Course Outline (Higher Education)

School: School of Education

Course Title: MATHEMATICS CURRICULUM 1

Course ID: EDMAS6014

Credit Points: 15.00

Prerequisite(s): Students wishing to undertake this course must have completed the required level of undergraduate study in the appropriate discipline areas as specified in Specialist Area Guidelines published by the Victorian Institute of Teaching.

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED Code: 070301

Description of the Course :

This course 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 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, etc.)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the course but gained a final mark of 45 per cent or above and submitted all major assessment tasks..

Program Level:

AQF Level of Program						
	5	**6**	**7**	**8**	**9**	**10**
Level						
Introductory						
Intermediate						

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AQF Level of Program						
	5	6	7	8	9	10
Level						
Advanced					✔	

Learning Outcomes:

Knowledge:

K1. Understand effective 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. Use the 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 a Mathematics textbook incorporating theoretical understandings about the teaching and learning of Mathematics.

A2. Design of lesson sequence that incorporates the use of technology.

A3. Examine assessment techniques in Mathematics with reference to contemporary research.

A4. Accurately analyse student work samples, give appropriate feedback and determine the next level of learning for students.

Course 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.

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Values:

- **V1.** Develop an understanding of the nature and place of Mathematics as a critical filter for further education and training".
- **V2.** Consider the inclusiveness or otherwise of Mathematics and the values we model and explicitly teach.
- **V3.** Value the place of mathematics and Mathematics education in society.
- **V4.** Enjoy teaching and learning mathematics.

Graduate Attributes:

FedUni graduate attributes statement. To have graduates with knowledge, skills and competence that enable them to stand out as critical, creative and enquiring learners who are capable, flexible and work ready, and responsible, ethical and engaged citizens.

Attribute	Brief Description	Focus
Knowledge, skills and competence	Learners will be equipped with the skills, motivation and confidence to engage in continuous learning to meet the personal, professional and vocational challenges of an ever-changing world.	High
Critical, creative and enquiring learners	Learners will possess the confidence, capability, assurance, independence and enterprise to enable them to fulfil their personal and career aspirations.	High
Capable, flexible and work ready	Learners will add to the productive capacity of the economy and be in demand and will be attuned to, and engage with, contemporary social and cultural issues and aspire to make meaningful and helpful contributions to local, national and global communities.	High
Responsible, ethical and engaged citizens	Learners will be aware of generally accepted norms of ethical behaviour and be encouraged to act in a socially responsible manner in both the workplace and other settings.	High

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K2 S2 A1 APST 2.1	Critical analysis of a textbook used in Mathematics classrooms incorporating current research and theories to support views, ideas and recommendations.	Essay	20 – 30 %
K1, K3 S1, S3 A2 APST 2.2, 2.5, 3.2 3.4	Development of a sequence of lessons which includes technology use, mathematical literacy, assessment and teaching and learning rationale.	Curriculum Design	30 - 40%
K2, K3 S4 A3, A4 APST 2.1, 5.1	Construct an essay on forms of assessment used in the Mathematics classroom and analysis of 2 samples of student work.	Performance Task	30 - 40%

Adopted Reference Style:

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APA