



**ALMA ATA UNIVERSITY
FACULTY OF COMPUTER AND
ENGINEERING
BACHELOR OF INFORMATICS ENGINEERING STUDY
PROGRAM**

SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Statistics and Probability	FKOM005	Data Structures, Algorithms and Complexity ; Architecture and Organisation ;	T [Theory] = 2	P[Practice] = 0	(2) Two	17 January 2024
RESPONSE	Semester Learning Plan Developer		Study Material Coordinator		Head of study programme	
	Dita Danianti, S.Kom., M.Kom		Dita Danianti, S.Kom., M.Kom		Dhina Puspasari Wijaya, S.Kom., M.Kom	
Learning Outcomes	SLOs that are imposed on MKs					
	CPL07	Compile a scientific description of the results of the study of the implications of the development or implementation of science and technology in the form of a thesis or final project report or scientific article.				
	Course Learning Outcomes (CPMK)					
	CPMK071	Able to compile a scientific description of the results of the study of the implications of the development or implementation of science and technology in the form of a thesis or final project report				
	End ability of each learning stage (Sub-CPMK)					

Correlation of CPMK to Sub-CPMK		
Course Learning Outcomes		Supported SLOs
CPMK Code	Description of CPMK	
CPMK071	Able to compile a scientific description of the results of the study of the implications of the development or implementation of science and technology in the form of a thesis or final project report	CPL07
Brief description of the course	This course provides an understanding of the basic theory of statistics and types of data, presentation and analysis of data in supporting the preparation of a thesis both in analysis with statistics both descriptive and inferential statistics (parametric and non-parametric). Learning is carried out by applying a constructivistic approach. Learning activities end with an exercise in analysing and presenting research data.	
Study Material: Learning Materials	presenting data in various presentation forms, calculating mean, median, and mode, calculating SD, moment, slope, and kurtosis, calculating probability, permutation, combination, and expectation, determining sample size with Krijcie table and King's nomogram, stating descriptive, comparative and associative hypotheses and testing those hypotheses, using t test to test hypotheses, calculating correlation, calculating single regression, calculating multiple regression	
Library	Main:	
	1. Sugiyono. 2013. Statistics for Research. Bandung: Alfabeta.	
	Supporters:	
	2. Furqon. 2011. Applied Statistics for Research. Bandung: Alfabeta. 3. Sudaryono, Probability Statistics - Theory & Application, Andi, 2012	
Lecturer	Dita Danianti, S.Kom., M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
				Offline (5)	Online (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Able to understand the basic concepts of statistics, statistics, data, population and samples	Accuracy of Answer; Participation (Attendance/Quiz)	Student centred learning	Asynchronous	1,2,3	5
2	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to present data with various presentation models	Accuracy of Answer; Participation (Attendance/Quiz)	Student centred learning	Asynchronous	1,2,3	5
3	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to explain the meaning of mean, median, and mode. Students are able to calculate mean, median, and mode.	Accuracy of Answer; Participation (Attendance/Quiz)	Student centred learning	Asynchronous	1,2,3	5
4	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to understand measures of concentration and measures of location.	Accuracy of Answer; Participation (Attendance/Quiz)	Student centred learning	Asynchronous	1,2,3	5
5	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students know and understand the distribution of statistical data	Accuracy of Answers; Written Test (UTS)	Student centred learning	Asynchronous	1,2,3	10
6	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students know and understand about theoretical distribution.	Accuracy of Answers; Written Test (UTS)	Student centred learning	Asynchronous	1,2,3	10
7	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to understand the withdrawal of a Hypothesis.	Accuracy of Answers; Written Test (UTS)	Student centred learning	Asynchronous	1,2,3	10
8	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students understand the steps involved in the test of equality of two means.	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5
9	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to conduct correlation analysis	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5

10	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to understand the linearity and closeness of the relationship between independent variables and dependent variables	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5
11	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to perform chi squared testing	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5
12	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to perform nonparametric chi testing	Accuracy of UAS Answers; Performance	Student centred learning	Asynchronous	1,2,3	10
13	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to perform normality testing and t-test using the SPSS application	Accuracy of UAS Answers; Performance	Student centred learning	Asynchronous	1,2,3	10
14	CPMK0711 - Ability to compile a scientific framework for the results of the implementation of science and technology in the form of a thesis or final project report	Students are able to perform correlation testing and regression using the SPSS application	Accuracy of UAS Answers; Performance	Student centred learning	Asynchronous	1,2,3	10



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COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Data Structure	INF001	Data Structures, Algorithms and Complexity ; Programming Languages ;	T [Theory] = 2	P [Practice] = 1	(2) Two	30 December 2023
RESPONSE	Semester Learning Plan Developer		Study Material Coordinator		Head of study programme	
	Andri Pramuntadi, S.Kom., M.Kom		Dita Danianti, S.Kom., M.Kom		Dhina Puspasari Wijaya, S.Kom., M.Kom	
Learning Outcomes	SLOs that are imposed on MKs					
	CPL03	Have adequate knowledge of how computer systems work and be able to apply/use various algorithms/methods to solve problems in an organisation.				
	Course Learning Outcomes (CPMK)					
	CPMK031	Able to understand how computer systems work				
	End ability of each learning stage (Sub-CPMK)					

Correlation of CPMK to Sub-CPMK		
Course Learning Outcomes		Supported SLOs
CPMK Code	Description of CPMK	
CPMK031	Able to understand how computer systems work	
Brief description of the course	This course is designed for students to be able to identify the differences between linear and non-linear data, and formulate data structure construction both user data types and abstract data types with stack, binary tree, and graph data structures as case references.	
Study Material: Learning Materials	<ol style="list-style-type: none"> 1. Abstract Data Type (ADT) concept in structured or modular programming 2. STAK data structure (stack) 3. QUEUE (queue) data structure with static representation (array) 4. QUEUE data structure (queue) with dynamic representation (pointer) 5. LINEAR LIST data structure 6. CIRCULAR LIST data structure 7. LINEAR DOUBLE POINTER LIST data structure 8. CIRCULAR DOUBLE POINTER LIST data structure 	
Library	Main:	
	Data structures and algorithms with python Lee, Kent D.; Hubbard, Steve (Springer International Publishing, 2015)	
	Supporters:	
	Jay Wengrow. 2020. A Common-Sense Guide to Data Structures and Algorithms: Level Up Your Core Programming Skills. The Pragmatic Programmer.	
Lecturer	Andri Pramuntadi, S.Kom., M.Kom	
Prerequisite Courses	Algorithms and Programming	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Sub-CPMK0311 - Ability to understand how computer systems work	- Students are able to explain the characteristics of data linear and its examples - Students are able to explain the characteristics of data linear and its examples	Accuracy of Test Answers; Test Writing (UTS)	Lecture / Discovery Learning Simulation	Quiz/Elearning	1. Linear data 2. Non-linear data	2
2	Sub-CPMK0311 - Ability to understand how computer systems work	Students can create user data types • Students can create constructors, getters, setters for data structures	Accuracy of Test Answers; Test Writing (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	1. Data type 2. Data structure 3. User data type 4. Abstract data type	2
3	Sub-CPMK0311 - Ability to understand how computer systems work	able to create data structure constructs	Accuracy of Test Answers; Test Writing (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz/Elearning	data structure construction	2
4	Sub-CPMK0311 - Ability to understand how computer systems work	1. Explain the concept of memory, Array, Struct 2. Use the concept of static data types for statefull programming	Accuracy of Test Answers; Test Writing (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	Array-Based Sequenc	2
5	Sub-CPMK0311 - Ability to understand how computer systems work	Explain the concept of Linked List, Double Linked list, CircularLinked List	Accuracy of Test Answers; Test Writing (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz/Elearning	Linked Lists, Arrays and Linked lists, Lists and Pointer Structures	2
6	Sub-CPMK0311 - Ability to understand how computer systems work	1. Explain the concepts of Stack and Queue 2. Using the concept of type	Accuracy of Test Answers; Test Writing (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	Stacks, Quesues, and Deques	2
7	Sub-CPMK0311 - Ability to understand how computer systems work	Know various computer algorithms and their implementation	Accuracy of Test Answers; Test Writing (UTS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	Algorithm Analysis	2
8	Sub-CPMK0311 - Ability to understand how computer systems work		Accuracy of Test Answers; Test Writing (UTS)	Assessment of Project Results / Product Assessment, Test			20
9	Sub-CPMK0311 - Ability to understand how computer systems work	Know the various sorting algorithms Bubble Sort, Shell Sort, Merge Sort, Quick Sort	Accuracy of UAS Answers; Test Writing (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	Searching, Sorting, and Complexity Analysis	2

10	Sub-CPMK0311 - Ability to understand how computer systems work	Know the various sorting algorithms BubbleSort, Shell Sort, MergeSort, Quick Sort	Accuracy of UAS Answers; Test Writing (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz/Elearning	Searching, Sorting, and Complexity Analysis	2
11	Sub-CPMK0311 - Ability to understand how computer systems work	Know the various search algorithms Sequential Search, Sentinel Linear Search, Binary Search, Meta Binary Search	Accuracy of UAS Answers; Test Writing (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	Sorting and Selection Searching, Sorting, and Complexity Analysis	2
12	Sub-CPMK0311 - Ability to understand how computer systems work	Knowing the search algorithms Ternary Search, Jump Search, Interpolation Search, Exponential Search, Fibonacci Search, The Ubiquitous Search	Accuracy of UAS Answers; Test Writing (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz / Elearning	Sorting and Selection Searching, Sorting, and Complexity Analysis	2
13	Sub-CPMK0311 - Ability to understand how computer systems work	1.Explain the types of data presentation General Tree, Binary Tree 2.Use the Binary Search Tree search algorithm 3.Applying Tree Traversal Algorithms	Accuracy of UAS Answers; Test Writing (UAS)	Approach: Scientific Model: Co-operative Method: Discussion, Presentation	Quiz/Elearning	Trees	2
14	Sub-CPMK0311 - Ability to understand how computer systems work	Design a data structure recovery project	Accuracy of UAS Answers; Test Writing (UAS)	Group Presentation	Elearning		3
15	Sub-CPMK0311 - Ability to understand how computer systems work	Implement and realise the approved project design.	Accuracy of UAS Answers; Test Writing (UAS)	Participatory Activity, Project Outcome Assessment / Product Assessment			5
16	Sub-CPMK0311 - Ability to understand how computer systems work	1.Demonstration of data structure project results 2.Report on the results of the project made	Accuracy of UAS Answers; Test Writing (UAS)	Assessment of Project Results / Product Assessment			30



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COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Discrete Maths	INF007	Data Structures, Algorithms and Complexity ;	T [Theory] = 2	P[Practice] = 0	(2) Two	8 January 2024
RESPONSE	Semester Learning Plan Developer		Study Material Coordinator		Head of study programme	
	Dhina Puspasari Wijaya, S.Kom., M.Kom		Dita Danianti, S.Kom., M.Kom		Dhina Puspasari Wijaya, S.Kom., M.Kom	
Learning Outcomes	SLOs that are imposed on MKs					
	CPL03	Have adequate knowledge of how computer systems work and be able to apply/use various algorithms/methods to solve problems in an organisation.				
	Course Learning Outcomes (CPMK)					
	CPMK031	Able to understand how computer systems work				
	End ability of each learning stage (Sub-CPMK)					

Correlation of CPMK to Sub-CPMK		
Course Learning Outcomes		Supported SLOs
CPMK Code	Description of CPMK	
CPMK031	Able to understand how computer systems work	
Brief description of the course	Discrete Mathematics is a basic science in learning Informatics, because basically informatics is a collection of disciplines and techniques that process discrete objects. Discrete mathematics provides a mathematical foundation for courses in algorithms, data structures, databases, computer networks, computer security and so on. The materials in this course are set theory, relation and function, graph theory, tree.	
Study Material: Learning Materials	<ol style="list-style-type: none"> 1. Definition of Discrete Mathematics 2. Set theory, Set Concepts 3. Notations and Definitions 4. Set Operations, Properties of Set Operations 5. Venn Diagram 6. Relationship Definition, Relationship Representation 7. Relationship Properties (Reflexive, Transitive, Symmetry, Anti-symmetry, Equivalent, Compatible, Ordering) Relationship Operations (Inverse, Combination, Composition) 8. Composition Inversion Function 9. History of Graph Definition Examples of use and application 10. Terminology Graph Representation Graph Isomorphic Graphs 11. Planar Graphs & Plane Graphs. Graph Colouring. Euler Trajectories and Circuits 12. Hamilton Track and Circuit. 13. Shortest Path (Dijkstra's Algorithm). 14. Tree Definition and Properties. 15. Short Spanning Tree (Alg. Prim, Alg. Kruskal 16. Rooted Tre 17. Decision Tree 18. Huffman Encoding 	
Library	Main:	
		1. Y. W. Syaifudin, et al. 2017. Discrete Mathematics. Malang: Polinema Press.
	Supporters:	
	<ol style="list-style-type: none"> 2. G. Muhsetyo. 2019. Discrete Mathematics. South Tangerang: Open University. 3. R. Stavy, and R. Babai. 2016. Discrete and Continuous Presentation of Qualities in Science and Mathematics Education. Academic Press. 4. S. Brzychczy, and R. R. Poznanski. 2014. Continuous Discrete Models of Neural Systems. Academic Press. 5. R. Munir. 2016. Discrete Mathematics. Bandung: Informatics Bandung. 	
Lecturer	Dhina Puspasari Wijaya, S.Kom., M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Sub-CPMK0311 - Ability to understand how computer systems work	Accuracy of discrete maths explanation in computer science related	Accuracy of Answer; Participation (Attendance/Quiz)	Student Centre Learning	Asynchronous	1,2,3,4,5	5
2	Sub-CPMK0311 - Ability to understand how computer systems work	Accuracy of analysis explanation related to terminology set	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asynchronous	1,2,3,4,5	5
3	Sub-CPMK0311 - Ability to understand how computer systems work	Accuracy of analysis explanation related to terminology set	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asynchronous	1,2,3,4,5	5
4	Sub-CPMK0311 - Ability to understand how computer systems work	Accuracy of analysis explanation related to terminology set	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asynchronous	1,2,3,4,5	5
5	Sub-CPMK0311 - Ability to understand how computer systems work	<ul style="list-style-type: none"> • Accuracy of explanation about the importance of relationships and the definition of relationships • Correctness of answer when expressing a relation in some form of relation representation • Accuracy of explanation properties of relations • Accuracy in calculating the inverse of a relation Specifically • Accuracy of explanation of the definition and principles principles in relation composition • Accuracy in calculating the composition of several relations 	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asynchronous	1,2,3,4,5	10

6	Sub-CPMK0311 - Ability to understand how computer systems work	<p>The accuracy of the explanation of the importance of relations and the definition of relations</p> <ul style="list-style-type: none"> • Correctness of answer when expressing a relation in some form of relation representation • Accuracy of explanation properties of relations • Accuracy in calculating the inverse of a relation <p>Specifically</p> <ul style="list-style-type: none"> • Accuracy of explanation <p>understanding and principles principles in relation composition Accuracy of calculation of composition of several relations</p>	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asynchronous	1,2,3,4,5	10
7	Sub-CPMK0311 - Ability to understand how computer systems work	<p>The accuracy of the explanation of the importance of relations and the definition of relations</p> <ul style="list-style-type: none"> • Correctness of answer when expressing a relation in some form of relation representation • Accuracy of explanation properties of relations • Accuracy in calculating the inverse of a relation specified <p>Specifically</p> <ul style="list-style-type: none"> • Accuracy of explanation <p>understanding and principles principles in relation composition Accuracy of calculation of composition of several relations</p>	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asynchronous	1,2,3,4,5	10

8	Sub-CPMK0311 - Ability to understand how computer systems work	<p>Accuracy of explanation of graphs and terms</p> <ul style="list-style-type: none"> -terms in graphs • Appropriateness of selection of graph application examples • Accuracy of graph classification <p>as connected graph, strongly connected graph, unconnected graph, graph weakly connected</p> <ul style="list-style-type: none"> • The accuracy of the explanation of the definition of the difference between connectedness and neighbourliness 	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asynchronous	1,2,3,4,5	5
9	Sub-CPMK0311 - Ability to understand how computer systems work	<p>Accuracy of explanation of graphs and terms</p> <ul style="list-style-type: none"> -terms in graphs • Appropriateness of selection of graph application examples • Accuracy of graph classification <p>as connected graph, strongly connected graph, unconnected graph, graph weakly connected</p> <ul style="list-style-type: none"> • The accuracy of the explanation of the definition of the difference between connectedness and neighbourliness 	Accuracy of Answer; Observation (Practice/Task)	Student Centre Learning	Asynchronous	1,2,3,4,5	5
10	Sub-CPMK0311 - Ability to understand how computer systems work	<p>Accuracy of explanation of graphs and terms</p> <ul style="list-style-type: none"> -terms in graphs • Appropriateness of selection of graph application examples • Accuracy of graph classification <p>as connected graph, strongly connected graph, unconnected graph, graph weakly connected</p> <ul style="list-style-type: none"> • The accuracy of the explanation of the definition of the difference between connectedness and neighbourliness 	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4,5	5

11	Sub-CPMK0311 - Ability to understand how computer systems work	<p>Accuracy of explanation of graphs and terms</p> <ul style="list-style-type: none"> -terms in graphs • Appropriateness of selection of graph application examples • Accuracy of graph classification <p>as connected graph, strongly connected graph, unconnected graph, graph weakly connected</p> <ul style="list-style-type: none"> • The accuracy of the explanation of the definition of the difference between connectedness and neighbourliness 	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4,5	5
12	Sub-CPMK0311 - Ability to understand how computer systems work	<p>Accuracy of explanation of the definition of tree and forest, spanning tree, minimum spanning tree</p> <ul style="list-style-type: none"> • Algorithm correctness prim and kruskal for finding the minimum spanning tree • Accuracy in explaining the concept of rooted trees, terms in rooted trees, definition of binary tree • Using traversal steps on binary tree • Correctness of manufacture expression tree of infix, prefix and postfix notations • Correctness of algorithm steps <p>Huffman compression</p> <ul style="list-style-type: none"> • The correctness of a binary search tree of some input data 	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4,5	10

13	Able to understand how computer systems work	<p>Accuracy of explanation of the definition of tree and forest, spanning tree, minimum spanning tree</p> <ul style="list-style-type: none"> • Algorithm correctness prim and kruskal for finding the minimum spanning tree • Accuracy in explaining the concept of rooted trees, terms in rooted trees, definition of binary tree • Using traversal steps on binary tree • Correctness of manufacture expression tree of infix, prefix and postfix notations • Correctness of algorithm steps <p>Huffman compression</p> <ul style="list-style-type: none"> • The correctness of a binary search tree of some input data 	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4,5	10
14	Able to understand how computer systems work	<p>Accuracy of explanation of the definition of tree and forest, spanning tree, minimum spanning tree</p> <ul style="list-style-type: none"> • Algorithm correctness prim and kruskal for finding the minimum spanning tree • Accuracy in explaining the concept of rooted trees, terms in rooted trees, definition of binary tree • Using traversal steps on binary tree • Correctness of manufacture expression tree of infix, prefix and postfix notations • Correctness of algorithm steps <p>Huffman compression</p> <ul style="list-style-type: none"> • The correctness of a binary search tree of some input data 	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4,5	10



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COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Database	INF008	Data and Information Management; Software Design;	T [Theory] = 2	P [Practice] = 1	(2) Two	22 January 2024
RESPONSE	Semester Learning Plan Developer		Study Material Coordinator		Head of study programme	
	Dhina Puspasari Wijaya, S.Kom., M.Kom		Dita Danianti, S.Kom., M.Kom		Dhina Puspasari Wijaya, S.Kom., M.Kom	
Learning Outcomes	SLOs that are imposed on MKs					
	CPL08	Ability to implement computing requirements by considering various appropriate methods/algorithms.				
	Course Learning Outcomes (CPMK)					
	CPMK084	Able to fulfil computing-based needs.				
	End ability of each learning stage (Sub-CPMK)					

Correlation of CPMK to Sub-CPMK		
Course Learning Outcomes		Supported SLOs
CPMK Code	Description of CPMK	
CPMK084	Able to fulfil computing-based needs.	
Brief description of the course	The material taught includes basic database concepts, database environment, database models and data models, database models, and database models. relational, database design tools (Entity Relationship Diagram, Normalisation), Structure Query Language (SQL) including: Data Definition Language (DDL), Data Manipulation Language (DML), Data Control Language.	
Study Material: Learning Materials	<ol style="list-style-type: none"> 1. Introduction to Databases 2. Database Model 3. Relational Data 4. Operational Set 5. relational algebra 6. relational data model 7. Data Definition Language 8. Data manipulation Language 9. Data Control Language 10. ERD Transformation 11. Normalisation 	
Library	Main:	
	1. Date, C.J. 2000, An Introduction to Database Systems, Addison Wesley Publishing Company, Vol. 7, New York...	
	Supporters:	
	<ol style="list-style-type: none"> 2. Fathansyah, 1999, Database, Informatics, Bandung. 3. Silberschart, Database System Concept, 6th Edition, 2010, McGraw Hill, USA. 4. Harianto Kristanto, 1994, Database Concept and Design, Andi Offset, Yogyakarta. 	
Lecturer	Dhina Puspasari Wijaya, S.Kom., M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
				Offline (5)	Online (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are capable: - explain the concept of informatics logic - solve problems with classical and modern logic	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3,4	5
2	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: solve problems with proportion logic	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asynchronous	1,2,3,4	5
3	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: apply truth table rules	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3,4	10
4	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are capable: - explain the meaning of compound proposition - outline the benefits of the scheme	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3,4	10
5	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: understand and have insight into tautology and evaluation of argument validity	Quality of Presentation; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3,4	5
6	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students have: insight into logical equivalence, laws of logic and associative commutative properties	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asynchronous	1,2,3,4	5
7	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: understand simplification methods for solving problems in logical expressions	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asynchronous	1,2,3,4	10
8	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: explain the concept of Boolean algebra	Quality of Presentation; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3,4	10
9	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: explain the concept of Boolean algebra	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4	10
10	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Ability to evaluate solutions for efficient software projects as required.	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4	5

11	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: understand the application of Boolean algebra.	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4	5
12	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: describe and simplify the use of Boolean algebra.	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4	5
13	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: describe and simplify the use of Boolean algebra.	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4	5
14	Sub-CPMK0841 - Ability to meet the needs of analysing social networks in organisations - needs to be related	Students are able to: simplification for problem solving in complex logic	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3,4	10



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SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Health Information System	INF010	Social Issues and Professional Practice; Security Issues and Principles; Human-Computer Interaction;	T [Theory] = 2	P[Practice] = 0	(2) Two	23 August 2023
RESPONSE	Semester Learning Plan Developer		Study Material Coordinator		Head of study programme	
	Wahit Desta Prastowo, S.Kom.,M.Kom		Dita Danianti, S.Kom., M.Kom		Dhina Puspasari Wijaya, S.Kom., M.Kom	
Learning Outcomes	SLOs that are imposed on MKs					
	CPL11	Able to identify problems and formulate computational solutions for problems in the health and medical fields.				
	CPL12	Implementing the values of Islamic teachings that are rahmatan lil'alamiin.				
	Course Learning Outcomes (CPMK)					
	CPMK111	Able to identify various computational problems in the field of medical health				
	CPMK112	Able to formulate computational solutions in the health and medical fields				
	CPMK121	Able to show an attitude of piety to God Almighty in accordance with the values of Islamic teachings that are Rohmatan lil'alamin (practicing Pancasila, based on law, love for others, tolerant, and not radical)				
	End ability of each learning stage (Sub-CPMK)					

Correlation of CPMK to Sub-CPMK		
Course Learning Outcomes		Supported SLOs
CPMK Code	Description of CPMK	
CPMK111	Able to identify various computational problems in the field of medical health	CPL11
CPMK112	Able to formulate computational solutions in the health and medical fields	CPL11
CPMK121	Able to show an attitude of piety to God Almighty in accordance with the values of Islamic teachings that are Rohmatan lil'alamain (practicing Pancasila, based on law, love for others, tolerant, and not radical)	CPL12
Brief description of the course	This course discusses the concept of systems. Health information, ICT development, Analysis and design of health information systems Health data management concepts, Utilisation of information systems.	
Study Material: Learning Materials	Social Issues and Professional Practice, Security Issues and Principles, Human-Computer Interaction.	
Library	Main:	
	1. F. Hidayat. Concept of Health Information System Development. (2020). (n.p.): Deepublish. 2. F. Hidayat. Basic Concepts of Health Information Systems. (2020). (n.p.): Deepublish. 3. P. W. Handayani. Concept and Implementation of Health Information Systems - Rajawali Pers. (2021). (n.p.): PT RajaGrafindo Persada.	
	Supporters:	
	-	
Lecturer	Wahit Desta Prastowo, S.Kom.,M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
				Offline (5)	Online (6)		
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	Ability to identify various computational problems	Able to explain the concept of data mining.	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3	5
2	Ability to identify various computational problems	Able to know trend data mining.	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3	10
3	Able to demonstrate entrepreneurial spirit, independence, and leadership	Able to explain and explore data.	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3	10
4	Able to demonstrate attitudes based on values, norms, and ethics as well as professionalism and responsibility.	Able to apply health information system creation in accordance with Islamic values	Practical Results; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3	5
5	Ability to identify various computational problems.	Able to understand data pre-processing and measurement.	Quality of Presentation; Observation (Practical/Assignment)	Student Centre Learning	Asynchronous	1,2,3	5
6	Ability to identify various computational problems.	Able to understand, explain, and perform about statistics and visualisations.	Quality of Presentation; Observation (Practical/Assignment)	Student Centre Learning.	Asynchronous	1,2,3	10
7	Ability to identify various computational problems.	Able to understand and analyse OLAP data.	Accuracy of UTS Answers; Written Test (UTS)	Student Centre Learning	Asynchronous	1,2,3	10
9	Ability to identify various computational problems	able to understand, explain, and use classification algorithms naive bayes classifier.	Practical Results; Observation (Practical/Assignment)	Student Centre Learning.	Asynchronous	1,2,3	10
10	Ability to identify various computational problems.	able to understand, explain, and use classification algorithms C.45.	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3	5
11	Ability to identify various computational problems	able to understand, explain, and use classification algorithms K-Nearest Neighbour.	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3	5
12	Ability to identify various computational problems	Able to understand, explain, and use the a priori association algorithm.	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3	5

13	Ability to identify various computational problems	Able to understand, explain, and use FP Growth association algorithm	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3	5
14	Ability to identify various computational problems	Able to understand, explain, and use the K-Means Algorithm	Accuracy of UAS Answers; Written Test (UAS)	Student Centre Learning	Asynchronous	1,2,3	5



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COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Algorithm Analysis	INF011	Data Structures, Algorithms and Complexity ; Intelligent Systems ;	T [Theory] = 2	P[Practice] = 0	(2) Two	24 January 2024
RESPONSE	Semester Learning Plan Developer		Study Material Coordinator		Head of study programme	
	Dita Danianti, S.Kom., M.Kom		Dita Danianti, S.Kom., M.Kom		Dita Danianti, S.Kom., M.Kom	
Learning Outcomes	SLOs that are imposed on MKs					
	CPL03	Have adequate knowledge of how computer systems work and be able to apply/use various algorithms/methods to solve problems in an organisation.				
	Course Learning Outcomes (CPMK)					
	CPMK032	Able to apply/use various methods/algorithms in solving problems in an organisation				
	End ability of each learning stage (Sub-CPMK)					

Correlation of CPMK to Sub-CPMK		
Course Learning Outcomes		Supported SLOs
CPMK Code	Description of CPMK	
CPMK032	Able to apply/use various methods/algorithms in solving problems in an organisation	CPL03
Brief description of the course	This course contains activities to analyse algorithms in terms of the time efficiency of an algorithm and learn strategies to solve problems.	
Study Material: Learning Materials	Algorithms and Programming, Algorithm Complexity, Recursive Algorithms and Divide and Conquer Method, Sorting Algorithms, Searching Algorithms	
Library	Main:	
	1. Kumar, Amit, and Sen, Sandeep. Design and Analysis of Algorithms: A Contemporary Perspective. United Kingdom, Cambridge University Press, 201	
	Supporters:	
2. Ray, Santanu Saha. Numerical Analysis with Algorithms and Programming. United States, CRC Press, 2018.		
3. X. S Yang, Nature-Inspired Computing and Swarm Intelligence; Mathematical Foundation for Algorithms Analysis, 67-76, 2020.		
Lecturer	Dita Danianti, S.Kom., M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
				Offline (5)	Online (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to understand algorithm efficiency and importance of algorithm analysis	Accuracy of Answer; Participation (Attendance/Quiz)	Student centred learning	Asynchronous	1,2,3	5
2	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain the time complexity of non-recursive algorithm	Accuracy of Answer; Participation (Attendance/Quiz)	Student centred learning	Asynchronous	1,2,3	5
3	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain about the measurement of input size to know the range of operations to be carried out	Accuracy of Answer; Participation (Attendance/Quiz)	Student centred learning	Asynchronous	1,2,3	5
4	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain the units used in measuring the efficiency level of an algorithm	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5
5	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain the possibility of increase in input size to maintain algorithm efficiency	Accuracy of Answers; Written Test (UTS)	Student centred learning	Asynchronous	1,2,3	10
6	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain and apply Brute-Force	Accuracy of Answers; Written Test (UTS)	Student centred learning	Asynchronous	1,2,3	10
7	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain and apply SelectionSort	Accuracy of Answers; Written Test (UTS)	Student centred learning	Asynchronous	1,2,3	10
8	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain the difference between the definition of Closest-Pair and Convex- Hull Problem	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5

9	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to perform search operations for two paired elements using the Closest-Pair method and determine the part of a segment using the Convex-Hull Problem.	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5
10	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain the meaning of Exhaustive Search	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5
11	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to determine the shortest path using exhaustive algorithm Determine the shortest path using exhaustive algorithm	Accuracy of Answer; Observation (Practice/Task)	Student centred learning	Asynchronous	1,2,3	5
12	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to perform random element sorting operation using QuickSort method	Accuracy of Answer; Written Test (UAS)	Student centred learning	Asynchronous	1,2,3	10
13	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	Students are able to explain the meaning of the method element search using Binary Search Tree	Accuracy of Answer; Written Test (UAS)	Student centred learning	Asynchronous	1,2,3	10
14	CPMK0321 - Ability to apply/use various methods/algorithms in solving organisational problems	- Students are able to perform operations to determine the smallest integer value with the problem reduction method: computing the lastcommon multiple - Students are able to perform the operation of determining the number of paths in a graph (direct/undirect) problem reduction method: counting paths in graphs	Accuracy of Answer; Written Test (UAS)	Student centred learning	Asynchronous	1,2,3	10



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SEMESTER LEARNING PLAN

COURSE (MK)	CODE	Study Material (BK)	WEIGHT (credits)		SEMESTER	Date of Preparation
Islamic Religious Studies 1	UAA001	Social Issues and Professional Practice; Self Development;	T [Theory] = 2	P[Practice] = 0	(2) Two	23 August 2023
RESPONSE	Semester Learning Plan Developer		Study Material Coordinator		Head of study programme	
	Wahit Desta Prastowo, S.Kom.,M.Kom		Dita Danianti, S.Kom., M.Kom		Dhina Puspasari Wijaya, S.Kom., M.Kom	
Learning Outcomes	SLOs that are imposed on MKs					
	CPL12	Implementing the values of Islamic teachings that are rahmatan lil'alamiin.				
	Course Learning Outcomes (CPMK)					
	CPMK121	Able to show an attitude of piety to God Almighty in accordance with the values of Islamic teachings that are Rohmatan lil'alamin (practicing Pancasila, based on law, love for others, tolerant, and not radical)				
	End ability of each learning stage (Sub-CPMK)					

Correlation of CPMK to Sub-CPMK		
Course Learning Outcomes		Supported SLOs
CPMK Code	Description of CPMK	
CPMK121	Able to show an attitude of piety to God Almighty in accordance with the values of Islamic teachings that are Rohmatan lil'alamain (practicing Pancasila, based on law, love for others, tolerant, and not radical)	CPL12
Brief description of the course	Islamic Religious Studies 1 is a very important course because it learns about theory and practice. Theoretical materials include: 1) Faith, Islam & Dhsan, 2) The pillars of faith, 3) Thoharoh I (najis and thoharohnya), 4) Thoharoh II (small impurity, big impurity and the procedure of thoharohnya Najis and Thoharohny, Wudhu and big bath), 5) Thoharoh III (istinja' and tayamum), 6) Sholat I (five obligatory prayers & prayers in congregation), 7) Prayers II (plural and Qoshor prayers, voluntary prayers and funeral prayers), 8) Dhikr, 9) Prayers. Practical materials include: 1) Thoharoh practice (wudhu), 2 thoharoh practice (tayamum), 3) recitation of qoshor and jama' prayers both taqdim and takhir, 4) recitation of funeral prayers, 5) dhikr ba'da prayer, 6) prayer ba'da prayer, 7) Tahajud prayer and, 8) dhuha prayer.	
Study Material: Learning Materials	Social Issues and Professional Practice, Personal Development	
Library	Main:	
	Azizy, Q., 2003. Development of Islamic Sciences, Directorate of Higher Education, Ministry of Religious Affairs, Jakarta. Dr Budioro B, MPh, 2006, Introduction to Islamic Studies III, 2nd Edition. Semarang: Univ. Diponegoro Prof. Dr Soekidjo Notoatmodjo, 2003, Islamic Religious Studies III 2nd Edition, Jakarta: Rineka Cipta Latif, Z.M., Muqoddas, F., Akhwan, M., Mukri, B., Mu'allim, A., & Munthoha, 2002. Thoughts on Islamic Civilisation, UII Press, Yogyakarta. Faqih, A. R. & Munthoha, 2002. Islamic Thought & Civilisation. UII Press: Yogyakarta. Rifa'i, Moh. 2008. Risalah Complete Prayer Guide. PT Karya Toha Putra: Semarang. Pasha, Mustafa Kamal. 2003. Islamic Jurisprudence. Citra Karsa Mandiri: Yogyakarta. Ash-Sheikh Muhammad bin Qasim Al-Ghazy. 1991. Fath-Hul Qarib. Al Hidayah: Surabaya. Jad, Ahmad.2009.Fiqh Sunnah Women. Jakarta: Al-Kautsar Library. Imam Nawawi. 2006. Syarah Arbain An-Nawawi. Jakarta: Darul Haq Sayyid Sabiq.1987. Hadith. Bandung: Al Ma'arif Wahbah. 2011. Fiqh Islam Wa Adillatuhu, Jakarta: Darul Fikir, Al-Fauzan.	
	Supporters:	
	LPBA Team. 2015. Module of the Institute for Qur'an Reading and Prayer Practice. Alma Ata College: Yogyakarta.	
Lecturer	Wahit Desta Prastowo, S.Kom.,M.Kom	
Prerequisite Courses	-	

Week 1	End ability of each learning stage (Sub-CPMK)	Indicators	Criteria and Techniques	Form of Learning; Learning Methods; Student Assignments; [Time Estimation]		Learning Materials [Library]	Assessment Weight (%)
(1)	(2)	(3)	(4)	Offline (5)	Online (6)	(7)	(8)
1	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain Islamic creed	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	5
2	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the importance and position of Akhlaq in Islam	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	10
3	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the meaning of Mahmudah character which consists of honesty, trustworthiness, iffah, wira'i, tawadhu' etc.	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	5
4	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the definition of najis.	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	10
5	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the meaning of minor hadast, major hadast and istinja'	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	10
6	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the requirements and pillars of prayer	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	10
7	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the meaning of congregational prayers, jama' and qoshor prayers	Accuracy of Test Answers; Test Writing (UTS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	10
8	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the definition of akhlaq Madzmumah including riya, nifaq, ananiah, despair, ghodhob, greed and takabbur.	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	5
9	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the meaning of Iman, Islam and Ihsan.	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	5

10	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the meaning of the obligatory attributes of Allah which are nafsiah, salbiyah, ma'ani and ma'nawiyah.	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	5
11	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to mention the signs of the existence of God through the phenomena of the universe.	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	10
12	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the meaning of faith in the angels of Allah SWT and supernatural beings such as jinn, devils and demons.	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	5
13	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the meaning of family planning, breastfeeding, abortion, euthanasia, IVF, autopsy, transplantation/donation.	Practical Results; Observation (Practical/Assignment)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	5
14	The ability to behave with respect for human values in conducting their activities based on religion, morals and ethics.	Students are able to explain the meaning of halal and haram food.	Accuracy of UAS Answers; Test Writing (UAS)	Lecture; Discovery Learning, group discussion. (2x(2x50 minute))	Assignment: Materials /Tasks on eLearning.	Azizy, Q., 2003. Development of Islamic Sciences, Higher Education Directorate of the Ministry of Religious Affairs, Jakarta.	5