Syllabus

Faculty	: MIPA
Study Program	: Mathematics Education
Course & Code	: Linear Algebra, MAA 308
Credit Hours	: Theory : 2 sks Practice : 1 sks
Semester	: II
Prerequisites & Code	: Logic and Set Theory, MAA 301
Lecturer	: Caturiyati, M.Si.

I. COURSE DESCRIPTION

This matter consist of Linear Equation Systems, Matrices, Determinants and Its Properties, Minor and Cofactor, Cramer's Rule, General Vector Space, Subspace, Basis and Dimension

II. COURSE BASED COMPETENCY

The students will be able to explain the concepts and the properties of Linear Equation Systems and Matrices, Vector Space, Basis and Dimension, and apply them to solve problems

III. ACTIVITY PLAN

	Based Competency	Main Materials	Lecturer Strategy	References
1	Understand the concept of Linear Equation Systems	Linear Equation, Linear Equation System, The Solution of the System, Linear Equation System Operation	Discussion & exercises	A: 1-2
2	Understand the concept of Linear Equation Systems	Solving linear system equation, and Properties of the solution	Discussion & exercises	A:1-2
3	Understand the concept of Matrices and its properties	Definitions, Operations of matrices, and properties of the operations	Discussion & exercises	A:8-22
4	Understand the concept of Matrices and its properties	Types of matrices	Discussion & exercises	A:66-69 B:11-68
5	Understand the concept of Augmented Matrix	Augmented matrix	Discussion & exercises	A:1-2
6	Understand the concept of Gaussian Elimination or Row Echelon Form	Application of Gaussian Elimination to determine row echelon matrix	Discussion & exercises	A:3-7
7	Understand the concept of	Application of Gaussian	Discussion	A:3-7

	Gaussian Elimination or Row Echelon Form	Elimination to determine row echelon matrix	& exercises	
8	Understand the concept of Gauss-Jordan Method	Application of Gauss-Jordan Method to determine reduced-row echelon matrix	Discussion & exercises	A:3-7
9	Understand the concept of Gauss-Jordan Method	Application of Gauss-Jordan Method to determine reduced-row echelon matrix	Discussion & exercises	A:3-7
10	Understand the concept of The Homogeneous Linear Equation System	Definition, solution, application of Gaussian Elimination to determine row echelon matrix	Discussion & exercises	A:3-7
11	Understand the concept of The Homogeneous Linear Equation System	Application of Gauss-Jordan Method to determine reduced-row echelon matrix	Discussion & exercises	A:3-7
12	**Test 1**			
13	Understand the concept of The Inverse of Matrix	Definition and Properties of matrix inverse	Discussion & exercises	A:37-49
14	Understand the concept of The Elementery Matrix	Definition and a practical method for finding A^{-1}	Discussion & exercises	A:50-58
15	Understand the concept of The Elementery Matrix	Definition and a practical method for finding A^{-1}	Discussion & exercises	A:50-58
16	Understand the concept of Equation System and Inverses	Finding the linear system solution by matrix inverse	Discussion & exercises	A:59-65
17	Understand the concept of Determinants	Determinants function	Discussion & exercises	A:81-88 B:91-102
18	Understand the concept of Determinants	Evaluating Determinants by Row Reduction	Discussion & exercises	A:89-94
19	Understand the concept of Determinants	Properties of The Determinant	Discussion & exercises	A:95-103
20	Understand the concept of Determinants	Cofactor Expantion	Discussion & exercises	A:104-155 B:103
21	Understand the concept of Determinants	Cramer's Rule	Discussion &	A:104-155 B:103

			exercises	
22	Understand the concept of Euclidean n-space	Definiton, properties of euclidean n-space	Discussion & exercises	A:161-172
23	Understand the concept of Euclidean n-space	Properties of euclidean n-space	Discussion & exercises	A:161-172
24	Understand the concept of General Vector Space	Definition and examples of general vector space	Discussion & exercises	A:203-210 B:197-202
25	Understand the concept of General Vector Space	Examples of general vector space	Discussion & exercises	A:203-210 B:197-202
26	Understand the concept of Sub Space	Definition subspace and examples	Discussion & exercises	A:211-220 B:203-212
27	Understand the concept of Sub Space	Properties of subspace	Discussion & exercises	A:211-220 B:203-212
28	**Test 2**			
29	Understand the concept of Linear combination	Definiton linear combination and its properties	Discussion & exercises	A:221-230 B:213-223
30	Understand the concept of Span	Definiton span and its properties	Discussion & exercises	A:221-230 B:213-223
31	Understand the concept of Linear Independence	Definiton linear independence and its properties	Discussion & exercises	A:221-230 B:213-223
32	Understand the concept of Basis and Dimension	Definiton and properties of Basis and Dimension	Discussion & exercises	A:231-245 B:224-233

IV. REFERENCE

A. Anton, Howard & Rorres, Chris (2000). Elementery Linear Algebra, Application Version, 8E, John Wiley & Sons, Inc, Toronto, Canada

B. Kolman, Bernard, (1998). Introductory Linear Algebra with Applications, 6th Edition, Prentice Hall International, Inc, New York.

V. EVALUATION

No.	Component	Weight (%)
1.	Tasks	10%
2.	Participation in the class	10%

3.	Quiz	10%
4.	Test I	20%
5.	Test II	20%
6.	Final Test	30%
Total		100%

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Lecturer

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