

Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science & Sustainability

Unit Title: Data and Information Systems

Unit ID: ITECH1503

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): (GPSIT1103 and ITECH1103 and ITECH5103)

ASCED: 020303

Description of the Unit:

This unit provides fundamental concepts related to data and information systems. This unit will explore the theory and applications of data and information. Students will learn data in various formats, data and information processing platforms and tools to transform, visualise, model data and information, providing end users with timely knowledge to support decision making. The unit will explain the challenges organisations are facing with managing data and information.

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	<input type="checkbox"/>	<input type="checkbox"/>	✓	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intermediate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Learning Outcomes:

Knowledge:

- K1.** Describe different types of data and their sources.
- K2.** Discuss the different methods of management and uses of data.
- K3.** Define the main components of an information system.
- K4.** Explain contemporary IT industry practices related to management of data and information systems.

Skills:

- S1.** Select an appropriate data management or information systems solution for defined scenarios.

Application of knowledge and skills:

- A1.** Implement a solution related to management of data and information systems.

Unit Content:

Topics may include:

- Different types of data (e.g. structured, semi-structured, unstructured)
- Sources of data (e.g. sensors, medical, business, social data)
- Database life cycle (e.g., requirements analysis, design, implementation, maintenance)
- Database design principles: normalization, entity-relationship modelling.
- Relational database concepts: tables, rows, columns, keys, relationships.
- SQL (Structured Query Language): basic queries, data manipulation, data definition, joins.
- Definition, scope and components of Information Systems.
- Representation and use of data in Information System (Master Data, Transactional Data)
- Components of an Information System (e.g., hardware, software, data, procedures, and people)

- Types of Information Systems: transaction processing systems, management information systems, decision support systems, executive support systems, etc.

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**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are 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 1 Interpersonal	<p>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:</p> <ul style="list-style-type: none"> • 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	<p>Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • 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	<p>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:</p> <ul style="list-style-type: none"> • 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. 	Not applicable	Not applicable

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	<p>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:</p> <ul style="list-style-type: none"> • 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,S1,A1	AT1
FEDTASK 5 Sustainable and Ethical Mindset	<p>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:</p> <ul style="list-style-type: none"> • 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	Students will describe different types of data and their sources.	Lab work and/or Assignment(s)	10-15%
K1, K2, S1, A1	Students will choose and/or implement an appropriate data management solution for a chosen specific problem and describe the components of the process. The assessment also includes theoretical questions to provide context and opportunities for reflection on the analytical tasks undertaken.	Lab work and/or Assignment(s)	30%-55%

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K3, K4, S1, A1	Students will select an appropriate information systems solution for a chosen specific problem and describe the components of the process. The assessment also includes theoretical questions to provide context and opportunities for reflection on the analytical tasks undertaken.	Lab work and/or Assignment(s)	30%-60%

Adopted Reference Style:

APA

Refer to the [library website](#) for more informationFed Cite - [referencing tool](#)