

1.	Name of Course :	Discrete Mathematics													
	Course Code :	BAMS1623													
2.	Synopsis :	This course is to introduce a blending of mathematics and computer science and stress basic theory and applications. Topics include functions, sets, relations, propositional logic and Boolean algebra.													
3.	Name(s) of academic staff :	Refer to timetable													
4.	Semester and Year offered :	Semester				Year			Refer to programme structure						
5.	Credit Value :	3													
6.	Prerequisite/co-requisite: (if any)	NIL													
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	Solve problems involving sets, relations and functions. (C3, PLO2)													
	CLO2	Apply formal methods of symbolic propositional and predicate logic. (C3, PLO2)													
	CLO3	Use methods of Boolean algebra to simplify or optimize logical expressions. (C4, PLO2)													
8.	Mapping of the Course Learning Outcomes to the Programme Learning Outcomes, Teaching Methods and Assessment :														
	Course Learning Outcomes (CLO)	Programme Learning Outcomes (PLO)												Teaching Methods	Assessment
		PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8	PLO9	PLO10	PLO11	PLO12		
	CLO 1		√											L, T, NF2F	Test, Assignment, Examination
	CLO 2		√											L, T, NF2F	Test, Assignment, Examination
	CLO 3		√											L, T, NF2F	Examination
	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	Problem Solving and Scientific Skills.												
		2													
		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							
	Fundamentals ·Sets and Subsets. ·Operations on Sets. ·Induction and recursion. ·Sequences. ·Division in the integers. ·Boolean matrices.	1	3	2			1.5	3.5	10						
	Logic ·Propositions, Logical connectives and compound statements, Conditional Statements. ·Truth table, tautology, contradiction and contingency. ·Tautological implication and logical equivalence. ·Checking validity of argument using truth table. ·Logic diagram. ·Normal forms. ·Predicate calculus: quantifiers, universes.	2	5	3.5			2.5	5	16						

Relations and Digraphs -Products Sets and Partitions. -Relations and Digraphs. -Paths in Relations and Digraphs. -Properties of Relations. -Equivalence Relations. -Computer Representations. -Operations on Relations. -Manipulation of relations. -Reflexive closure, symmetric closure and transitive closure. -Transitive Closure using Warshall's Algorithm.		1	10	7			5	13	35
Functions -Functions for Computer Science. -Permutation Functions.		1	2	2			1	2.5	7.5
Order Relations and Structures -Partially Ordered Sets. -Hasse diagrams -Extremal Elements of Partially Ordered Sets. -Least upper bound and greatest lower bound.		1	4	3			2	5	14
Boolean Algebra -Finite Boolean Algebras. -Functions on Boolean Algebras. -Laws of Boolean Algebra. -Simplification of Boolean expressions. -Use of Karnaugh Map up to 4 variables.		3	4	3.5			2	5	14.5
Total									97
Continuous Assessment (50%)		Percentage (%)	F2F		NF2F		SLT		
1	Test	50	1		4		5		
2	Assignment	50	0		6		6		
Total									11
Final Assessment (50%)		Percentage (%)	F2F		NF2F		SLT		
1	Examination	100	2		10		12		
Total									12
**Please tick (V) if this course is Latihan Industri/ Clinical Placement/ Practicum/ WBL using 2-weeks, 1 credit formula					<input type="checkbox"/>		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)	NIL							
12	References (include required and further readings, and should be the most current)	Main references supporting the course 1. Kolman B., Busby R. C., Ross S. C. 2018. Discrete Mathematical Structures. 6th Edition. Prentice Hall. 2. Epp S. S. 2020. Discrete Mathematics with Applications. 5th edition. Cengage. 3. Johnsonbaugh R. 2018. Discrete Mathematics. 8th Edition. Pearson. 4. Rosen K. H. 2019. Discrete mathematics and its applications. 8th Edition. McGraw-Hill.							
13	Other additional information :	NIL							