Course Outline (Higher Education)

School: School of Education

Course Title: SCIENCE CONTENT AND PEDAGOGY 1

Course ID: HENAE6020

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 070301

Description of the Course:

This course develops an understanding of Science as a "critical subject in secondary schooling" for students' future educational and employment opportunities. A focus on modern techniques of teaching Science will be explored through content in Chemistry, Physics, Biology and Environmental Science. It provides teachers with an understanding of the nature of science, the role of science in our community, and the changing role of science education in the community. These broad themes combine with introductory Science teaching skills such as: questioning, explaining, practical work, motivation, constructivist teaching and learning, safety, lesson planning and assessment.to enhance learning.

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						
Advanced						

Learning Outcomes:

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

Knowledge:

K1. Recognise the nature of Science as a constantly developing field of knowledge and the processes of scientific thinking which supports this development.

K2. Examine recent developments in Science and how Science impacts on the everyday world.

K3. Analyse contemporary curriculum policies and guidelines relevant to teaching and assessing Science in the middle years.

K4. Explore of a range of theoretical and pedagogical approaches, including constructivism, relevant to learning and teaching in Science.

K5. Examine the Science content taught in junior secondary classrooms.

Skills:

S1. Reflect critically on practice, make positive use of feedback and learn in ongoing ways about teaching Science.

S2. Use appropriate theoretical frameworks to produce effective and engaging learning experiences which cater for a range of learners.

S3. Articulate and justify planning, teaching and assessment practices.

S4. Use a variety of resources in the classroom to enhance learning.

S5. Communicate effectively with learners and colleagues.

S6. Pursue interests related to Science and model curiosity, leadership, resilience and problem-solving capacities.

S7. Actively participate in professional conversations and debates about the teaching of Science, the role of Science in the community as well as ethical responsibilities.

Application of knowledge and skills:

A1. Collaboratively research, design and teach a lesson to science learners. Use video analysis to reflect on critical affective moments and to evaluate the teaching and learning of the participants.

A2. Plan and present a sequence of lessons showing links to curriculum policy and explanations about how students achieve learning intentions.

Course Content:

Content will include

Topics may include:

- Examining science as a field of human knowledge and endeavour, the links between science and other areas of knowledge and between the traditional science disciplines.
- Evaluation of teaching approaches, strategies and resources and their application in Science, including constructivism and scaffolding, inquiry and discovery learning, strategies for building
- Subject-specific literacy, numeracy and practical work.
- Science teaching - using curriculum policies and guidelines for lesson planning, implementation, teaching, evaluation, reflection and assessment purposes
- Critical examination of educational, social and cultural issues that impact on Science education and how these might be addressed.

Values:

V1. Science is relevant to all students and can be made engaging to students.

V2. Open to the changing roles Science teachers play in schools and believe that inquiries into practice and personal assumptions, lead to ongoing professional development.

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.	K1, K3	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.	K3	AT1
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.	K2	AT 2
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	AT 2
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	AT 2

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1, K2, K4, S1, S2, S4, S4, A1	Practical demonstration and preparation of a teaching guide showing links to curriculum policies and theoretical perspectives on Science and Pedagogy.	Research Task	30-50%
K3, K4, K5, S2, S3, S5, S6, S7, A2	Prepare and present in groups a learning sequence suitable for junior secondary Science classes.	Presentation of Curriculum Development	50-70%

Adopted Reference Style:

APA

Refer to the library website for more information

Fed Cite - referencing tool