1	Name of Course :	Programming for Data Analysis	Version Number:	VD1
	Course Code :	CT127-3-2	Effective Date:	06 Jan 2020
2	Synopsis :	This module will explore the programming language used for problem-solving within the field of data science. The programming language will be used to analyse a set of data and reconstruct it into meaningful representations for decision making.		
3	Name(s) of academic staff :	**Minnu Helen Joseph,** Mary Ting, Chandra Reka Ramachandiran		
4	Semester and Year offered :	See Programme Specification (Module may be delivered on multiple programmes and therefore in different years/semesters)		
5	Credit Value :	3		
6	Prerequisite/co-requisite: (if any)	CT010-3-1(Fundamentals of Software Development) or equivalent		
7	Course Learning Outcomes (CLO) : At the end of the course the students will be able to: (example) - explain the basic principles of immunisation (C2,PLO1)			
	CLO1	Reproduce appropriate structured data using different data structures and functions. (C1, PLO1)		
	CLO2	Analyse the dataset with appropriate techniques to solve a particular problem. (C4, PLO2)		
	CLO3	Explain the obtained results through shareable reports. (A3, PLO5)		

8 Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment : Please select the learning outcome Domain(LOD) for each PLO in the cells above it. E.g PLO1- Knowledge and Understanding, PLO2- Cognitive Skills, PLO3-Practical Skills

Course Learning Outcomes (CLO)	Programme Learning Outcomes (PLO)												Teaching Methods	Assessment
	Knowledge and Understanding,	Cognitive Skills,	Practical Skills,	Interpersonal Skill,	Communication skill,	Digital Skills,	Numeracy Skills,	Leadership, autonomy and responsibility,	Personal Skills,	Entrepreneurial Skills,	Ethics and professionalism			
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12		
CLO 1	✓												Lecture	Class Test
CLO 2		✓											Tutorial	Individual Assignment-Solution and Report
CLO 3					✓								Tutorial	Individual Assignment-Presentation

Indicate the relevancy between the CLO and PLO by ticking "√" the appropriate relevant box.
(This description must be read together with Standards 2.1.2 , 2.2.1 and 2.2.2 in Area 2 - pages 16 & 18)

9	Transferable Skills (if applicable) (Skills learned in the course of study which can be useful and utilized in other settings)	1	Cognitive Skills,
		2	Communication skill,
		3	
		4	
		5	

10 **Distribution of Student Learning Time (SLT)**

Course Content Outline	CLO*	Teaching and Learning Activities						SLT
		Guided Learning (F2F)				Guided Learning (NF2F) eg: e-learning	Independent Learning (NF2F)	
		L	T	P	O			
Programming Environment and Package Installation	1	2					2	4
Basics of R	1	4					4	8
Control Statements and Loops	1	2					2	4
Data Structures	1	4					4	8
Functions	1	2					2	4
Data Exploration	1	2					2	4
Data Manipulation	1	4					4	8
Data Transformation	1	4					4	8
Data Visualization	1	4					4	8

Activity 1:Programming Environment and Package Installation	2		2				2	4
Activity 2: Basics of R	2		4				4	8
Activity 3: Control Statements and Loops	2		2				2	4
Activity 4: Data Structures	2		4				4	8
Activity 5: Functions	2		2				2	4
Activity 6: Data Exploration	2		2				2	4
Activity 7: Data Manipulation	2		4				4	8
Activity 8: Data Transformation	2		4				4	8
Activity 9:Data Visualization	3		2				2	4
Presenting and Interpreting the results	3		2				2	4
								0
*** To be conducted in the lab**								112

	Continuous Assessment	Percentage (%)	F2F	NF2F	SLT
1	Test-1- Week 7	25	1	1	2
2	Test-II Week 13	25	1	1	2
3					0
4					0
5					0
6					0
7					0
				Total	4

	Final Assessment	Percentage (%)	F2F	NF2F	SLT
1	Individual Assignmeent - solution and report	40	0	2.5	2.5
2	Individual Assignment - Presentation	10	0.5	1	1.5
3					0
4					0
5					0
				Total	4

****Please tick (√) if this course is Latihan Industri/ Clinical Placement/ Practicum/ WBL using Effective Learning Time (ELT) of 50%** ☐ **GRAND TOTAL SLT** **120**

L = Lecture, T = Tutorial, P= Practical, O= Others, F2F=Face to Face, NF2F=Non Face to Face
**Indicate the CLO based on the CLO's numbering in Item 8.*

11	Identify special requirement to deliver the course (e.g: software, nursery, computer lab, simulation room, etc)	R Compiler and Rstudio
12	References :(include required and further readings, and should be the most current)	Lander, J. P. (2017) R for Everyone: Advanced Analytics and Graphics. 2nd ed. USA: Pearson Education, Inc. ISBN-13: 978-0134546926 MCGrath, M. (2018) R for Data Analysis in easy steps - R Programming essentials, UK:In Easy Steps Limited. ISBN-13: 978-1840787955 Morgan, P. (2018) Data Science from Scratch with Python: Step-by-Step Guide. 2nd ed. USA: CreateSpace Independent Publishing Platform. ISBN-13: 978-1726020688
13	Other additional information :	Nil