DISCRETE MATHEMATICS (3 CREDITS)

CODE: MAT 217

THIRD SEMESTER

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TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 200 seconds
Meeting : 1

A INSTRUCTIONAL GOAL

1. GENERAL :After the class the student understand the concept of Logic and Set

2. SPECIFIC : After the class the student can :
   1. Explaining the rule of logic, make the thruth value table from preposition
   2. Apply the rule of equivalent logic, quantifier.
   3. Explaining and operate set

B. TOPIC : The concept of logic and set

C.SUB TOPIC:Logic,equivlent preposition,Logika, quantifier, set

D.CATIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	ExplainingTIK and relevansi	Listening	White board,Black board, OHP
PRESENTATION	Explaining the rule of logic, the thruth value table, quantifier,set	Listening	White board,Black board, OHP
CLOSING	1.Summary 2.Homework		

E.EVALUATION : Tugas tugas,test formatif,tanya jawab,utk mengukur keberhasilan materi kuliah

F.REFERENCE:

1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 200 seconds
Meeting : 2

A INSTRUCTIONAL GOAL

1. GENERAL : :After the class the student understand the concept of function

2. SPECIFIC : After the class the student can :
   1. Explaining the of function
   2. Make sequence,calculate sigma notation
   3. Explaining and analysis growth function

B. TOPIC : function
C.SUB TOPIC : sequence, sigma and growth function

A ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	1.Explaining the goals, relevancies and benefits	Listening	White board,Black board, OHP
PRESENTATION	Explaining the of function , sequence, sigma notation growth function	Listening	White board,Black board, OHP
CLOSING	1.Summary 2.Homework		

E.EVALUATION : Homework, formative test, ask-answer
F.REFERENCE:

1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 400 seconds
Meeting : 3 and 4

A INSTRUCTIONAL GOAL
1. GENERAL : After the class the student understand the concept integer and Algoritm
2. SPECIFIC : After the class the student can :
1. Explaining integer and algoritm
2. Apply algoritm

B TOPIC : Algoritm, Integer
C.SUB TOPIC : Algoritma, Integer,apply Integer Theory
D.ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	1.Explaining the goals, relevancies and benefits 2. Reviewing class 3	Listening	White board,Black board, OHP
PRESENTATION	1. Explaining Algoritm, Integer , apply Integer Theory	Listening	White board,Black board, OHP
CLOSING	1.Summary 2.Homework		

E.EVALUATION : Homework, formative test, ask-answer
F.REFERENCE:
1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 400 seconds
Meeting : 5 and 6

A INSTRUCTIONAL GOAL

1. GENERAL : After the class the student understand the concept Mathematic reasoning
2. SPECIFIC : After the class the student can :
   1. Explaining the Prove methods
   2. Apply the rule of inference, mathematics induction, recursif and iteratie procedure

B. TOPIC : Mathematics Reasoning

C.SUB TOPIC: Prove Methods, Mathematics Inductionsi, Recurse and Iteratie
D. ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	1.Explaining the goals, relevancies and benefits 2. Reviewing class 7	Listening	White board,Black board, OHP
PENYAJIAN	Explaining the Prove methods, mathematics induction, recursif and iteratie	Listening	White board,Black board, OHP
PENUTUP	1.Summary 2.Homework		

E.EVALUATION : Homework, formative test, ask-answer
F.REFERENCE:
1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 200 seconds
Meeting : 7

A INSTRUCTIONAL GOAL

1. GENERAL : After the class the student understand the concept Mathematic reasoning
2. SPECIFIC : After the class the student can :
   1. Explaining the Prove methods
   2. Apply the rule of inference, mathematics induction, recursif and iteratie procedure

B. TOPIC : Mathematics Reasoning

C.SUB TOPIC: Prove Methods, Mathematics Inductionsi, Recurse and Iteratie
D. ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	1.Explaining the goals, relevancies and benefits 2. Reviewing class 7	Listening	White board,Black board, OHP
PRESENTATION	Explaining the Prove methods, mathematics induction, recursif and iteratie	Listening	White board,Black board, OHP
CLOSING	1.Summary 2.Homework		

E.EVALUATION : Homework, formative test, ask-answer
F.REFERENCE:
1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
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CREDITS : 4
Class : 200 seconds
Meeting : 8

A. INSTRUCTIONAL GOAL
1. GENERAL : After the class the student understand the material
2. SPECIFICS : After the class the student know the procentage of understanding the 80% of material

B. TOPIC : Midle Test
C.SUB TOPIC:Meeting 1-7

D.ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	.Prepare the room ,distribute the problem paper and the worksheet		
PRESENTATION	Supervising the test	Doing the test	Paper, etc
CLOSING	Collecting the answersheet of the test		

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
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CREDITS : 4
Class : 400 seconds
Meeting : 9 and 10

A INSTRUCTIONAL GOAL

1. GENERAL : After the class the student can explain the computation technique
2. SPECIFIC : After the class the student can :
   1. Use the principal of addition and multiplication
   2. Use the pigeonhole principal
   3. Use the Principe of combination and permutation

B. TOPIC : Computation technique

C.SUB TOPIC: Principe of multiplication, addition, Pegeonhole, combination and perutation

D. ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	.Explaining the goals, relevancies and benefits	Listening	White board,Black board, OHP
PRESENTATION	Explaining principal of addition and multiplication, pigeonhole ,combination and permutation	Listening	White board,Black board, OHP
CLOSING	1.Summary 2.Homework		

E.EVALUATION : Homework, formative test, ask-answer

F.REFERENCE:

1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 400 seconds
Meeting : 11 and 12

A INSTRUCTIONAL GOAL

1. GENERAL : After the class the student can explain the computation technique with recursion relation, generating function
2. SPECIFIC : After the class the student can :
   1. Use recursion relation
   2. Use generating function

B. TOPIC : Computation technique

C.SUB TOPIC: recursion relation, generating function
D. ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	1.Explaining the goals, relevancies and benefits 2.Reviewing class 10	Listening	White board,Black board, OHP
PRESENTATION	1.Explaining concept and apply recursion relation 2.Explaining concept and apply generating function	Listening	White board,Black board, OHP
CLOSING	1.Summary 2.Homework		

E.EVALUATION : Homework, formative test, ask-answer
F.REFERENCE:
1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 400 seconds
Meeting : 13 and 14

A INSTRUCTIONAL GOAL

1. GENERAL : After the class the student understand the concept of graph
2. SPECIFIC : After the class the student can :
   1. Explain the concept and kind of graph
   2. Explain path,circuit, Euler and Hamilton
   3. Find shortest distance

B. TOPIC : Graph

C.SUB TOPIC: Circuit Euler,Hamilton, shortest distance
D. ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	1.Explaining the goals, relevancies and benefits 2.Reviewing class 12	Listening	White board,Black board, OHP
PRESENTATION	Explain the concept and kind of graph, path,circuit, Euler and Hamilton and find shortest distance	Listening	White board,Black board, OHP
CLOSING	1.Summary 2.Homework		

E.EVALUATION : Homework, formative test, ask-answer
F.REFERENCE:
1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 200 seconds
Meeting : 15

A INSTRUCTIONAL GOAL

1. GENERAL : After the class the student understand the concept of Tree in graph
2. SPECIFIC : After the class the student can :
   1. Find Tree in graph
   2. Traversal by tree ,find minimal spanning tree
   3. Formal language, finite state machine,automata

B. TOPIC : Tree

C.SUB TOPIC: Application of tree,binary tree and spanning tree
D. ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	1.Explaining the goals, relevancies and benefits 2.Reviewing class 14	Listening	White board,Black board, OHP
PRESENTATION	Explain Tree in graph Traversal by tree, minimal spanning tree Formal language, finite state machine,automata	Listening	White board,Black board, OHP
CLOSING	1.Summary 2.Homework		

E.EVALUATION : Homework, formative test, ask-answer
F.REFERENCE:
1.Kenneth H. Rosen,Discrete Mathematics and Its Applications,1995
2.Fletcher,Hoyle,Patty,Foundations of Discrete Mathematics,1990
3.C.L.Liu,Element of Discrete Mathematics,1995

TEACHING PROGRAM UNIT

SUBJECT : DISCRETE MATHEMATIC
CODE : MAT 217
CREDITS : 4
Class : 200 seconds
Meeting : 16

A INSTRUCTIONAL GOAL

1. GENERAL : After the class the student understand the material
2. SPECIFICS : After the class the student know the procentage understand of the 100% of material

B. TOPIC : Final Test
C.SUB TOPIC:Meeting 1-15

D.ACTIVITY

STEP	LECTURE ACTIVITIES	STUDENT ACTIVITIES	MEDIA
INTRODUCTIONS	.Prepare the room ,distribute the problem paper and the worksheet		
PRESENTATION	Supervising the test	Doing the test	Paper, etc
CLOSING	Collecting the answersheet of the test		

TEACHING PROGRAM OUTLINE

SUBJECT : **Discrete Mathematics**

CODE/CREDITS : **MAT 217/ 4**

Deskription :

The course is basic for studying for computer science as specialy basic reasoning or logical for thruth of programming flow,programming language.The course also study some computation techniques,concept of set ,function and relation.In this course also introduce the concept of formal language and finite state machine, automa

GENERAL INSTRUCTION GOAL:

After the course studentunderstand the concept of set,function ,relation, basic of mathematical logic, proof methods, computation techniques , formal language, finite state machine, automata

no	SPECIFIC INSTRUCTION GOAL	TOPIC	Sub TOPIC		References
1	2	3	4	5	6
1.	After the class the student can : Explaining the rule of logic, make the thruth value table from preposition, apply the rule of equivalent logic, quantifier, and Explain and operate set	The concept of logic and set.	Logic,equivlent preposition,Logika, quantifier, set	200	Ref 1, Ref 2 and Ref 3
2	After the class the student can : Explain the of function, make sequence, calculate sigma notation and Explain and analysis growth function	Function	Sequence, sigma and growth function	200'	Ref 1, Ref 2 and Ref 3
	After the class the				

3	student can explain integer and algoritm, and apply algoritm	Algoritm, Integer	Algoritma, Integer,apply Integer Theory	400'	Ref 1, Ref 2 and Ref 3
4	After the class the student can explaing the proof methods,and apply the rule of inference, mathematics induction, recursif and iteratie procedure :	Mathematics Reasoning	Prove Methods, Mathematics Inductionsi, Recurse and Iteratie	400'	Ref 1, Ref 2 and Ref 3
5	After the class the student can use the principal of addition and multiplication, use the pigeonhole principal and use the Principe of combination and permutation	Computation technique	Principe of multiplication, addition, Pegeonhole, combination and permutation	400'	Ref 1, Ref 2 and Ref 3
6	After the class the student can use recursion relation, and use generating function	Computation technique	recursion relation, generating function	400'	Ref 1, Ref 2 and Ref 3
7	After the class the student can explain the concept and kind of graph, explain path,circuit, Euler and Hamilton, and find shortest distance	Graph	Circuit Euler,Hamilton, shortest distance	400'	Ref 1, Ref 2 and Ref 3

8	After the class the student can find Tree in graph, traversal by tree ,find minimal spanning tree ,formal language, finite state machine,automata	Tree	Application of tree,binary tree and spanning tree	200'	Ref 1, Ref 2 and Ref 3