

# Unit Outline (Higher Education)

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

**Unit Title:** MATHEMATICS CURRICULUM 1

**Unit ID:** EDBED3028

**Credit Points:** 15.00

**Prerequisite(s):** Nil

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

**Exclusion(s):** (EDDDE3001)

**ASCED:** 070301

**Description of the Unit:**

This unit is the first in a sequence of two that focuses on curriculum and pedagogy in the Mathematics specialist teaching area for undergraduate Pre-Service Teachers. This unit prepares Pre-service Teachers to teach in secondary schools with the major emphasis being on Years 7 to 10. It includes the nature and aims of mathematics education and will focus on contemporary teaching strategies used in schools. A constructivist perspective on learning will be encouraged and issues of gender, culture, and literacy in mathematics considered.

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

**Work Experience:**

Not wholly work experience: Student is not undertaking work experience in industry or student is undertaking work experience in industry where learning and performance is directed by the provider.

**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 effective teaching strategies using a range of resources, including ICT, that engage students in their learning of Mathematics at a secondary level.
- K2.** Demonstrate knowledge and understanding of the concepts, substance and structure of the content and teaching strategies relevant to teaching Mathematics in years 7-10.
- K3.** Explore the application and integration of technology in Mathematical investigations and presentations.
- K4.** Know and understand literacy and numeracy teaching strategies and their application in mathematics curriculum.

#### Skills:

- S1.** Use the current policy documents as a guide to develop curriculum.
- S2.** Reflect on the thinking processes associated with the teaching and learning of Mathematics.
- S3.** Incorporate appropriate technology resources in the learning of Mathematics.
- S4.** Assess student work and give appropriate feedback to enhance student learning and as a basis for informing future planning.

#### Application of knowledge and skills:

- A1.** Write an analysis of a Mathematics textbook incorporating theoretical understandings about the teaching and learning of Mathematics.
- A2.** Design a lesson sequence that incorporates the selection and use of technology, including ICT, to expand curriculum learning opportunities for students and enhance student engagement.
- A3.** Examine assessment techniques in mathematics with reference to contemporary research.
- A4.** Accurately assess a student work sample, give appropriate feedback and determine the next level of learning for that student.

#### Unit Content:

Topics to be covered

- Engagement techniques in mathematics.
- Examine issues related to the mathematical literacy and the barriers these can create to learning.
- Applying the concepts, substance and structure of mathematics.
- Linking mathematics curriculum content to mathematical activities.
- Making links to previous mathematical knowledge.
- Designing learning activities and applying relevant teaching strategies in mathematics.
- Designing learning sequences in mathematics.
- Examining real world contexts for mathematics.
- Organising mathematics content into effective learning sequences.
- Selection of relevant resources, including ICT.
- 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.

**Learning Task and Assessment:**

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K2 S2 A1 APST 2.1	Critical analysis of a textbook used in Mathematics classrooms. Current research and theories will support views, ideas and recommendations.	Essay	20 - 30%
K1, K3 S1, S3 A2 APST 2.2, 2.3, 2.5, 2.6 3.2 3.4	Development of a sequence of lessons, or component of a lesson, which includes use of technology including ICT, mathematical literacy, assessment and teaching and learning rationale.	Lesson Planning	30 - 40%
K2, K3, K4, S4 A3, A4 APST 2.1 5.1	Essay on forms of assessment used in the mathematics classroom. Analysis of a sample of student work.	Essay Analysis of student work	30 - 40%

**Adopted Reference Style:**

APA

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

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