Subject Description Form

Subject Code	COMP1433
Subject Title	Introduction to Data Analytics
Credit Value	3
Level	1
Pre-requisite / Co-requisite / Exclusion	Nil
Objectives	The objectives of this subject are to: • understand data analytics concepts • apply data analytics tools • strengthen students' mathematics background for computing
Intended Learning Outcomes	Upon completion of the subject, students will be able to: *Professional/academic knowledge and skills* (a) understand basic data analytics concepts (b) manipulate, analyze and visualize data (c) understand and apply related mathematics operations
Subject Synopsis/ Indicative Syllabus	**Topic** **1. Data Analytics Basics** Defining data requirements, collecting data, processing data, cleaning data and analyzing data **2. Data Processing** Data manipulation, data analysis, data visualization **3. Statistical Analysis** Basic statistical functions, linear regression, time series analysis **4. Linear Algebra and Calculus** Vector basics, matrix basics, differentiation, integration, finding maxima and minima The aforementioned topics will be taught with the aid of a suitable programming language such as R.

	Teaching/ Learning Methodology	Lectures on data analytics and mathematics concepts (e.g., using R) will be given through lectures. There will be in-class activities for active learning. Hands-on lab/exercises will be arranged for students to practice data analytics tools. Students will also be required to study e-learning materials.

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		
Continuous Assessment						
1. Assignments, Test, Quizzes	**55%**	✓	✓	✓		
Examination	**45%**	✓	✓	✓		
Total	100%					

The assignments/test/quizzes (individual assessment) are used to assess learning outcomes (a) – (c) (e.g., how to apply R). Finally, students are assessed by a formal examination, covering learning outcomes (a) – (c).

Student Study Effort Expected

Class contact:	
▪ Class/ Learning Activities	39 Hrs.
Other student study effort:	
▪ Self-study, Assignments, e-Learning	66 Hrs.
Total student study effort	105 Hrs.

Reading List and References

Reference Books:

1. Beecher, K., *Computational Thinking*, BCS, 2017.

2. Teetor, P., *R Cookbook*, O'Reilly Media, 2011.

3. Wickham, H. and Grolemund, G., *R for Data Science,* O'Reilly Media, 2017.

4. Boyd, S. and Vandenberghe, L., *Introduction to Applied Linear Algebra*, Cambridge University Press, 2018.

5. Stewart, J., *Calculus: Early Transcendentals*, 8th Edition, Cengage Learning, 2015.