



**YOGYAKARTA STATE UNIVERSITY  
FACULTY OF MATHEMATICS AND NATURAL SCIENCE**

**LESSON PLAN**

**FRM/FMIPA/063-00  
1 April 2010**

1. Faculty /Study Program : Mathematics and Science/Mathematics Education
2. Course & Code : Computer Application, MAA311
3. Credit : Theory : 2 sks Practice: 1 sks
4. Semester/Time : IV Time: 100 minutes
5. Basic competence : Students are able to draw 3D graph of a function using MATLAB
6. Indicator :
  - Student can use basic 3-D Plotting
  - Student can plot Matrix Data
  - Student can use functions for Plotting Data Grids
  - Student can plot Surfaces
  - Student can emphasize Surface Shape
  - Student can create a Surface Plots of Nonuniformly Sampled Data
  - Student can draw a parametric Surfaces
7. Essential Concepts : Computer application for drawing 3D graph using MATLAB
8. Learning Activity : 15

Component	Detail Activity	Time	Method	Media	References	Character
Opening	<ul style="list-style-type: none"> <li>• Lecturer greets the students and asks some students to tell some important points of the topic in the last meeting</li> <li>• Lecturer explains the objective of the topic and gives motivation</li> </ul>	5'	Explanation and Discussion	Computer, LCD	A:52	Thinking logically, critically, creatively, and innovatively
Main Activities	<ul style="list-style-type: none"> <li>• Students try the commands to plot 3D function and its formatting by following the instruction in handout and using computer,</li> <li>• In pair, students discuss to get the main meaning of the commands</li> <li>• Lecturer observes the students activity and gives some comments or explanations.</li> <li>• Lecturer activates discussion in order students get the important information</li> </ul>	80'	Explanation Demonstration, Discussion, practice, group work			Caring about social matters and environment  Appreciative of works and achievements of others

Closure	about the command and make some notes in handout Lecturer facilitate students to get the conclusion of the topic Student and lecturer conclude the topic	10'				
Follow up	Students are supposed to solve the problem using the other mathematics software (maple or mathematica)	5'				

Learning Activity : 16 (practice, 1 sks practice = 100')

Component	Detail Activity	Time	Method	Media	References	Character
Opening	Lecturer greets tudents and asks some students to tell the main idea of last topic, and delivers a lab sheet	5'	Explanation and Discussion	Computer, worksheet		Thinking logically, critically, creatively, and innovatively
Main Activities	<ul style="list-style-type: none"> <li>Students practice and do excercises to plot 3D of some functions.</li> <li>Students share their results on using other software to solve the problem.</li> </ul>	80'	Practicum using computer, by self/in a group		worksheet / quiz	Caring about social matters and environment
Closure	Lecturer gives feedback to the result of students' work	10'	Explanation			Appreciative of works and achievements of others
Follow up	Lecturer gives introduction of the next material Students are asked to read the next topic in handout and open HELP in MATLAB about the topic	5'	Explanation			

## 9. Assessment

### Quiz:

Draws a wireframe surface of  $f(x) = \frac{1}{(x-0.3)^2 + 0.01} + \frac{1}{(x-0.9)^2 + 0.04} - 6$

## 10. Reference

### Compulsory:

A. Sri Andayani, Handout of Computer Application, FMIPA UNY 2009

**Additional:**

- B. Hanselman, D. & Littlefield, B. 2000. Mastering MATLAB, A Comprehensive Tutorial and Reference. Prentice-Hall International, Inc.
- C. <http://www.matworks.com/access/helpdesk/help/>
- D. <http://www.math.siu.edu/matlab/tutorial2.pdf>

Yogyakarta, 21 December 2010  
Professor,

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