Subject Description Form

Subject Code	DSAI1102
Subject Title	Data Analytics Fundamentals
Credit Value	3
Level	1
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	This subject is to introduce to students the fundamental concepts of data analytics and some basic skills and tools used in the field.
Intended Learning Outcomes	Upon completion of the subject, students will be able to: (a) apply statistical reasoning to describe and analyze different types of data sets (b) extend their knowledge of statistical techniques and adapt analytical procedures to different situations (c) develop and extrapolate statistical concepts in synthesizing and solving problems (d) search for useful information and use data analytics software in solving problems (e) undertake the formulation of data analytics problems through continuous self-learning (f) demonstrate the abilities of logical and analytical thinking
Subject Synopsis/ Indicative Syllabus	*General introduction to data science* Data collection, types of data, data structures, selected case studies *Data preparation and exploration* Data cleaning/processing, data summary, frequency table, density plot, data visualization, computational tools of statistics and data analytics (e.g., R/Python) *Basic probability* Experiment, event and probability, random variable, distributions, measures of central tendency and dispersion, measures of association *Statistics* Estimation of mean and variance, confidence interval, hypothesis testing, regression, prediction, classification

Teaching/Learning Methodology	The subject will be delivered mainly through lectures and tutorials. The lectures will be conducted to introduce the basic data analytics concepts of the topics in the syllabus which are then reinforced by learning activities involving demonstration and tutorial exercise.

Assessment Methods in Alignment with Intended Learning Outcomes

Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)					
		(a)	(b)	(c)	(d)	(e)	(f)
1. Assignments/Test	40%	✓	✓	✓	✓	✓	✓
2. Examination	60%	✓	✓	✓	✓	✓	✓
Total	100%						

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

Continuous Assessment comprises of assignments and/or quizzes, and test(s). This will allow the instructor(s) to observe and assess individual student's achievement of a particular learning outcome based on the coverage of the assigned problem set questions. A written examination is held at the end of the semester.

Student Study Effort Expected

Class contact:	
▪ Lectures/Tutorials	39 Hrs.
Other student study effort:	
▪ Self-study	66 Hrs.
Total student study effort	105 Hrs.

Reading List and Reference

Adhikari, A. and DeNero, J. (2019). Computational and Inferential Thinking: The Foundations of Data Science. GitBook.

Davy, C., Meysman, A. D. B., and Ali, M. (2016) Introducing Data Science: Big Data, Machine Learning, and More, Using Python Tools. Manning Publications.

Utts, J.M. (2014). Seeing Through Statistics (4th edition). Cengage Learning.

Utts, J. M. and Heckard, R. F. (2015). Mind on Statistics (5th edition). Cengage Learning.