

# Course Outline (Higher Education)

<b>School:</b>	School of Engineering, Information Technology and Physical Sciences
<b>Course Title:</b>	DATA ANALYTICS
<b>Course ID:</b>	ITECH2303
<b>Credit Points:</b>	15.00
<b>Prerequisite(s):</b>	(ITECH1103)
<b>Co-requisite(s):</b>	Nil
<b>Exclusion(s):</b>	Nil
<b>ASCED:</b>	020303

## Description of the Course:

In the modern corporate world, data is viewed not only as a necessity for day-to-day operation, it is seen as a critical asset for decision making. However, raw data is of low value. Analytics are required before data gains high value. Data analytics produce knowledge from data, making feasible sophisticated data-driven decision making.

This course will provide students with an understanding of the major components of the data analytics process, the various methods for data analytics, knowledge of the applications and technical aspects of data analytics, and skills to apply data analytics in real-world problems.

**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 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	<input type="checkbox"/>	<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"/>
Advanced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### Learning Outcomes:

#### Knowledge:

- K1.** Describe the motivation and the need for data analytics.
- K2.** Describe the characteristics of major components of the data analytics process.
- K3.** Discuss the principles of different methods and operations for data analytics.
- K4.** Explain the performance evaluation process.
- K5.** Describe the key and emerging application areas.
- K6.** Analyse and evaluate case studies that bridge the connection between hands-on experience and real-world applications.

#### Skills:

- S1.** Use data analytics tools.
- S2.** Apply various data preprocessing methods to clean data.

#### Application of knowledge and skills:

- A1.** Identify an appropriate data analytic solution for a data-oriented problem.
- A2.** Use an appropriate tool to solve a data analytics problem.

#### Course Content:

Topics may include:

- The need for data analytics and the ethical issues.
- Model building and model representation.
- The characteristics of major components of the data analytics process.
- Different operations for data analytics.
- The principles of different methods for data analytics.
- Performance evaluation.
- Case studies in data analytics.
- Key and emerging application areas.

**Values:**

- V1.** Appreciate the need for and benefits of data analytics.
- V2.** Aware of the ethical issues in relation to data and data analytics.

**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, K2, K3, K4, K5, K6, S2, A1	AT1, AT2, AT4
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.	A1, A2, S1, S2, K6	AT1, AT2, AT4
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.	Not applicable	Not applicable
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, K5, A2	AT1, AT2, AT3
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	Not applicable

**Learning Task and Assessment:**

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K2, K3, K5, K6, S1, S2, A2	Students will apply data analytic tools and techniques to solve real-world problems.	Projects / Assignments	70%-80%
K1, K2, K3, K4, K5, K6, A1	Students will provide theoretical answers and work out solutions to a range of questions and problems designed to test their understanding on big data analytic concepts, principals and applications.	Test(s)	20%-30%

**Adopted Reference Style:**

APA

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

Fed Cite - [referencing tool](#)