DEPARTMENT OF NATIONAL EDUCATION
YOGYAKARTA STATE UNIVERSITY
FACULTY OF MATHEMATICS AND NATURAL SCIENCE
Address: Karangmalang, Yogyakarta – 55281
Phone: 0274 – 586168 Psw. 217

COURSE SYLLABUS

Faculty : Mathematics and Natural Science
Department : Mathematics Education
Course / Code : Logic and Sets / MAT 302
Credits : Theory: 2 SKS Practice: 1 SKS
Semester : 1st
Prerequisite/Code : -
Lecturer : Ariyadi Wijaya, M.Sc

I. Course Description :

Logic and sets contains statement; logical connective and truth table; tautology; contradiction; contingency; deriving conclusion; sets and their properties; relation; map and functions.

II. Standard Competency:

Students are expected to be able to: (1) explain and apply logical thinking; (2) differentiate map and function; (3) find the inverse of a function; (4) compose new functions by given functions.

III. Lesson strategies :

- Expository
- Discussion

IV. Lesson Plan :

Week	Basic Competencies	Topic	Lesson Strategies	References
1	Identifying and differentiating sentence and statement	Sentence and statement		
2	Solving problems on logical connectives and making their truth table	Logical connective and truth table: – Negation – Disjunction – Conjunction – Conditional – Inverse, converse and contraposition – Biconditional		
3	Solving problems on tautology, contradiction, contingency and making their truth table.	Tautology, contradiction and contingency		
4	Deriving logical conclusion	Deriving conclusion		
5-6	Converting open sentences into statement by using quantifier	Quantification: - Open sentence - Universal and existential quantifier		
7	**EXAM**			
8-9	Identifying sets and working on their operations	Set: - Definition of set - Relation of sets - Operation on sets - The properties of a set - Ordered pair - Cartesian product - Power set		
10, 11	Identifying and	Relation and map:		

	differentiating relation and map	- Definition of relation - Kinds of mapping		
12-13	Identifying functions and working on their operation (including inverse function and composite function)	Function: - Definition of function - Kinds of function - Inverse function - Composite function - Properties of a function		
14	**EXAM**			
15-16	Identifying advanced set	Set (advanced): - Denumerable and non-denumerable sets - Cardinal number		
	EXAM			

V. References :

[A] Suppes, P. & Hill, S. (2002). *First Course in Mathematical Logic*. New York: Dower Publication, Inc.

[B] Nolt, J., Rohatyn, D. & Varzi, A. (1998). *Schaum's Outline of Logic (Second Edition)*. New York: McGraw-Hill

VI. Evaluation :

Number	Components of Evaluation	Percentage (%)
1	Participation	5
2	Tasks	15
3	Mid Semester Exam 1	20
4	Mid Semester Exam 2	20
5	Final Exam	40
Total		100%

Yogyakarta, ...

Head of Department	Lecturer,
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NIP	NIP ....