Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: GEOGRAPHIC INFORMATION SYSTEMS

Unit ID: SCENV2600

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 019999

Description of the Unit:
Geographic Information Systems (GIS) are important tools in resource management and decision making that is used to display and analyse spatial information. This unit examines spatial information concepts, the use of maps, spatial data analysis, and the use of GIS software and remote sensing in resource management and decision making.

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

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 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:

Students undertaking this unit are expected to be able to demonstrate the following knowledge and skills.

Knowledge:

K1. Justify the use of maps in resource management
K2. Interpret the role of Geographic Information Systems (GIS) in resource management
K3. Define the use and limitations of remote sensing techniques

Skills:

S1. Examine and interpret aerial photographs and maps
S2. Build and analyse spatial datasets
S3. Determine appropriate actions and approaches to using GIS to solve spatial problems

Application of knowledge and skills:

A1. Use GIS to communicate spatial information including with high quality digital maps
A2. Perform basic spatial analysis of data using GIS
A3. Use GIS to assist with a decision making process

Unit Content:

Geographic Information Systems (GIS) are an important tool in resource management and decision making that is used to display and analyse spatial information. This unit examines spatial information concepts, the use of maps, spatial data analysis, and the use of GIS software and remote sensing in resource management and decision making.

Topics may include:

- Spatial data concepts and theory
- Map production and interpretation
- Spatial data analysis
- Use of GIS software and tools
- Basic aerial photograph interpretation

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**ttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor	Development and acquisition of FEDTASKS in the Unit	
	Learning Outcomes (KSA)	Assessment task (AT#)

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	**Assessment task (AT#)**
FEDTASK 1 Interpersonal	Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in: • Using effective verbal and non-verbal communication • Listening for meaning and influencing via active listening • Showing empathy for others • Negotiating and demonstrating conflict resolution skills • Working respectfully in cross-cultural and diverse teams.	Not applicable	Not applicable
FEDTASK 2 Leadership	Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in: • Creating a collegial environment • Showing self -awareness and the ability to self-reflect • Inspiring and convincing others • Making informed decisions • Displaying initiative	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: • Reflecting critically • Evaluating ideas, concepts and information • Considering alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts • Forming creative solutions in problem solving.	K1, K2, K3, S1, S2, S3, A2, A3	AT1, AT2, AT3

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: • Finding, evaluating, managing, curating, organising and sharing digital information • Collating, managing, accessing and using digital data securely • Receiving and responding to messages in a range of digital media • Contributing actively to digital teams and working groups • Participating in and benefiting from digital learning opportunities.	K1, K2, K3, S1, S2, S3, A1, A2, A3	AT1, AT2, AT3
FEDTASK 5 Sustainable and Ethical Mindset	Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in: • Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts • Committing to social responsibility as a professional and a citizen • Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Embracing lifelong, life-wide and life-deep learning to be open to diverse others • Implementing required actions to foster sustainability in their professional and personal life.	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, S1, A1	Written short answers to GIS theory questions and production of a map	Map production	15-30%
K2, S2, S3, A2	Spatial data analysis worksheet requiring written explanation and calculations	Spatial data analysis worksheet	15-30%
K1, K2, K3, S1, S2, S3, A1, A2, A3	Major project: Presentation of proposed approach (Part A), and written explanation and calculations (Part B) to a resource management problem.	Presentation and Project	50-70%

Adopted Reference Style:

Australian Harvard

Refer to the library website for more information

Fed Cite - referencing tool