



Course Outline (Higher Education)

School:	School of Education
Course Title:	SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS IN OUR WORLD
Course ID:	EDMST6021
Credit Points:	15.00
Prerequisite(s):	Nil
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	070301

Description of the Course :

This course introduces the disciplines of Science, Technology, Engineering and Mathematics (STEM) and develops an understanding of the importance of STEM in our everyday lives and recognises that STEM disciplines are interlinked and mutually supportive fields of endeavour. It will assist students to develop suitable research and technology skills to be successful in post-graduate studies. A focus on engaging contexts in STEM will be explored throughout the course. Students will be required to explore ethical issues posed in everyday life where scientific advances mean that people potentially have more choices than they would otherwise have. Creativity and innovation in STEM disciplines will be examined, with students encouraged to explore how STEM disciplines can be taught to encourage both innovation and creativity.

Grade Scheme: Graded (HD, D, C, etc.)

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.** Apply research and technology skills suitable to post graduate studies.
- K2.** Apply knowledge of STEM disciplines and their relevance to the real world.
- K3.** Explain ethical issues associated with advances in STEM and their impact on society
- K4.** Discuss the importance of creativity and innovation in classrooms and more broadly in society.

Skills:

- S1.** Use technology to effectively research STEM topics
- S2.** Critically reflect on issues that are associated with advances in STEM
- S3.** Articulate the role of creativity and innovation in society
- S4.** Discuss the importance of STEM disciplines in our schools.

Application of knowledge and skills:

- A1.** Conduct research into a STEM issue or initiative, focussing on the benefits and ethics involved.
- A2.** Present a research report into a STEM issue or initiative.
- A3.** Design a curriculum based STEM activity that encourages students to be creative and/or innovative.

Course Content:

Topics will include:

Topics may include:

- Introduction to post graduate study (Technology & Research Skills.
- Exploration of the four STEM disciplines
- STEM and the wider community - Why is STEM important?
- How do we create informed citizens in STEM disciplines?
- Ethical issues involving STEM disciplines
- Teaching our students STEM disciplines
- Creativity as an integral part of the STEM.
- Why is innovation an important part of STEM?

Values:

- V1.** Develop an understanding of the nature and place of STEM disciplines in education and more broadly in society.
- V2.** Consider the ethics associated with advances made in STEM disciplines.

V3. Value the place of STEM and STEM education in society.

V4. Enjoy STEM disciplines.

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)	Code A. Direct B. Indirect N/A Not addressed	Assessment task (AT#)	Code A. Certain B. Likely C. Possible N/A Not likely
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.	K4, S2	A	AT1, AT2	A
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.	AT1, AT2	A	AT2	A
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.	K1, K3, S3	A	AT1	A
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.	K1, S1, S3	A	AT1	A
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.	Not applicable	B	AT1	C

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S4, A1, A2	As part of a group, research a STEM based initiative or issue and present a report with a focus on ethical issues and the importance to society.	Research Task	50 - 70%

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K4, S2, S3, A3	Design a STEM based activity that encourages creativity or innovation and write a justification of why creativity and innovation are important in schools.	Curriculum Development	30 - 50%

Adopted Reference Style:

APA