EDST3120

Teaching STEM: Specialisation

Session 2, In person-scheduled-weekday, North Ryde 2026

Macquarie School of Education

Contents

General Information

Unit convenor and teaching staff
Convenor
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25B Wally's Walk, Level 6, Rm 642

Lecturer
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Tutor
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Credit points
10

Prerequisites
(EDST3710 and EDST3510) or (EDST4110)

Corequisites

Co-badged status
EDST8213

Unit description
In this unit students will learn a variety of theory-informed processes for planning extended learning sequences that address outcomes and content from the disciplines of Science, Technology, Engineering and Mathematics (STEM). Students will learn how the distinctly different discipline processes of scientific investigation, design and working mathematically can be practised in the context of authentic questions and problems. Students will gain practical experience with a range of manual and digital tools and technologies appropriate for STEM education across different developmental stages and learn strategies for using them safely and creatively in the classroom.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

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

ULO1: Understand that the disciplines of science, technology, and mathematics are different but complementary, focusing on the skills of working scientifically, working mathematically, and design and production.
ULO2: Critically reflect on current theory and research to identify implications for teaching and learning STEM.
ULO3: Analyse the structure and content of NSW Primary syllabus documents and devise integrated STEM-focused learning experiences and assessments that address the outcomes, capabilities and priorities.
ULO4: Explain and use various planning frameworks for integrated STEM Education to develop coherent and engaging learning sequences for primary school students at different developmental levels.
ULO5: Demonstrate strategies for promoting choice and autonomy in STEM teaching while supporting wellbeing and safety of primary school students.
ULO6: Demonstrate knowledge and understanding for differentiating teaching to meet the needs of diverse learners.

General Assessment Information

General Submission Information

All written assessments must be submitted electronically. Please format assessments using 12-point font and 1.5 spacing. Submissions must meet the required file type and formatting specifications outlined in the assessment guidelines. If you are unsure about the file format or have technical difficulties, it is your responsibility to seek assistance before the submission deadline. Students should be careful to check that they submit the correct file for an assessment as no re-submissions will be accepted after the due date and time, including instances where students upload an incorrect file. It is not the responsibility of unit staff to contact students who have failed to submit assessments. If you have any missing items of assessment, it is your responsibility to contact the unit convenor.

Turnitin plagiarism detection software is used to check all written assessments. It is the responsibility of all students to ensure that their submitted work is in a format compatible with Turnitin software for plagiarism checking. Students can use Turnitin's Originality Report as a learning tool to improve their academic writing if this option is made available in the unit.

Word limits are strictly applied, with + or – 10% applicable. Work above the word limit will not be marked

Academic Integrity

Students should be aware of and apply the University policy on academic integrity (see: https://policies.mq.edu.au/document/view.php?id=3).

Artificial Intelligence

https://students.mq.edu.au/study/assessment-exams/assessments/ai-and-assessment
https://policies.mq.edu.au/document/view.php?id=394

Special Consideration / Late Penalties

Unless a Special Consideration request has been submitted and approved, **a 5% penalty (of the total possible mark) will be applied each day to late submissions, up until the 7th calendar day (including weekends). After the 7th day, a mark of '0' (zero) will be awarded even if the assessment is submitted.** Submission time for all written assessments is set at 11.55pm. A 1-hour grace period is provided to students who experience a technical issue.
Important to note:

- Late submission of time sensitive tasks (such as tests/exams, performance assessments/presentations, scheduled practical assessments/labs) will be addressed by the unit convenor in a Special consideration application.
- Students should not request an informal arrangement from their tutor, lecturer or Unit Convenor (or equivalent).
- Where an application for Special Consideration is approved and the outcome is an extension to the due date of a task, submissions that are received after the new due date will be subject to late penalties that are calculated from the new due date. This only applies where the outcome is an extension to the due date – see the Special Consideration Policy for a schedule of all possible outcomes.

University Policy on Grading

Assignments will be awarded grades ranging from HD to F according to guidelines set out in the University's Grading System and University Assessment Policy.

Results

Results shown in iLearn, or released directly by your Unit Convenor, are not confirmed because they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit Service Connect.

Withdrawing from this unit

If you are considering withdrawing from this unit, please seek academic advice via Service Connect before doing so as this unit may be a co-requisite or prerequisite for units in the following sessions and may impact your course progression.

Assessment Tasks

Name	Weighting	Hurdle	Due	Groupwork/Individual	Short Extension	AI Approach
Digital design and prototype with documentation	50%	No	23/08/2026	Individual and Group	No	Open
STEM Lesson Sequence	50%	No	08/11/2026	Individual	Yes	Open

Digital design and prototype with documentation

Assessment Type [1]: Problem-based task
Indicative Time on Task [2]: 30 hours
Due: **23/08/2026**
Weighting: **50%**
Groupwork/Individual: Individual and Group
Short extension [3]: No
AI Approach: Open

Students document scientific, mathematical and design thinking and processes as they use empathy maps and user stories to understand an authentic problem and develop and display a prototype solution using digital fabrication technologies and construction materials. The task develops metacognitive skills and understanding of discipline specific methods that can be integrated during creative problem solving, while building proficiency with manual and digital technologies.

On successful completion you will be able to:

- Understand that the disciplines of science, technology, and mathematics are different but complementary, focusing on the skills of working scientifically, working mathematically, and design and production.
- Critically reflect on current theory and research to identify implications for teaching and learning STEM.
- Demonstrate strategies for promoting choice and autonomy in STEM teaching while supporting wellbeing and safety of primary school students.

STEM Lesson Sequence

Assessment Type [1]: Professional task
Indicative Time on Task [2]: 30 hours
Due: **08/11/2026**
Weighting: **50%**
Groupwork/Individual: Individual

Short extension [3]: Yes
AI Approach: Open

Write a unit of work of between five and ten lessons that integrates STEM disciplines using an iSTEM, 5E, Conceptual Playworlds or Inquiry learning model and an Understanding By Design backward planning framework studied during the course. Students will include strategies for differentiation and the collection of formative and summative assessment data.

On successful completion you will be able to:

- Analyse the structure and content of NSW Primary syllabus documents and devise integrated STEM-focused learning experiences and assessments that address the outcomes, capabilities and priorities.
- Explain and use various planning frameworks for integrated STEM Education to develop coherent and engaging learning sequences for primary school students at different developmental levels.
- Demonstrate knowledge and understanding for differentiating teaching to meet the needs of diverse learners.

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[1] If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- Academic Success for academic skills support.

[2] Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation.

[3] An automatic short extension is available for some assessments. Apply through the Service Connect Portal.

Delivery and Resources

Unit Streams

Students enrolled in this unit have ***different Professional Experience Placement blocks*** and classes have been scheduled around those.

Students completing the BA BEd (Primary) or BEd (Primary) BPsych program should select from the below available class. Please note that classes are co-taught with EDST8213.

These classes start on Thursday 30 July (Week 1) and pause for PEX placement from Week 4. Classes resume during the university recess on Thursday 1 October.

The **due date of Assessment Task 1** for Students completing the BA BEd (Primary) or BEd (Primary) BPsych program and EDST8213 students will be **Wednesday 7 October**

EDST3120+8213/S2/F2FDAY/Tutorial_1/01	Thursday 9-11am
EDST3120+8213/S2/F2FDAY/Tutorial_1/02	Thursday 11-1pm
EDST3120+8213/S2/F2FDAY/Tutorial_1/03	Thursday 1-3pm

Students completing the Bed (Prim) or Bed (EC and Primary) should attend the below class.

This class starts in Week 1 onTuesday 28 July and continues into the university recess with a final class on Tuesday 22 September so that students can attend PEX in Weeks 10, 11 and 12.

EDST3120/S2/F2FDAY/Tutorial_1/04	Tuesday 9-11am

The **due date of Assessment Task 1** for students completing the Bed (Prim) or Bed (EC and Primary) is **Sunday 23 August.**
If you are unsure which units or classes you should enrol in, please submit an enquiry via Service Connect - Service Connect Portal - Students.

Infrequent Mode Classes

There are two On-Campus days for students enrolled in Infrequent mode on Saturday 8 August and Saturday 10 October.

Streaming and Assessment

Zoom "Fireside Chats" will be offered to students ***in all modes*** to discuss assessment tasks and recorded for those who cannot attend the live sessions.

Equipment Loans

Assessment Task 1 involves a practical design task where students build a prototype using digital technologies components. The robotics kits will be loaned to students during class between 4 and 8 August.

Information about the unit iLearn site

This unit has a full web presence through iLearn. Information for students about access to the online component of this unit is available at https://ilearn.mq.edu.au/login/index.php. You will need to enter your student username and password.

Please do NOT contact the Unit Convenor regarding iLearn technical help. Assistance is available from IT Helpdesk: via email onehelp@mq.edu.au or Ph: 9850 4357 or 1800 67 4357. On Campus: Ground floor at 18 Wally's Walk.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- Academic Appeals Policy
- Academic Integrity Policy
- Academic Progression Policy
- Assessment Policy
- Fitness to Practice Procedure
- Assessment Procedure
- Complaints Resolution Procedure for Students and Members of the Public
- Special Consideration Policy

Students seeking more policy resources can visit Student Policies (https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit Policy Central (https://policies.mq.edu.au) and use the search tool.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/admin/other-resources/student-conduct

Results

Results published on platform other than eStudent, (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit connect.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe academic integrity – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free online writing and maths support, academic skills development and wellbeing consultations.

School of Education Procedures

In addition, the following policies and procedures for the Macquarie School of Education apply to this unit.

Academic Progression Policy

This unit is a part of a professional course listed on Schedules 2 and 3 of the Academic Progression Policy. This course has additional requirements that are applicable for the full duration of the course, including course-specific Inherent Requirements, Fitness to Practice requirements and other compulsory course requirements. It also has rigorous academic progression standards. Inability to meet these requirements may result in a withdrawal of offer of admission and/or permanent exclusion from the course in accordance with the General Coursework Rules.

Communication

It is the student's responsibility to check all electronic communication on a weekly basis. Communication may occur via:

- Official MQ Student Email Address
- The Dialogue function on iLearn
- Other iLearn communication functions

Attendance and Participation

See the University timetable for information about when classes begin in this unit. Creating your timetable - Enrolling | Macquarie University, Sydney (mq.edu.au). Students are required to attend the tutorial in which they are enrolled. Any changes to tutorial enrolments must be completed officially through e-Student. Please do not contact the unit convenor to request a change.

There is an attendance requirement in this unit. Initial Teacher Education (ITE) degrees must ensure that teacher education students meet unit learning outcomes, course learning outcomes and the Graduate level of the Australian Professional Standards for Teachers. Since units are within an accredited ITE degree, Macquarie School of Education is required to demonstrate these outcomes and standards have been taught, practised and assessed. To meet 'taught, practiced and assessed' accreditation requirements, ITE units have mandatory attendance, with an expectation of at least 80% attendance at tutorials. Please see your unit iLearn site for details of how to meet attendance requirements in this unit.
Infrequent Attendance Students

Information about the dates of the on-campus sessions can be found in the university timetable. Creating your timetable - Enrolling | Macquarie University, Sydney (mq.edu.au)

- The on campus sessions are essential to student engagement and learning and attendance is expected.Failure to attend or not to have an approved Special Consideration may result in a Fail grade.
- Prior to the on campus sessions, students should have read the prescribed readings and listened to the lectures, summarise the main points, and make notes of the key terms and definitions. Prepare any discussion questions of your own that you wish to share.
- Please make effective use of the online component of the unit and access iLearn regularly. Keep up to date with listening to the lectures on a weekly basis.
- Further details and any updates about times and locations will be posted on iLearn as an

Announcement during first half of the semester.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Academic Success

Academic Success provides resources to develop your English language proficiency, academic writing, and communication skills.

- Ask a Study Coach
- Access StudyWISE
- Upload an assignment to Studiosity
- Complete the Academic Integrity Module

The Library provides online and face to face support to help you find and use relevant information resources.

- Subject and Research Guides
- Ask a Librarian

Communication about assessment tasks

All questions related to assessment tasks should be asked via the Assessment Forum for the specific task or in the recorded Zoom Fireside Chats so that all students have access to the same advice and information. Do not ask your tutor in class or email the Convenor or Teaching Staff about assessment task instructions.

When using discussion forums:

- Make the title of your question specific and detailed so we all know exactly what it is about
- Ask clarifying questions about the task
- Before posing a question, read through all the previously posted questions as your question may have already been answered
- Remember that anything you post will be sent to 160 people so post only what will help all students complete the task
- Only respond to other people's questions with a suggested answer or solution
- Problems or concerns should be communicated privately
- Discussion forums will be moderated and threads that do not adhere to these guidelines will be deleted
- Individual students will be contacted by email to explain why a question they posted was

delete

Student Services and Support

Macquarie University offers a range of Student Support Services including:

- IT Support
- Accessibility and disability support with study
- Mental health support
- Safety support to respond to bullying, harassment, sexual harassment and sexual assault
- Social support including information about finances, tenancy and legal issues
- Student Advocacy provides independent advice on MQ policies, procedures, and processes

Please note the contact details for Macquarie University's Wellbeing Team.

- T: +61 (2) 9850 7497
- E: wellbeing@mq.edu.au

If the Unit Convenor becomes aware that you are experiencing particularly challenging circumstances, she will seek your consent to submit a CareMQ report so that the Wellbeing Team are alerted and will reach out to contact you.

Student Enquiries

Got a question? Ask us via the Service Connect Portal, or contact Service Connect.

IT Help

For help with University computer systems and technology, visit https://students.mq.edu.au/support/technology/service-desk.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Unit information based on version 2026.03 of the Handbook