COURSE OUTLINE

EDU382 Teaching STEM in Primary School

School: School of Education and Tertiary Access

2026 | Trimester 1

UniSC Sunshine Coast
UniSC Moreton Bay
UniSC Fraser Coast

BLENDED LEARNING

Most of your course is on campus but you may be able to do some components of this course online.

Please go to unisc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

In this course, you will draw Science, Technology, Engineering and Mathematics together with a primary STEM education focus. You will apply your well-developed subject-discipline knowledge, teaching strategies and curriculum design skills to promote integrated STEM learning, enhancing students' 21st century skills. You will participate in the design of sustainability-focused learning experiences, promoting engaging and rich learning activities which draw on STEM-based substantive and disciplinary knowledge. This course encourages you to demonstrate your well-developed knowledge and judgement of STEM pedagogy and learning theory to creatively design curriculum.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – You are required to engage with Learning Materials accessed through Canvas.	2hrs	Week 1	9 times
Tutorial/Workshop 1 – The tutorials are face-to-face and required materials are provided weekly on Canvas.	2hrs	Week 1	10 times

1.3. Course Topics

- Australian Curriculum: (Science, Technologies: Digital Technologies; Design and Technologies, and Mathematics).
- Integrated curriculum design
- Embedding the cross-curricular priority of sustainability
- STEM teaching strategies
- Planning and delivery of integrated STEM learning through designing units of work and lesson sequences
- Pedagogical Content Knowledge (PCK) of STEM pedagogy
- Designing constructively aligned assessment across integrated STEM curriculum areas

2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES MAPPING	PROFESSIONAL STANDARD MAPPING *
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...	Australian Institute for Teaching and School Leadership
1 Demonstrate advanced understanding of integrated STEM curriculum, pedagogy, and learning theory by critically evaluating research-informed approaches that connect Science, Technologies, Engineering, and Mathematics in authentic primary education contexts.	Knowledgeable	2, 2.1, 2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4
2 Apply advanced disciplinary and pedagogical knowledge to plan a coherent sequence of STEM lessons that aligns with Australian Curriculum requirements and embeds cross-curriculum priorities, including sustainability	Knowledgeable Creative and critical thinker	1.2, 1.5, 2, 2.1, 2.2, 2.3, 2.5, 2.6, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 4.5, 5.1, 7.4
3 Design and justify an integrated assessment task and rubric using constructive alignment principles to evaluate learning outcomes across multiple curriculum areas in an authentic STEM context.	Creative and critical thinker Engaged Sustainability-focussed	3.4, 3.5, 5.1, 5.2, 5.3
4 Justify curriculum design decisions through engagement with contemporary literature, demonstrating an ability to evaluate the affordances and challenges of integrated STEM pedagogies.	Knowledgeable Creative and critical thinker Ethical Engaged	1, 1.1, 1.2, 3.2, 3.6, 7.4
5 Employ professional and / or academic language, structure and text to communicate curriculum strategies and ideas.	Empowered Ethical Engaged	2, 3, 3.5, 7.1

* Competencies by Professional Body

CODE	COMPETENCY
AUSTRALIAN INSTITUTE FOR TEACHING AND SCHOOL LEADERSHIP	
1	PROFESSIONAL KNOWLEDGE: Know students and how they learn
1.1	Physical, social and intellectual development and characteristics of students: Demonstrate knowledge and understanding of physical, social and intellectual development and characteristics of students and how these may affect learning.
1.2	Understand how students learn: Demonstrate knowledge and understanding of research into how students learn and the implications for teaching.

CODE	COMPETENCY
1.5	Differentiate teaching to meet the specific learning needs of students across the full range of abilities: Demonstrate knowledge and understanding of strategies for differentiating teaching to meet the specific learning needs of students across the full range of abilities.
2	PROFESSIONAL KNOWLEDGE: Know the content and how to teach it
2.1	Content and teaching strategies of the teaching area: Demonstrate knowledge and understanding of the concepts, substance and structure of the content and teaching strategies of the teaching area
2.2	Content selection and organisation: Organise content into an effective learning and teaching sequence.
2.3	Curriculum, assessment and reporting: Use curriculum, assessment and reporting knowledge to design learning sequences and lesson plans.
2.5	Literacy and numeracy strategies: Know and understand literacy and numeracy teaching strategies and their application in teaching areas.
2.6	Information and Communication Technology (ICT): Implement teaching strategies for using ICT to expand curriculum learning opportunities for students.
3	PROFESSIONAL PRACTICE: Plan for and implement effective teaching and learning
3.1	Establish challenging learning goals: Set learning goals that provide achievable challenges for students of varying abilities and characteristics.
3.2	Plan, structure and sequence learning programs: Plan lesson sequences using knowledge of student learning, content and effective teaching strategies.
3.3	Use teaching strategies: Include a range of teaching strategies.
3.4	Select and use resources: Demonstrate knowledge of a range of resources, including ICT, that engage students in their learning.
3.5	Use effective classroom communication: Demonstrate a range of verbal and non-verbal communication strategies to support student engagement
3.6	Evaluate and improve teaching programs: Demonstrate broad knowledge of strategies that can be used to evaluate teaching programs to improve student learning.
3.7	Engage parents/carers in the educative process: Describe a broad range of strategies for involving parents/carers in the educative process.
4.5	Use ICT safely, responsibly and ethically: Demonstrate an understanding of the relevant issues and the strategies available to support the safe, responsible and ethical use of ICT in learning and teaching.
5.1	Assess student learning: Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative and summative approaches to assess student learning.
5.2	Provide feedback to students on their learning: Demonstrate an understanding of the purpose of providing timely and appropriate feedback to students about their learning
5.3	Make consistent and comparable judgements: Demonstrate understanding of assessment moderation and its application to support consistent and comparable judgements of student learning.
7.1	Meet professional ethics and responsibilities: Understand and apply the key principles described in codes of ethics and conduct for the teaching profession.
7.4	Engage with professional teaching networks and broader communities: Understand the role of external professionals and community representatives in broadening teachers' professional knowledge and practice.

5. Am I eligible to enrol in this course?

Refer to the UniSC Glossary of terms for definitions of "pre-requisites, co-requisites and anti-requisites".

5.1. Pre-requisites

EDU212 or EDU107 and enrolled in Program ED304

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

5.5. Microcredential Information

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Students will be provided academic progress feedback after Task 1a and 1b. This feedback will be provided during the tutorials through group and individual discussion activities to support the completion of the final task.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1a	Written Piece	Individual	20%	1000 words	Week 4	Online Assignment Submission with plagiarism check
All	1b	Oral and Written Piece	Individual	40%	1 written Assessment Task sheet and aligned rubric and 15 minute presentation	Week 7	In Class
All	2	Written Piece	Group	40%	1000 words STEM learning sequence (unit overview) 1000 words lesson plan	Week 10	Online Assignment Submission with plagiarism check

All - Assessment Task 1a: Big Idea framework for an integrated STEM unit

GOAL:	The goal of this task is for you to establish the conceptual and curricular foundation for an integrated STEM unit by identifying the Big Idea, essential questions, and curriculum outcomes across disciplines.
PRODUCT:	Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	In this task, you will create a Big Idea Framework in Cadmus, that anchors an integrated STEM learning experience within a sustainability-focused, real-world context. Your submission will identify a central Big Idea connecting at least two STEM disciplines, accompanied by essential questions that promote inquiry and innovation, and enduring understandings that reflect long-term learning. You will include curriculum mapping across Science, Mathematics, Technologies, and Engineering (Australian Curriculum v9), supported by a 500-word rationale that explains how the Big Idea fosters integration, inclusion, and sustainability.
CRITERIA:	

No.		Learning Outcome assessed
1	Apply relevant Australian Curriculum outcomes across STEM disciplines to design an integrated, sustainability-focused Big Idea for primary learners.	1 2
2	Develop a coherent Big Idea linking STEM concepts to real-world sustainability issues relevant to primary education contexts.	2
3	Design open-ended essential questions and enduring understandings that promote inquiry, curiosity, and cross-disciplinary STEM learning.	1
4	Justify how the Big Idea supports curriculum integration, inclusive practice, and sustainability using relevant educational reasoning.	1 2 4
5	Written communication skills and academic literacies including use of credible evidence and sources, and APA referencing conventions.	5

GENERIC SKILLS:	Communication, Collaboration, Problem solving

All - Assessment Task 1b: STEM Assessment task and aligned rubric

GOAL:	The goal of this task is for you to demonstrate assessment literacy in integrated STEM education.
PRODUCT:	Oral and Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	In this task, you will design an authentic assessment task and rubric that measures integrated learning outcomes across at least two STEM disciplines. Building on your Big Idea from Task 1a, create an assessment task sheet for students that outlines the real-world context, learning intentions, and success criteria. Develop a marking rubric demonstrating how STEM outcomes are assessed holistically through a single integrated task. The oral presentation is a 15min justification explaining how your assessment design applies constructive alignment principles to evaluate inquiry, problem-solving, and sustainability within an inclusive, integrated STEM learning environment.
CRITERIA:	

No.		Learning Outcome assessed
1	Design a real-world, curriculum-aligned assessment task which measures integrated learning outcomes across at least two STEM disciplines within a sustainability-focused context.	1 3
2	Design a marking rubric that holistically assesses inquiry, problem-solving, and disciplinary integration using clear performance descriptors.	1 3
3	Demonstrate a range of effective verbal and non-verbal communication strategies to engage the audience when justifying the assessment design.	3 5
4	Justify how the assessment and rubric demonstrate constructive alignment with learning outcomes, inquiry processes, and inclusive, sustainable STEM education practices, drawing on relevant literature.	3 4

GENERIC SKILLS:	Communication, Problem solving

All - Assessment Task 2: STEM learning sequence and lesson plan

GOAL:	The goal of this task is for you to develop your ability to prepare a sustainability-focused STEM learning sequence (unit overview) and a lesson plan.
PRODUCT:	Written Piece
AUTHORSHIP STATEMENT:	
FORMAT:	Based on feedback you have received from assessment tasks 1a and 1b, you will work with a partner to prepare and plan a 5-lesson STEM learning sequence (unit overview) from a Big Ideas Framework and Assessment task previously created. Within your 5-lesson sequence, you will outline each activity, specify which STEM subjects will be drawn upon, and identify how 21st learning skills will be developed, underpinned by a relevant age-appropriate sustainability context. You will also create a fully detailed lesson plan for one of your five lessons. The lesson plan will be for a specified Year 1 - 6 primary class of 25 students. The lesson plan will include the subject curriculum content, teaching strategies and assessment.
CRITERIA:	**No.** / **Learning Outcome assessed** 1 Design a 5-lesson STEM learning sequence (unit of work) that clearly connects to the Big Idea and assessment task, demonstrating alignment of curriculum, learning outcomes and assessment in the sequence of lessons. — 1 2 2 Application of STEM subject-specific content and pedagogical knowledge across the learning sequence (unit of work) aligned with Australian curriculum V9 and cross-curriculum priorities, including sustainability. — 1 2 3 Design a 60 minute lesson to teach STEM skills/concepts/strategies, applying age-appropriate content, timing, resources and pedagogies, identifying curriculum outcomes from the Australian Curriculum V9 and assessment strategies. — 2 3 4 Written communication skills and academic literacies including use of credible evidence and sources, and APA referencing conventions. — 5
GENERIC SKILLS:	Communication, Collaboration, Problem solving, Organisation, Information literacy

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

You need regular access to the resource(s) below. Many texts are available as ebooks through the Library at no additional cost.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Anne Forbes, Vinesh Chandra, Linda Pfeiffer, Rachel Sheffield	2021	STEM Education in the Primary School	1	Cambridge University Press

8.2. Specific requirements

Not applicable

9. How are risks managed in this course?

Risk assessments have been performed for all studio and laboratory classes and a low level of health and safety risk exists. Some risk concerns may include equipment, instruments, and tools; as well as manual handling items within the laboratory. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the online induction training for students, and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
(a) The final mark is in the percentage range 47% to 49.4%; and
(b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:
(a) One day: deduct 5%;
(b) Two days: deduct 10%;
(c) Three days: deduct 20%;
(d) Four days: deduct 40%;
(e) Five days: deduct 60%;
(f) Six days: deduct 80%;
(g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:
Less than 15 minutes: No penalty
From 15 minutes to 30 minutes: 20% penalty
More than 30 minutes: 100% penalty

10.4. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.5. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The Student Charter sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.6. General Enquiries

For course-specific questions, contact your teaching staff or Course Coordinator.

For other enquiries or to access support, please contact Student Central:

- UniSC Student Central
- UniSC Adelaide Student Central