

Profile information current as at 23/07/2025 05:56 am

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 <a href="Assessment Policy and Procedure (Higher Education Coursework)">Assessment Policy and Procedure (Higher Education Coursework)</a>.

# Offerings For Term 1 - 2023

- Bundaberg
- Cairns
- Mackay
- 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 <u>University's Grades and Results Policy</u> 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 feedback

#### **Feedback**

Assessment

#### Recommendation

Assessments need to be updated in line with the new curriculum and to assist with student clarity.

### Feedback from Student feedback

#### Foodback

Overall unit and Moodle site

#### Recommendation

Course needs to be updated in line with the new curriculum and to assist with student clarity.

### Feedback from Student feedback

#### **Feedback**

Lecturers and tutors.

#### Recommendation

Tutors and I will continue to use student feedback to guide teaching practice and course materials.

# **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

# Introductory Intermediate Graduate Professional Advanced Level Level Level Level Level 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** 7 2 3 4 6 8 9 10 1 - Practical and Written Assessment - 50% 2 - Presentation - 50%

Alignment of Learning Outcomes, Assessment and Graduate Attributes

# 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

For further information, see the Assessment Tasks.

# **Teaching Contacts**

Daren Mallett Unit Coordinator

d.mallett@cgu.edu.au

# Schedule

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Week	1 -	06	Mar	2023

Curriculum and pedagogies: Design

Module/Topic

Best, M. (2017). Transforming pre-service teachers' beliefs and understandings about design and technologies. The Australian Journal of Teacher Education,

42(7), 47-65. https://doi.org/10.14221/ajte.2017v42n7.4

Li, Y., Schoenfeld, A. H., diSessa, A. A., Graesser, A. C., Benson, L. C., English, L. D., & Duschl, R. A. (2019). Design and Design Thinking in STEM Education.

Journal for STEM Education Research., 2(2), 93-104.

https://doi.org/10.1007/s41979-019-00020-z

Australian Curriculum, Assessment and Reporting Authority. (2022). Understand

this learning area: Technologies.

https://v9.australiancurriculum.edu.au/teacher-resources/understand-this-learning-area/technologies

Week 2 - 13 Mar 2023

Module/Topic

and Technologies

Chapter

Mawson, B. (2003). Beyond `The Design Process': An Alternative Pedagogy for Technology Education. International Journal of Technology and Design

Design and Technologies: What is it and why is it so important?

Education, 13(2), 117-128. https://doi.org/10.1023/A:1024186814591 McCormick, R. (2004). Issues of Learning and

Knowledge in Technology Education. *International* Journal of Technology and Design Education, 14(1),

https://doi.org/10.1023/B:ITDE.0000007359.81781.7c

**Events and Submissions/Topic** 

**Events and Submissions/Topic** 

Engage with the Moodle unit

· Commence Design Challenge

Curriculum: Technologies

materials, tutorials and the Australian

Gain a critical understanding of AT1.

- Engage with the Moodle unit materials and tutorials.
- · Complete all activities as outlined in these materials.
- Complete design challenge construction and seek feedback.

# Week 3 - 20 Mar 2023

Module/Topic

The Technologies Contexts -Engineering and Materials

Canty, D., Seery, N., Hartell, E. & Doyle, A. (2017). Integrating peer assessment in technology education through adaptive comparative judgment. [Conference session]. Pupils Attitude Towards Technology (PATT 34).

https://www.researchgate.net/publication/320299812 Integrating Peer Assessment in Technology\_Education\_through\_Adaptive\_Comparative\_Judgn Kaiser, A. (2019). Chapter 5 - Introducing projects for Elementary School. In A. Kaiser, Designing the Future: How Engineering Builds Creative Critical Thinkers in the Classroom (Boost Critical and Creative Thinking Using the Engineering Design Process). Solution Tree.

Events and Submissions/Topic

- Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.
- materials.

  Complete Peer Evaluation task in Design Challenge Evaluation forum.

  Stay in contact with peer to check progress on feedback.

  Start to develop instructional video.

  Continue working on Assignment 1.

#### Week 4 - 27 Mar 2023

Module/Topic	<b>Chapter</b> Fitzgerald, A., Leach, T., Davis, K.,	Events and Submissions/Topic				
The Technologies Contexts: For technologies	Martin, N., & Dunlop, S., (2020). Chapter 11: Informal spaces for STEI Learning and teaching. In A.	materials and tutorials. Complete all activities as outlined in these materials.  • Complete final section of assignment.				
Week 5 - 03 Apr 2023						
Module/Topic	Chapter	<b>Events and Submissions/Topic</b>				
Integrating Design and Techno	ologies Mullick, N. (2012). <i>Caine's Arcade</i> [Video]. https://youtu.be/falFNkdq96	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.\ Design Challenge Due: Week 5 Thursday (6 Apr 202) 11:45 pm AES3T				
		Teaching Design and Technologies - Beginning a design folio Due: Week 5 Thursday (6 Apr 2023) 11:45 pm AEST				
Vacation Week - 10 Apr 2023						
Module/Topic	Chapter	Events and Submissions/Topic				
Week 6 - 17 Apr 2023						
Module/Topic	Chapter	Events and Submissions/Topic				
Digital Technologies - Curriculun Pedagogy	Access eReading List for: Blundell, C., Lee, KT., & Nykvist, S. (2020 Moving beyond enhancing pedagogies with digital technologies: Frames of reference, of mind and transformative learning. Journ of Research on Technology in Education, 52(2), 178-196. https://doi.org/10.1080/15391523.2020.17 Curtis, D., & Carter, M. (2013). Chapter 7: Session: Observing how children connect withe natural world. In D. Curtis. and M. Cart (Eds.). The art of awareness how observation can transform your teaching (2nd ed.). Redleaf Press.	h habits  nal  • Engage with the Moodle unit materials and tutorials. Commence all activities as outlined in these materials.  Study  • Engage with the Moodle unit materials and tutorials. Commence all activities as outlined in these materials.  • Become familiar with AT2 and get ahead on course readings.				
Week 7 - 24 Apr 2023						
Module/Topic	Chapter  Churchill. (2020). Development of students' digital literacy skills through digital storytelling with mobile devices. Educational Media International, 57(3), 271-284.  Events and Submissions/Topic  • Engage with the Moodle unit materials and tutorials. Commence all activities as outlined in these					
Processes and Production Skills - Computational Thinking  https://doi.org/10.1080/09523987.2020.1833680  Lee, J., & Junoh, J. (2019). Implementing Unplugged Coding Early Childhood Classrooms. Early Childhood Education Jou 709-716. https://doi.org/10.1007/s10643-019-00967-z Ricketts, R. (2018). Computational Thinking for Kindergartt https://www.edutopia.org/article/computational-thinking-ki		materials.  • Have completed a response for artefact 1 for AT2.  • Work collaboratively on related descens for AT2.				
Week 8 - 01 May 2023						
Module/Topic	Chapter	Events and Submissions/Topic				
Coding and programming	Barr, V. & Stephenson, C. (2011). Bringing computational thinking to K-12: what is Involve what is the role of the computer science educat community? <i>ACM Inroads</i> , <i>2</i> (1). https://doi.org/https://doi.org/10.1145/1929887	tion  • Completed response for artefact 2  for AT2				

Week 9 - 08 May 2023					
Module/Topic  Data	Chapter  Boss, S. (2014). How to help your students develop data literacy. https://www.edutopia.org/blog/helping-students-develop-digital-literacy-suzie-boss		Events and Submissions/Topic     Engage with the Moodle unit materials and tutorials. Commence all activities as outlined in these materials.     Start response for artefact three for AT2.     Work collaboratively on related lessons for AT2		
Week 10 - 15 May 2023					
Module/Topic		Chapter	Events	and Submissions/Topic	
Digital Communication (Digi to integrate media)	tal tools	Bereczki, E. O., & Kárpáti, A. (2021). Technology-enhanced creativity: A multiple case study of digital technology-integration expert teachers' beliefs and practices. <i>Thinking Skills and Creativity</i> , 39, 100791 https://doi.org/10.1016/j.tsc.2021.100791	materia Comme outlined • Work three fo • Work related	ge with the Moodle unit als and tutorials. Ince all activities as d in these materials. on response for artefact or AT2. collaboratively on lessons for AT2 work on Part C of AT2	
Week 11 - 22 May 2023					
Module/Topic		Chapter	Events	and Submissions/Topic	
	Fasso, & Knight, B. A. (2020). Identity development in school makerspaces: intentional design. <i>International Journal of Technology and Design Education, 30</i> (2), 275–294. https://doi.org/10.1007/s10798-019-09501-2		materia activitie materia • Compl three fo	eted response for artefact	
Week 12 - 29 May 2023					
Module/Topic		Chapter	<b>Events</b> a	nd Submissions/Topic	
Review and reflection		There are no readings this week	• Engage with the Moodle unit materials and tutorials. Complete all activities as outlined in these materials.  Digital portfolio Due: Week 12 Thursday (2 June 2022) 11:45 pm AEST  Workshops to the classroom Due: Week 12 Thursday (1 June 2023) 11:45		
			pm AEST		
Review/Exam Week - 05 Ju	ın 2023				
Module/Topic		Chapter		<b>Events and Submissions/Topic</b>	
Exam Week - 12 Jun 2023					
Module/Topic		Chapter	Events a	nd Submissions/Topic	

# **Term Specific Information**

- Students are to only use the latest version 9 of the Australian Curriculum.
- Students must pass both assessments in order to pass this unit

# **Assessment Tasks**

# 1 Teaching Design and Technologies - Beginning a design folio

#### **Assessment Type**

Practical and Written Assessment

Task Description Weighting: 50%

Word Limit: 2000 words (+/- 10%) (A word count guide is given for each section, however this is only a guide to help).

Due: Thursday 6th April at 11:55 PM (AEST)

#### Task Overview:

You are to create a photographed design folio with one design and technologies task that you would give to students from one of the three bands (F-2, 3-4 and 5-6). You will then create an instructional video to give to your future students that would guide them through the design or design thinking process for this task. You will then complete a reflection on your engagement with the design task and write a paper to the local education gazette providing a justification for this kind of teaching.

You are to submit your task as a readable word document or PDF with the links to your video contained in Part B.

A breakdown of the task is given here.

#### Part A - Design, construction and evaluation of your object with task card.

- Create your design brief (this is the challenge you will set your students to complete).
- Start planning out what, why and how you will build your object (Take photos of every stage). You need to submit these plans, mind mapping or otherwise with your submission.
- · Build your object.
- Share your design thinking, design brief and photos with a peer and get feedback on ways you could improve your design and construction. You will use this feedback to complete Part C below.
- Make adjustments based on feedback.
- Design your student task card/s (which is your design brief) with your peer's feedback in mind.

# Part B - Instructional video

You will use your photos (or video) taken of your design and construction process along with your task card to create an instructional video (that is no longer than 7 mins in length) that you would give to a student in a primary or early years' classroom guiding them through the design task and design process, both showing them what to do, as per the design brief and teaching them the design process. If you wish, you can break the video into smaller videos, particularly if you are working with younger children. You are not asking them to make the same thing you made. Rather, you are using your product as an exemplar to show one way of responding to a design brief which you have created. By the end of the video, the students will have a good understanding of what they are to do.

You will need to attach your design brief and PowerPoint (Or Prezi or E-Book) presentation with your script to your submission along with an accessible link (URL) to the video. A range of sample design briefs are given as exemplars to help you with this task.

#### Part C - Reflection of design task

Draw from your course, readings, your peer's feedback and the Australian Curriculum (v.9.0) to complete a reflection on the entire design and construction process as a future teacher of such a task. You need to use your peer's feedback in this reflection. Use your course readings to guide your reflections.

#### Part D - Justification paper

You have been asked to write a paper for the local education gazette outlining the research underpinning teaching using tasks similar to the one with which you engaged. You are to draw from your experience engaging with and reflecting on this task to write a critical summary on why this kind of learning is important in the 21st century classroom. To support your case, you need to ensure that you have included links to the unit's readings, high quality research and the Australian Curriculum. You will need to link the justification for your pedagogical approaches to the appropriate theoretical underpinnings (social constructivism, constructionism, connectivism or otherwise) demonstrating you understand how this kind of task can be beneficial for all students and their possible future careers.

#### **Assessment Due Date**

Week 5 Thursday (6 Apr 2023) 11:45 pm AEST

You are to submit your response to this task as a readable word document or PDF with the accessible links to your unlisted YouTube contained in Part B. Your submission should contain your evidence of engagement in the design process, any sketches, annotated photos, mind maps or planning in your Part A response.

#### **Return Date to Students**

#### Weighting

50%

#### Minimum mark or grade

25/50

#### **Assessment Criteria**

Use participation and critical reflection to develop a professional working understanding of the content knowledge contained in the Technologies learning area.

Has drawn from current research and examples to explain the value, nature, and pedagogical practices appropriate to the Design and Technologies subject.

Plan and scaffold an age-appropriate and engaging video and task cards (design brief).

Recommends technologies on the basis of their purposeful application to learning and student engagement in the Design and Digital Technologies curriculum learning area

# **Referencing Style**

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

#### **Submission**

Online

# **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 Workshops to the classroom

# **Assessment Type**

Presentation

**Task Description Weighting**: 50%

**Due**: Thursday 1st June at 11:45 PM (AEST) **Word Limit:** 3000 words (+/- 10%)

#### Task:

You will create a portfolio of three items from your workshops and show how you would use these kinds of activities in your future teaching. One of these tasks needs to be a coding task. The three items will consist of evidence of engagement with the workshops, critical reflections on the workshop activities and how you could apply these kinds of activities to your future teaching.

For example: In your workshop, you might program a robot or drone (which you could classify as a coding task). You will write a critical reflection on your experiences, your feelings, and reactions in relation to this experience related to your past, to the course readings or high-quality literature. You will then discuss how you would teach this, with clear links to your pedagogical approaches explained. Some possible approaches for engaging with this assignment will be provided on Moodle.

A breakdown of the task is given here:

#### Part A (750 words) Evidence of engagement with design and critical reflection.

You are to draw from your course readings, past and present experiences to write a critical reflection with annotated photos or screenshots of your engagement with three tasks you completed in the workshops.

#### Part B - Your lessons (1250 words)

You are to create three lessons or short lesson sequences (if needed) with clear descriptions in how you would teach the above three tasks to your future class. Your teaching steps need to have clear links to your pedagogy and teaching strategies (and use the language of pedagogy).

You are strongly encouraged to integrate your use of these technologies with another curriculum area; however, you only need to mention this integration and not show how you will teach the other learning area. Your lessons need to contain links to the General Capabilities as listed in the latest version of the Australian Curriculum. You are very welcome to draw inspiration from high quality online sources for your lessons, however, you need to use your own words in your assignment.

## Part C - Discussion and justification on pedagogy (1000 words)

Drawing from the unit's readings, high quality literature and the Australian Curriculum, provide a critical discussion and justification on your pedagogy you would be using in these lessons.

#### **Assessment Due Date**

Week 12 Thursday (1 June 2023) 11:45 pm AEST

Response to task should be submitted as a word or PDF document.

#### **Return Date to Students**

#### Weighting

50%

#### Minimum mark or grade

25/50

#### **Assessment Criteria**

Produce digital content by making effective and purposeful use of Information and Communications Technology to model in future teaching of the Digital Technologies subject .

Demonstrates a practical knowledge and understanding of Core Concepts in the Australian Curriculum: Technologies, Digital Technologies within the context of being a future teacher of such tasks.

Has drawn from current research and examples to explain the value nature and pedagogical practices appropriate to the Digital Technologies subject.

### **Referencing Style**

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

#### **Submission**

Online

### **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 <u>Academic Learning Centre (ALC)</u> 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