

# Unit Outline (Higher Education)

**Institute / School:** Institute of Education, Arts & Community

**Unit Title:** Mathematics Curriculum 1

**Unit ID:** EDMAS6014

**Credit Points:** 15.00

**Prerequisite(s):** Nil

**Co-requisite(s):** Nil

**Exclusion(s):** Nil

**ASCED:** 070105

**Description of the Unit:**

This unit develops an understanding of the nature and place of Mathematics as a "critical filter for further education and training". A focus on modern techniques of teaching Mathematics will be explored through content relevant to mathematics at a secondary level. Teaching and learning Mathematics in years 7-10 and VCE will be examined using current curriculum and policy documents as the basis. Pre-service teachers will be required to critically examine current and past practices in learning and teaching Mathematics with reference to curriculum documents as well as articles and papers written within the Mathematics education community. Technology commonly used in the Mathematics classroom will be explored with emphasis on using technology to enhance learning.

**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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Learning Outcomes:

#### Knowledge:

- K1.** Apply research-informed teaching strategies for Mathematics at a secondary level.
- K2.** Demonstrate understanding of contemporary curriculum policies and guidelines relevant to teaching Mathematics in years 7-10 and in VCE.
- K3.** Develop understanding of the application and integration of technology in Mathematical investigations and presentations.

#### Skills:

- S1.** Synthesise current policy documents and the VCE Mathematics Study Design as a guide to develop curriculum.
- S2.** Critically reflect on the thinking processes associated with the teaching and learning of Mathematics.
- S3.** Incorporate appropriate technology in the learning of Mathematics.
- S4.** Analyse student work samples and give appropriate feedback to enhance student learning and as a basis for informing future planning.

#### Application of knowledge and skills:

- A1.** Critical analysis of theoretical understandings about the teaching and learning of Mathematics.
- A2.** Design of lesson that incorporates the use of technology.
- A3.** Research assessment techniques in Mathematics with reference to contemporary literature.

#### Unit Content:

Topic will include

- Engagement techniques in Mathematics.
- Linking Mathematics curriculum content to mathematical activities.
- Making links to previous mathematical knowledge.
- Designing learning activities in Mathematics.
- Designing learning sequences in Mathematics.
- Examining real world contexts for mathematics.
- Organising Mathematics content into effective learning sequences.
- Development of ICT activities that support the learning of mathematics.
- Effective assessment that guides learning.
- The use of formative and summative assessment in Mathematics.
- Topic planning and the importance of diagnostic assessment.

#### 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 at this level will demonstrate an advanced ability in a range of contexts to effectively communicate, interact and work with others both individually and in groups. Students will be required to display high level skills in-person and/or online in: <ul style="list-style-type: none"> <li>Using and demonstrating a high level of verbal and non-verbal communication</li> <li>Demonstrating a mastery of listening for meaning and influencing via active listening</li> <li>Demonstrating and showing empathy for others</li> <li>High order skills in negotiating and conflict resolution skills</li> <li>Demonstrating mastery of working respectfully in cross-cultural and diverse teams.</li> </ul>	Not applicable	Not applicable
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. <ul style="list-style-type: none"> <li>Creating and sustaining a collegial environment</li> <li>Demonstrating a high level of self-awareness and the ability to self-reflect and justify decisions</li> <li>Inspiring and initiating opportunities to lead others</li> <li>Making informed professional decisions</li> <li>Demonstrating initiative in new professional situations.</li> </ul>	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students at this level will demonstrate high level skills in working 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"> <li>Reflecting critically to generate and consider complex ideas and concepts at an abstract level</li> <li>Analysing complex and abstract ideas, concepts and information</li> <li>Communicate alternative perspectives to justify complex ideas</li> <li>Demonstrate a mastery of challenging conventional thinking to clarify complex concepts</li> <li>Forming creative solutions in problem solving to new situations for further learning.</li> </ul>	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students at this level will demonstrate the ability to work competently across a wide 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"> <li>Mastering, exploring, evaluating, managing, curating, organising and sharing digital information professionally</li> <li>Collating, managing complex data, accessing and using digital data securely</li> <li>Receiving and responding professionally to messages in a range of professional digital media</li> <li>Contributing competently and professionally to digital teams and working groups</li> <li>Participating at a high level in digital learning opportunities.</li> </ul>	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 at this level will demonstrate a mastery of considering and assessing the consequences and impact of ideas and actions in enacting professional ethical and sustainable decisions. Students will be required to display skills in: <ul style="list-style-type: none"> <li>• Demonstrate informed judgment making that considers the impact of devising complex solutions in ambiguous global economic environmental and societal contexts</li> <li>• Professionally committing to the promulgation of social responsibility</li> <li>• Demonstrate the ability to evaluate ethical, socially responsible and/or sustainable challenges and generating and articulating responses</li> <li>• Communicating lifelong, life-wide and life-deep learning to be open to the diverse professional others</li> <li>• Generating, leading and implementing required actions to foster sustainability in their professional and personal life</li> </ul>	Not applicable	Not applicable

### Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, S1, S2, A1	Reviewing current research and theories about effective mathematics textbooks and textbook uses Critical analysis of a textbook used in secondary Mathematics classrooms Adapting or supplementing materials when using the textbook	Literature review and case study	40% - 60%
K1, K2, K3, S1, S2, S3, S4, A1, A2, A3	Researching approaches to teaching a topic in mathematics effectively Create a research-informed lesson to develop mathematical understanding	Professional plan	40%-60%

### Adopted Reference Style:

APA ()

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

Fed Cite - [referencing tool](#)