



UNIVERSITAS NEGERI YOGYAKARTA
FAKULTAS MIPA

SYLLABI

FRM/FMIPA/063-00

1 April 2010

Faculty : MIPA
Study Programme : Mathematic and Mathematic Education
Course /Code : Logic and Set Theory
Credit : Theory =.....2...; Practice =.....1.....
Semester : I
Prerequisite/Code : --
Lecturer : Musthofa,M.Sc

I. Description

This lecture contains statement, statement connectives, truth tables, the statement calculus, validity of argument, Open sentences, the predicate calculus, set theory, relation, function and infinite set.

II. Standard Competency

To derive validity of argument, to understand set, operations on set and its properties, relation and function.

III. Lecture Design

Lecture	Basic Competence	Topics	Activities	Reference
1-2	To apply negation, conjunction, disjunction in the other mathematics materials	Statement, Negation, Conjunction, Disjunction and its application.	Discussion & Exercises	A. 1 – 14
3	To apply implication and biimplication in the other mathematics materials.	Implication, biimplication and its application.	Discussion & Exercises	A. 14 – 31
4-5	To determine tautology and contradiction of compound statement .	Tautology and contradiction	Discussion & Exercises	A. 32 – 37
6-7	To determine the truth value of compound statement in several methods .	The Statement Calculus.	Discussion & Exercises	A. 38 – 51
8-9	To apply the statement calculus in the other mathematics materials	Statement Calculus Application.	Discussion & Exercises	A. 40 – 51
10-11	To understand the rules of inferences	The rule of Inference	Discussion & Exercises	A. 52 – 56



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12-13	To derive a conclusion with rules of inference	The rule of Inference	Discussion & Exercises	A. 55 – 72
14	MID TEST			
15-16	To determine the consistency of premise with indirect proof	Consistency of Premises and indirect proof	Discussion & Exercises	A. 72 – 83 B. 169 -87
17-18	To apply quantifiers on open sentence to get true statement	Constant and Variable, Open Sentence	Discussion & Exercises	A. 83 – 97
19-20	To determine the validity of argument which contain variables	Interpretation of predicate	Discussion & Exercises	A. 98 – 115 B. 200 -215
21-22	To translate statement into symbolic set and vice versa	Set and its notations	Discussion & Exercises	A. 116 – 130
23-25	To apply properties of set and its operation to solve problems	Operation on set	Discussion & Exercises	A. 131 – 141
26-29	To apply relation and function on set to solve problems	Relation and Function on Set	Discussion & Exercises	A. 142 – 175
30-32	To understand infinite set and its properties	Infinite Set	Discussion & Exercises	A. 179 – 206

IV Reference

A. Compulsory Text Book

Sukirman. 2006. *Logika dan Himpunan*. Yogyakarta : Hanggar Kreator.

B. Suggested reference books :

Stoll, Robert R. 1976. *Set Theory and Logic*. New Delhi : Eurasia Publishing House (PVT) Ltd.



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V Evaluation

No	Component	Percentages
1	Participation	20
2	Assignment	20
3	Mid test	25
4	Final Test	35
	Total	100 %