

Unit Outline (Higher Education)

Institute / School: Institute of Education, Arts & Community

Unit Title: Numeracy and Digital Technology

Unit ID: EDECE2017

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (EDECE2003)

ASCED: 070101

Description of the Unit:

This course is designed to provide Pre-Service Teachers (PSTs) with a sound understanding of the mathematics in the lives of babies, toddlers, and young children. It will explore theoretical, cultural, historical, and current approaches of teaching play-based mathematics. PSTs will explore the use of digital technology with children and as a tool for pedagogical practice. This course aims to build understanding of PSTs own values, beliefs, and preferences toward mathematics and digital technology in their lives, and explore how these can affect their pedagogical practices. PSTs will reflect on children's prior knowledge and interests, and the importance of family preferences and expectations. They will explore how these influence the planning of experiences and include ways to document and share children's mathematical learning with families. Throughout the course, the PSTs will build a resource of mathematical learning experiences informed by the early childhood learning frameworks. They will explore how learning experiences can be modified to meet the needs of a range of children including different ages, abilities, interests, and backgrounds.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of

supplementary assessment.

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	✓	■	■	■
Advanced	■	■	■	■	■	■

Learning Outcomes:

Knowledge:

- K1.** Examine and review historical, cultural, and current teaching approaches for teaching early childhood mathematics.
- K2.** Make connections between teachers' actual and perceived mathematical abilities and confidence levels and their pedagogical practices.
- K3.** Explore how children's positive mathematical experiences can build self-efficacy.
- K4.** Identify ways to explore digital technology with children and as a tool for pedagogical practice.

Skills:

- S1.** Observe and identify the mathematics in children's interactions during individual, small group, and whole group experiences.
- S2.** Identify technologies to facilitate children's mathematical learning.
- S3.** Build personal understanding of mathematical concepts and terminology.
- S4.** Build an understanding of the importance of play-based learning.
- S5.** Share information with families on children's mathematical and technological learning.

Application of knowledge and skills:

- A1.** Build a collection of play-based learning experiences that can be used to teach mathematical and technological content in an ECE setting.
- A2.** Understand how to modify learning experiences to meet the needs and interests of diverse children.
- A3.** Design learning opportunities that incorporate mathematics into other curriculum areas.

Unit Content:

Topic to include Historical and current teaching practices in early childhood mathematics and digital technology
 How young children learn mathematics through play and everyday experiences
 Age appropriate mathematical terminology and experiences
 Personal values and biases toward mathematics
 Planning for learning including those with diverse linguistic, religious and socioeconomic backgrounds
 Building children's confidence and wellbeing
 Sourcing and planning with natural and recycled manipulatives
 Linking learning experiences to the VEYLDF
 Use of technology in young children's learning
 Sharing children's learning with families
 Identifying and connecting with the mathematical content in storybooks.

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to

prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are to be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: <ul style="list-style-type: none"> • Using effective verbal and non-verbal communication • Listening for meaning and influencing via active listening • Showing empathy for others • Negotiating and demonstrating conflict resolution skills • Working respectfully in cross-cultural and diverse teams. 	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: <ul style="list-style-type: none"> • Creating a collegial environment • Showing self-awareness and the ability to self-reflect • Inspiring and convincing others • Making informed decisions • Displaying initiative 	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: <ul style="list-style-type: none"> • Reflecting critically • Evaluating ideas, concepts and information • Considering alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts • Forming creative solutions in problem solving. 	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: <ul style="list-style-type: none"> • Finding, evaluating, managing, curating, organising and sharing digital information • Collating, managing, accessing and using digital data securely • Receiving and responding to messages in a range of digital media • Contributing actively to digital teams and working groups • Participating in and benefiting from digital learning opportunities. 	Not applicable	Not applicable

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> • Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts • Committing to social responsibility as a professional and a citizen • Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Embracing lifelong, life-wide and life-deep learning to be open to diverse others • Implementing required actions to foster sustainability in their professional and personal life. 	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, K4, S4, A2	Explore the role of the educator in teaching early childhood mathematics, drawing connections to their own personal values and biases around mathematical understandings and teaching mathematics in an ECE setting.	Academic Essay	40% - 60%
K1, K2, K3, K4, S1, S2, A2, A3	Using provided scenarios, report on the range of mathematical and/or technology concepts the children may be exploring and discuss ways teachers are supporting the children's learning in these areas. Identify a range of learning experiences that focus on mathematical and technology development that can follow on from your chosen scenario, including information for parents/caregivers.	Planning and reporting	40% - 60%
K1, K2, K3, K4, S2, S3, S4, S5, A1, A2	Plan and present a selection of learning experiences used to build children's mathematical and digital IT development across the birth to Year 2 age groups. Including ways to document and share this information with families.	Resource Presentation	20-40%

Adopted Reference Style:

APA ()

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)