



Course Outline (Higher Education)

School: Institute of Innovation, Science & Sustainability

Course Title: BIG DATA AND ANALYTICS

Course ID: ITECH1103

Credit Points: 15.00

Prerequisite(s): Nil

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 020303

Description of the Course:

This course provides fundamental concepts related to big data and analytics. This course will explore the theory and applications of big data and demonstrate the process from data to decisions. Students will learn big data in various formats, data processing platforms and data analytics tools to transform, visualise, model, and communicate the insights hidden in the data, providing end users with timely knowledge to support decision making. The course will explain the challenges organisations are facing with managing big data.

The course contains a hurdle task which requires students to be involved with their local IT community through attendance and participation in events, such as seminars, workshops, expos, discussion forums etc. The aim is to provide students with a broad understanding of the IT industry, its research foundations and its place in servicing society.

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

Program Level:

Level of course in Program	AQF Level of Program					
	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.** Understand the modelling, design and implementation stages of modern data solutions (e.g. relational and big data).
- K2.** Analyze data of various types (e.g. structured, semi-structured, unstructured).
- K3.** Examine different big data analytics techniques, tools, applications.
- K4.** Understand the diverse types of contemporary big data (e.g. IoT, social data).
- K5.** Understand the stages of the big data analytics lifecycle.
- K6.** Identify the Australian Computer Society`s (ACS) Core Body of Knowledge (CBOK) and where it is represented in industry practice
- K7.** Discuss the Skills Framework for the Information Age (SFIA) and how it is reflected in industry practice.

Skills:

- S1.** Demonstrate skills in designing and building a data centric application.
- S2.** Use analytical tools on a real-world dataset.
- S3.** Analyse the current range of big data and analytics solutions and emerging trends and future issues.
- S4.** Understand the importance of IT governance for big data.
- S5.** Analyse and link the ACS`s CBOK and SFIA to industry practice.

Application of knowledge and skills:

- A1.** Communicate a coherent exposition of the outcomes of the data analytics process.
- A2.** Apply big data analytics technology to a real-world dataset.
- A3.** Critique research and industry practice and determine your place in the spectrum of career possibilities.
- A4.** Appreciate your career possibilities and how they can be achieved.

Course Content:

Topics may include:

- Big data concepts, applications and tools;
- Structured data processing such as RDBMS, SQL
- Non-structured data processing
- Data analytics technologies
- Stream mining, real time analytics
- Predictive analytics
- Big data applications.
- IT and related industry activity and research developments in the local community, and around the globe; ACS`s CBOK, SFIA and their relationship with industry; Career pathways.

Values:

- V1.** Value the need for and complexity of mining, visualizing and management of data from diverse sources in various structures;
- V2.** Appreciate the importance and benefits of Big Data Analytics techniques in today's business world.
- V3.** Recognise the importance of research to the development and progress of the IT industry.
- V4.** Value IT as an underlying transformative technology to all of society in the information and immersive ages
- V5.** Appreciate your career possibilities and how they can be achieved.
- V6.** Appreciate the range of problems faced by industry practitioners and how problem solving skills learnt may be applied in the industry context.
- V7.** Appreciate how theory and practice learnt is applied in industry.

Graduate Attributes

The Federation University Federation 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.	K2,K3,K4,K7,S6	1,2,3
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.	K1,K3, K5	1,2
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.	S1 ,S3	1
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.	K3,K4,K5	1,2,3
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.	N/A	N/A

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1-K6, S1, S2, S3, A1, A2	Illustrate skills in the analysis and practical application of Big Data Analytics technologies.	Tutorials/Assignment(s)	60% - 70%
K1-K5, S3, S4, S5, S6, A2, A3	Participate in lectures and labs/tutorials, read and summarise theoretical and practical aspects of BDA.	Oral / Written Test(s)	30% - 40%
K7, K8, S7, A5 & A4	Artifact demonstrating a community engagement activity. This report will describe the activity and relate it to the course's learning outcomes, CBOK and SFIA.	Journal	Satisfactory/Unsatisfactory

Adopted Reference Style:

APA

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)