FAKULTI INFORMATIK & KOMPUTERAN

1.	Name of Course :	Discrete Mathematics				
	Course Code :	CSF 11603				
2.	Synopsis :	In this course, students will be introduced to the fundamentals and concepts of Set Theory, Logic, Truth Table, Boolean Algebra, Graphs, and Trees. They will also learn other topics that are propositional calculus, propositional logic, quantifiers, predicate calculus (logic of quantifiers), mathematical induction and recursive relations. Other topics that will be covered are graphs that include directed and undirected graphs, isomorphism, and weighted graphs. Students will gain knowledge on the topic of trees that covers Spanning Tree and Minimum Spanning Tree (MST), Kruskal's Algorithm, Rooted tree, and Depth-First Search Algorithm. In addition, they will also work in groups to perform calculations to solve problems in Discrete Mathematics. At the end of this course, they are expected to be able to apply the basic of discrete mathematics in real applications.				
3.	Name(s) of academic staff :	DR. NURNADIAH BINTI ZAMRI DR. SITI SABARIAH BINTI ABAS				
4.	Semester and Year offered :	Semester	2	Year	2	
5.	Credit Value :	3				
6.	Prerequisite/co-requisite: (if any)					

7. Course Learning Outcomes (CLO) : At the end of the course the students will be able to:

CLO1	Apply the fundamental concepts in Discrete Mathematics. (C3,MQF1)
CLO2	Perform calculations to solve problems in Discrete Mathematics. (A2,MQF3e)
CLO3	Discuss the concepts of Discrete Mathematics in solving practical problems. (A2,MQF3f)

8. Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment :

Course Learning Outcomes (CLO)	MQF												Teaching Methods	Assessment
	MQF1	MQF2	MQF3a	MQF3b	MQF3c	MQF3d	MQF3e	MQF3f	MQF4a	MQF4b		PLO12		
CLO 1	/												Lecture, tutorial, group discussion, e-Learning	Test 1; Test 2; Final Exam; Group Assignment;
CLO 2							/						Lecture, group discussion, tutorial, e-Learning	Group Assignment
CLO 3								/					Lecture, group discussion, tutorial, e-Learning	Group Assignment

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**	Numeracy Skills (MQF3e)
		2	Leadership, autonomy and responsibility (MQF3f)
		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			
1.0 Set Theory 1.1 Introduction to Sets 1.2 Set properties and Set Notation 1.3 Set Operations 1.4 Computer Representation of Sets 1.5 Counting Principle 1.6 Set of Ordered Pair 1.7 Number system 1.8 Control of Accuracy 1.9 Functions 1.10 Relations	CLO1, CLO2, CLO3	2	4	0	0	3	14	23
2.0 Logic 2.1 Introduction to Logic 2.2 Propositional Logic 2.3 Formal Proofs using Truth Table 2.4 Bitwise Operations 2.5 Quantifiers and Predicate Calculus 2.6 Formal Language	CLO1, CLO2, CLO3	2	4	0	0	3	14	23
3.0 Sequences and Series 3.1 Sequences 3.2 Recursive Relations 3.3 Series Summations	CLO1, CLO2, CLO3	1	3	0	0	2	9	15
4.0 Mathematical Induction 4.1 Introduction to Mathematical Induction 4.2 Principle of Mathematical Induction	CLO1, CLO2, CLO3	1	2	0	0	2.5	9	14.5
5.0 Graphs 5.1 Introduction to Graphs 5.2 Properties of Graphs 5.3 Types of Graphs 5.4 Hamiltonian Path and Circuit 5.5 Isomorphism	CLO1	1	2	0	0	2	8	13
6.0 Trees 6.1 Introduction to Trees 6.2 Spanning Trees 6.3 Minimum Spanning Trees 6.4 Rooted Trees 6.5 Tree Traversal : Pre-order, In-order and Post-order Traversal	CLO1	1	1	0	0	1	5	8
		8	16	0	0	13.5	59	
							Total	96.5

Continuous Assessment		Percentage (%)	F2F	NF2F	SLT
1	CLO1: Group Assignment (Report)	10	0.5	1	1.5
2	CLO1: Test 1 (Essay)	15	1.5	3	4.5
3	CLO1: Test 2 (Essay)	15	1.5	3	4.5
4	CLO2: Group Assignment (Report)	10	0.5	2	2.5
5	CLO3: Group Assignment (Peer Assessment)	10	0.5	2	2.5
			4.5		
					Total 15.5

Final Assessment		Percentage (%)	F2F	NF2F	SLT
1	CLO1: Final Exam (Essay)	40	2.5	6.5	9
			2.5		
					Total 9
					TotalGL(F2F) 44.5
					GRAND TOTAL SLT **121**

****Please tick (√) if this course is Latihan Industri/ Clinical Placement/ Practicum/ WBL using 2-weeks, 1 credit formula**

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)	
12	References (include required and further readings, and should be the most current)	Main References: Kenneth H. Rosen, 2019. Discrete Mathematics and Its Applications. Science Engineering Math. McGraw-Hill.
13	Other additional information :	Additional references: Susan S. Epp, 2019. Discrete Mathematics with Applications, 2nd Edition. Concage. Kevin Ferland, 2017. Discrete Mathematics and Applications, 2nd Edition. Chapman and HallCRC.