Course Outline (Higher Education)

School:	School of Education
Course Title:	MATHEMATICS CONTENT AND PEDAGOGY 2
Course ID:	HENAE6126
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	070301

Description of the Course:

This course further develops an understanding of Mathematics as a "critical subject in secondary schooling" for students' future educational and employment opportunities. A focus on modern techniques of teaching Mathematics will be explored through content relevant to mathematics at a secondary level. Students will be required to design and critically evaluate learning tasks and conduct research in to key issues related to learning Mathematics in school. Thinking routines and their implantation into the mathematics classroom will be explored. Coding will also be examined to determine how best to teach coding to junior secondary students, while demonstrating the relevance of coding to everyday life.

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

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

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

Learning Outcomes:

(On successful completion of the course the students are expected to be able to):

Knowledge:

K1. Demonstrate confidence with the content of secondary school Mathematics.

K2. Discuss how a range of teaching strategies can be implemented in the secondary mathematics classroom.

K3. Explain strategies for mathematical problem solving.

K4. Examine contemporary curriculum policies and guidelines relevant to teaching Mathematics in years 7-10.

K5. Examine a broad knowledge of theories about how different people construe and learn Mathematics.

K6. Apply effective teaching strategies for learning Mathematics at the secondary level.

Skills:

S1. Research historical and contemporary issues in Mathematics education.

S2. Identify and examine specific issues relating to current practice in the teaching of Mathematics in Years 7-10.

S3. Design classroom activities including ones that use thinking routines and coding.

S4. Develop skills in their own personal mathematical competence.

Application of knowledge and skills:

A1. Examine, evaluate and adapt a problem solving activity based at a junior secondary level.

A2. Research accelerated and remedial learning in mathematics.

A3. Present a lesson in accelerated or remedial learning linking it to research.

A4. Demonstrate personal competence in mathematics

Course Content:

- Mathematics and the HITS (high impact teaching strategies)
- The important elements of problem solving.
- The exploration of acceleration and remediation in mathematics classrooms.
- Coding and how to introduce it to the secondary mathematics classroom
- The use of thinking routines in the mathematics classroom.
- Teaching strategies for particular mathematics topics.
- Important elements of mathematics lessons.
- Discourse in the mathematics classroom.
- Reasoning and problem in the mathematics classroom.

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 mathematics.

Graduate Attributes

The Federation University FedUni graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor		Development and acquisition of GAs in the course	
		Learning Outcomes (KSA)	Assessment task (AT#)
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	K3, A1	AT1
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	K6, A3	AT2
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	K6	AT2
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	K4, A2	AT2
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	K3	AT2

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1, K2, K3, S2, S3, A1	Design a learning task that is engaging and relevant to a target group of secondary mathematics students.	Develop a classroom activity.	30 – 50%
K1, K2, K4, K5, K6, S1, S4, A2, A3	Prepare and present in groups a lesson for remedial or accelerated learners that is grounded in research.	Presentation of researched lesson.	30 – 50%
K1, S4, A4	Complete mathematics testing to demonstrate competence in mathematical concepts.	Test	20 – 40%

Adopted Reference Style:

APA

Refer to the library website for more information

Fed Cite - [referencing tool](#)