Table 4: Summary of Course Information / Jadual 4: Ringkasan Maklumat Kursus

1	Course Name/Nama Kursus:	Matematik Statistik dengan Pengkomputeran / Mathematical Statistics with Computing
	Course Code/ Kod Kursus:	STQD6214
	Course Classification /Klasifikasi Kursus:	Core / Teras

2	Synopsis/Sinopsis:	Kursus ini bertujuan mendedahkan asas dalam matematik statistik termasuk perihalan statistik, paparan grafik, taburan pensampelan, ujian hipotesis dan kaedah lain dalam analisis data. Kursus ini mengetengahkan peranan R dalam masalah penghitungan berstatistik. Konsep asas simulasi turut dibincangkan dengan contoh. Pelajar akan mempelajari cara untuk menjana data, menganalisis data menggunakan kaedah statistik dan mentafsirkan keputusan yang diperoleh. This course aims to expose students to the fundamentals of mathematical statistics including descriptive statistics, graphical displays, sampling distributions, hypothesis testing and other methods in data analysis. This course also reflects the integral role of R in computing statistical problems. Basic simulation concepts are discussed with examples. Students will learn how to generate data, analyze data using statistical methods and interpret the results obtained.

3	Name(s) of Academic Staff / Nama Staf Akademik:	1	Dr. Muhammad Hilmi Abdul Majid
		2	Prof. Madya Dr. Noratiqah Mohd Ariff
		3	

4	Semester and Year offered / Tahun dan Semester	Year Offered / Tahun Penawaran	1	Semester	1	*Remarks:*

5	Credit Value / Nilai Kredit:	**4**

6	Pre-requisite/ co-requisite (if any) / Pra Syarat (jika ada):	Tiada

7	Course Learning Outcomes (CLO) / Hasil Pembelajaran Kursus (HPK)	CLO1 / HPK1	Mengenal pasti konsep asas statistik dan mengaitkannya dengan masalah dunia sebenar (A5, HPP1, HPP2); Able to understand the basic statistical concepts and relate them to real world problem
		CLO2 / HPK2	Menyelesaikan masalah penghitungan berstatistik menggunakan R (C3, HPP2, HPP3, HPP6); Able to solve statistical computing problems using R
		CLO3 / HPK3	Meramalkan pemboleh ubah statistik dan menjana taburan bagi masalah berasaskan data (C5, HPP1, HPP7); Able to estimate statistical parameters and simulate the distributions for data driven problems
		CLO4 / HPK4	Mengesahkan analisis menggunakan ujian statistik (C5, HPP3, HPP7, HPP8); Able to validate analysis using statistical testing

8 Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment Methods / Pemetaan terhadap HPP, HPK, Kaedah Penyampaian dan Kaedah Penilaian

Course Learning Outcomes	Programme Learning Outcomes (PLO) / Hasil Pembelajaran Program (HPP)												Teaching Methods / Kaedah Penyampaian	Assessment Methods / Kaedah Penilaian
	PLO 1	PLO 2	PLO 3	PLO 4	PLO 5	PLO 6	PLO 7	PLO 8	PLO 9	PLO 10	PLO 11			
CLO1 / HPK1	√	√											Kuliah, Tutorial	Ujian, Peperiksaan Akhir
CLO2 / HPK2		√	√			√							Kuliah, Tutorial	Laporan, Peperiksaan Akhir
CLO3 / HPK3	√						√						Kuliah, Tutorial	Laporan, Ujian, Peperiksaan Akhir
CLO4 / HPK4			√				√	√					Kuliah, Tutorial	...poran, Pembentangan, Peperiksaan Ak

Mapping with MQF Cluster of Learning Outcomes / Pemetaan												

9	Transferable Skills (if applicable) / Pindahan Kemahiran (jika ada)		
	(Skills learned in the course of study which can be useful and utilized in other settings / Kemahiran yang dipelajari dalam kursus pengajian yang boleh berguna dan digunakan	1	
		2	
		3	
	Open-ended response (if any) / Lain-lain (jika ada)		
		4	

10 Distribution of Student Learning Time (SLT) / Agihan Masa Pembelajaran Pelajar (SLT)
Note: This SLT calculation is designed for home grown programme only / Nota: Pengiraan SLT ini direka untuk program sendiri sahaja

Course Content Outline and Subtopics / Kandungan Kursus dan Subtopik	CLO/HPK*	Learning and Teaching Activities/ Aktiviti Pembelajaran dan Pembelajaran**								NF2F Independent Learning / Pembelajaran Kendiri (Asynchronous / Tidak Segerak)	Total SLT
		Face-to-Face (F2F) / Bersemuka									
		Physical / Fizikal				Online/ Technology-mediated (Synchronous/ Segerak)					
		L	T	P	O	L	T	P	O		
1 Introduction to Statistics, Types of Data, and Organizing Data	1	2.5	1							5	
2 Numerical Descriptive Measures	1	2.5	1							5	
3 Probability	1	2.5	1							5	
4 Discrete Random Variables	2	2.5	1							5	
5 Continuous Random Variables and Sampling Distributions	2	2.5	1							5	
6 Hypothesis Testing	2	2.5	1							5	
7 Regression Analysis	2	2.5	1							5	
8 Introduction to R	3	2.5		1						5	
9 Data Exploration with R	1,3	2.5		1						5	
10 Data Visualization with R	1,3	2.5		1						5	
11 Statistical Analysis with R	3	2.5		1						5	
12 Programming with R	4	2.5		1						5	
13 Monte Carlo Methods	4	2.5		1						5	
14											
15											
16											
17											
18											
19											
20											
									SUB-TOTAL SLT:		**110.5**

	Continous Assessement / Penilaian Berterusan	%	Face-to-Face (F2F) / Bersemuka		NF2F Independent Learning for Assessment (Asynchronous) / Pembelajaran Kendiri untuk Penilaian(Tidak	
			Physical / Fizikal	Online/ Technology-mediated (Synchronous/Segerak)		
1	Report / Laporan	20			13	
2	Test / Ujian	30	2		15	
3	Presentation / Pembentangan	10	0.5		1	
4						
5						
					SUB-TOTAL SLT:	31.5

	Final Assessement / Penilaian Akhir	%	Face-to-Face (F2F) / Bersemuka		NF2F Independent Learning for Assessment (Asynchronous) / Pembelajaran Kendiri untuk Penilaian(Tidak	
			Physical / Fizikal	Online/ Technology-mediated (Synchronous/Segerak)		
1	Peperiksaan Akhir	40	3		15	
2						
3						
4						
5						
					SUB-TOTAL SLT:	18
					SLT for Assessment:	49.5
					GRAND TOTAL SLT:	160

A	% SLT for F2F Physical Component: *[Total F2F Physical /(Total F2F Physical + Total F2F Online + Total Independent Learning) x 100)]*	31.88
B	% SLT for Online & Independent Learning Component: *[(Total F2F Online + Total Independent Learning) /(Total F2F Physical + Total F2F Online + Total Independent Learning) x 100]*	68.13
C	% SLT for All Practical Component: *[% F2F Physical Practical + % F2F Online Practical]*	3.75
C1	% SLT for F2F Physical Practical Component *[Total F2F Physical Practical /(Total F2F Physical + Total F2F Online + Total Independent Learning) x 100)]*	3.75
C2	*% SLT for F2F Online Practical Component [Total F2F Online Practical / (Total F2F Physical + Total F2F Online + Total Independent Learning) x 100]*	0.00

Please tick (√) if this course is Industrial Training/ Clinical Placement/ Practicum using 50% of Effective Learning Time (ELT) / Tandakan (√) jika kursus ini merupakan kursus Latihan Industri/Penempatan Klinikal/ Praktikum yang menggunakan 50% Masa Pembelajaran Efektif (ELT).

Note:

* Indicate the CLO based on the CLO's numbering in Item 8

** For ODL programme: Courses with mandatory practical requiremnets imposed by the programme standards or any related standards can be exempted from complying to the minimum 80% ODL delivery rule in the SLT.

11	Identify special requirement or resources to deliver the course (e.g., software, nursery, computer lab, simulation room etc) / Kenal pasti keperluan atau sumber khas untuk	Computer lab, R statistical packages		
12	References (include required and further readings, and should be the most current) / Rujukan (termasuk bacaan yang diperlukan dan bacaan lanjut, dan hendaklah yang paling terkini)	Bluman A.G. 2023. Elementary Statistics: A Step By Step Approach. Edisi ke-11. McGraw-Hill Education. Bruce, P., Andrew B., & Peter G. 2020. Practical statistics for data scientists: 50+ essential concepts using R and Python. Edisi ke-2. O'Reilly Media. James, G., Witten, D., Hastie, T., & Tibshirani, R. 2021. An Introduction to Statistical Learning with Applications in R. Edisi ke-2. Springer. Mann P.S. 2020. Introductory Statistics. Edisi ke-10. John Wiley & Sons. Nady, M. 2022. Introduction to R Programming Language. Arcler Press.		
13	Mapping to Future Ready Curiculum Element / Pemetaan kepada Kurikulum Sedia Masa Hadapan		Mapping to EXCEL Framework / Pemetaan kepada Kerangka EXCEL	
14	Mapping to SDG / Pemetaan Kepada Matlamat Mampan		Elemen AI / AI Element	Yes
15	Latest Approval Date / Tarikh Kelulusan Terkini	Faculty/Fakulti	18-Sep-24	Senate/ Senat	17 Ogos 2016