YOGYAKARTA STATE UNIVERSITY
FACULTY OF MATHEMATICS AND NATURAL SCIENCES

SYLLABI

FRM/FMIPA/063-00
1 April 2010

Faculty : Mathematics and Natural Science
Study Program : International Science Education
Course / Code : Techniques and management natural science laboratory/104
Credit : Theory: 2 (two) sks
Semester : 3 (three)
Prerequisite/Code : -
Professor : Purwanti Widhy H, M.Pd

I. Course Description
This course develops competency to understanding the various things that relate to the techniques and management natural science laboratory related to the structuring, organizing equipment and activities in a variety of laboratory activities for learning natural science

II. Standard of Competence
1. Students are able to understand management laboratory, design laboratory, laboratory safety
2. Students are able to understand the introduction of laboratory equipment, handling of chemicals in the laboratory
3. Students are able to perform laboratory ctivities and respect to laboratory safety

III. Activity

Meeting	Basic Competence	Essentials Concept	Learning Strategy	Referrences	Character
I	Students are able to understand management laboratory, design laboratory	Introduction to Management Laboratory: definition and function of general laboratory	Lecturing	A.1, B.1	Curiousity
II		Techniques and management Science laboratory: - definition and function of	Lecturing & dicussion	A.1, A.2	appreciation of diversity, confidence

		management laboratory - Administration			
III		- Ordering & storing - Security, Maintanance, & supervision	Lecturing & dicussion	A.1, B.2, B1, A2	appreciation of diversity, confidence
IV	Students should be able to Attention to safety & security laboratory	Safety in natural Science Laboratory - General safety gudelines - Safety symbol - Equipment & material Safety - First Aid - Waste safety	Group discussion & presentation	A.1, B.2, B1, A2	appreciation of diversity, confidence
V	Students are able to understand management science laboratory, design science laboratory	Management natural Science laboratory - natural Science laboratory in Junior High School -Organizational Structure junior high school laboratory -design natural science laboratory	Group discussion & presentation	A.1, B.2, B1, A2	appreciation of diversity, confidence
VI	Students are able to understand the introduction of laboratory equipment,	Uses of equipment: - Kind n function of equipment in natural Science laboratory - Basic technique to uses equipment in science laboratory (microscope)	Group discussion & presentation	A.1, B.2, B1, A2	appreciation of diversity, confidence
VII		- Maintenance of equipment and	Group discussion &	A.1, B.2, B1, A2	appreciation of diversity,

		material	presentation		confidence
VIII	First Mid Term	- Examination			appreciation of diversity, confidence, honesty
IX-X	Students are able to perform laboratory activities	Sterilization: - Definition of sterilization - Kind of sterilization - How use equipment in sterilization	Lecturing, discussion	A.1, B.2, B1, A2	appreciation of diversity, confidence
XI		Make Solution: - Definition of solution - Kind of solution - How to make a solutions	Lecturing, discussion	A.1, B.2, B1, A2	appreciation of diversity, confidence
XII		Make Preparate - Plant preparation - Animal Preparation	Group discussion & presentation	A.1, B.2, B1, A2	appreciation of diversity, confidence
XIII		Herbarium : - Definition of herbarium - Make herbarium	Lecturing, Group Project	A.1, B.2, B1, A2	appreciation of diversity, confidence
XIV		Insectarium: - Definition of insectarium - Make insectarium	Lecturing, Group Project	A.1, B.2, B1, A2	appreciation of diversity, confidence
XV		Presentation Group Project			appreciation of diversity, confidence
XVI	Final exam				Honesty

IV. Referrence

1. Bradbury, S. and Evennett, P., *Fluorescence microscopy, Contrast Techniques in Light Microscopy.*, BIOS Scientific Publishers, Ltd., Oxford, United Kingdom (1996).Collette, Alfred T. & Eugene L.
2. Chiappetta. (1994). *Science intruction in the middle and secondary schools*. New York: Macmillan Publishing Company.
3. Sund, Robert B. & Leslie W. Trowbridge. (1973*). Teaching science by inquiry in the secondary school*. Second edition. London: Charles E. Merrill Publishing Company.

A. Additional

4. Koesmadji Wirjosoemarto, Yusuf H. A., Bambang S., dan Riandi. 2004. Teknik Laboratorium. Bandung: UPI
5. Trowbridge, Leslie W. & Rodger Bybee. (1986). *Becoming a secondary school science teacher*. Columbus: Merril Publishing Company
6. Johansen, D.A. I940. *Plant Microtechnique*. Ist ed. New York: McGraw-Hill Publications in the Botanical Sciences.
7. Saas. J.E. 1958. *Botanical Microrechniques*. 3 ed. Ames, Iowa: The Iowa State College Press
8. Indrawati. 2008 .*Penataan Dan Pengadministrasian Alat Dan Bahan Laboratorium Kimia.*

V. Evaluation

No	Componen	Worth
1	Participation	10 %
2	assigment	20%
3	Midterm Exam	35%
4	Final Exam	35%
		100%

Yogyakarta, 1-08-2010
Lecture

Purwanti Widhy H, M.Pd