YOGYAKARTA STATE UNIVERSITY
FACULTY OF MATHEMATICS AND NATURAL SCIENCE

LESSON PLAN

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 can operate elementary mathematics built-in function, relation operators and logical variables in MATLAB
6. Indicator :
   Student can operate numbers and format command in Matlab, trigonometric functions in Matlab, exponential functions in Matlab, Complex functions in Matlab, Rounding and Remainder functions in Matlab, Discrete Math functions in Matlab, logical variables and relational operators.
7. Essential Concepts : Computer application in basic mathematics function using MATLAB
8. Learning Activity : 5

Component	Detail Activity	Time	Method	Media	References	Character
Opening	Lecturer explains the objective of the course and motivates students related to topic	5'	Explanation and Discussion	Computer, LCD	A:23	Thinking logically, critically, creatively, and innovatively
Main Activities	• Students try the command to use some built-in function in elementary mathematics, logical variables and relation operators by following the instruction in handout using computer • Lecturer guides students to get the main meaning of the command, make some notes in handout and conclusions • Lecturer facilitate students to get more information about the material	80'	Explanation Demonstration, Discussion, practice, group work			Caring about social matters and environment Appreciative of works and achievements of others
Closure	Lecturer invites students to share their conclution	10'				

| Follow up | Students are asked to collect some problems that use the mathematics functions from journal, articles, and Internet | 5' | | | | |

Learning Activity   : 6 (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 Lecturer delivers a lab sheet	5'	Explanation and Discussion	Computer, worksheet		Thinking logically, critically, creatively, and innovatively
Main Activities	Students practice and do exercises to solve some of using the built-in function in MATLAB	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 material in handout and open HELP in MATLAB about the material	5'	Explanation			

9. Assessment

Quiz:
A. Makes a random matrix R 4 x 4
   Do the following operations to R:
         a. abs(R)   c. fix(R)   e. round (R)
         b. ceil (R)   d. floor(R)   f. sign (R)
   Describe the differences of *ceil, fix, floor* dan *round*.
B. Find the lcm and gcd of
     a. 78 and 87   c. 12,56, and 68
     b. magic(4) and pascal(4)   d. x=[2 8 10] and y=[3 9 15]
C. Gives the example of the usage of:
         a. rem   d. factorial   g. log2
         b. mod   e. factor   h. log10
         c. primes   f. log   i. pow2

D. Makes A, a 2 x 5 matrix which the elements are:
   First row : start from -2 to 2, the number of element is 5

The 2nd row: start from 5 to -3, and the difference between the element is 2

  a. Determine the element of A that is greater than 0
  b. Explain the command: i) any(A)   ii) all(A)   iii) xor(A(1,:), A(2,:))
  c. Determine command to find the element of A that is equal to -1 or 1. Save the answer as B.
  d. Explain the command:
     i) A=A+(A= = -1) *pi   ii) i) A=A - (A= = 1) *pi   iii) A(B) = 100

 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

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Yogyakarta, 21 December 2010
Professor,

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