harvard.edu/guide/download.html">http://scratched.gse.harvard.edu/guide/download.html</a> <a href="#">Creative Computing</a>  <a href="https://web.media.mit.edu/~mres/papers/Scratch-CACM-final.pdf">https://web.media.mit.edu/~mres/papers/Scratch-CACM-final.pdf</a>  <a href="#">Underpinning Design</a>  <a href="http://scratched.gse.harvard.edu/resources/all">http://scratched.gse.harvard.edu/resources/all</a>  <a href="http://scratched.gse.harvard.edu/resources/scratch-programming-concepts">http://scratched.gse.harvard.edu/resources/scratch-programming-concepts</a>  <a href="#">Starter Hopscotch curriculum</a>.</p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

**Week 10 - 14 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Digital Communication	<p><i>Links and readings in Moodle, including:</i>  Smartcopying website  <a href="#">Brusic, S &amp; Steinmacher, J. (2015) Communicating without words.</a>  <a href="#">Children's Technology and Engineering</a>  <a href="#">Hummell, L. (2015). Communication. Children's Technology and Engineering</a>  <a href="#">Cantu, D. The importance of communication skills (2015). Children's Technology and Engineering</a></p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

**Week 11 - 21 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Digital Communication	<p><i>Links and readings in Moodle, including:</i>  Self-selected resources and sites</p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.

**Week 12 - 28 May 2018**

Module/Topic	Chapter	Events and Submissions/Topic
Preparation of digital media for presentation of Assessment 2	<p><i>Links and readings in Moodle, including:</i>  Self-selected resources and sites</p>	Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.  <b>Online presentation - Portfolio</b> Due: Week 12 Thursday (31 May 2018) 11:59 pm AEST

**Review/Exam Week - 04 Jun 2018**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

**Exam Week - 11 Jun 2018**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

**Assessment Tasks**

# 1 Journal and Research Inquiry

## Assessment Type

Practical and Written Assessment

## Task Description

### Details

Assessment 1 involves a design challenge that consists of two preparatory tasks that lead to the creation and submission of three assessable components. The preparatory tasks are compulsory aspects of the assessment and will be assessed as evidence and justification of the process you have undertaken to develop the three assessable components.

*Two preparatory tasks:*

- preparatory learning: the documentation and presentation of a design challenge in your Weebly site
- preparatory learning: the exchange of feedback through an evaluation of this documentation and presentation in a dedicated forum: Design Challenge Evaluation forum

*The submission of three components:*

- a reflection on the process of design and peer feedback exchange as it relates to learning about the technology design process
- a referenced response to two critical questions about the pedagogy involved in teaching and learning in this curriculum subject
- a referenced response to one critical question about safe, ethical and sustainable practice with regard to curriculum expectations and your design challenge, contextualised to your classroom

The preparatory tasks are regarded as compulsory. Although not formally submitted, they will be accessed as evidence and justification of the learning process upon which the assessable components are based. Details of the assessment task are available in the Key Unit Materials block within Moodle. Further details are embedded in the weekly unit materials.

## Assessment Due Date

Week 5 Friday (6 Apr 2018) 11:59 pm AEST

This task must be uploaded using the Assessment 1 link in Moodle.

## Return Date to Students

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 6th Edition \(APA 6th edition\)](#)

## Submission

Online

## Submission Instructions

Assessment 1 will be submitted as a Word document. 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 Online presentation - Portfolio

### Assessment Type

Presentation

### Task Description

#### Task Description

This is a portfolio task. You will develop artefacts that evidence and demonstrate your learning about the Digital Technologies curriculum each week. These will be collected in a digital portfolio in your Weebly website.

The portfolio will include a collection of 5 artefacts. The portfolio will be assessed on your insight into the curriculum concepts and processes that are demonstrated by each artefact. Also assessed will be the suitability for purpose and execution of each artefact in order to communicate the type of data, knowledge and thinking that is addressed.

#### Artefacts

The following five 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
- Portfolio Artefact 2: Binary code and data as images
- Portfolio Artefact 3: Algorithmic and computational thinking
- Portfolio Artefact 4: Coding and Programming a robot or game

#### Digital Communication

The Australian Curriculum Technologies outlines expectations of digital communication in the primary school Technologies classroom. You will become familiar with some representative tools that support communication of data and knowledge throughout the course. You will make decisions about the purposeful use 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 data, information and thinking with an audience. You will include a short paragraph outlining how you have met the curriculum communication expectations including a brief justification for your selection of a minimum of three methods of representation.

It is also expected that, as outlined in the Curriculum, you adhere to legal, safe and ethical principles in your website as outlined in the course materials.

Details of the assessment task are available in the assessment block within Moodle. Further details are embedded in the weekly unit materials.

### Assessment Due Date

Week 12 Thursday (31 May 2018) 11:59 pm AEST

This task must be uploaded using the Assessment 2 link in Moodle.

### Return Date to Students

Feedback on this final assessment response will be provided following University Assessment policy.

### Weighting

50%

### Assessment Criteria

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

**Referencing Style**

- [American Psychological Association 6th Edition \(APA 6th edition\)](#)

**Submission**

Online

**Submission Instructions**

A Word document will be submitted that provides a link to your website.

**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