

Universitas Negeri Surabaya Vocational Faculty, D4 Informatics Management Study Program

Document Code

SEMESTER LEARNING PLAN

Courses				CODE		Cours	e Famil	ly	Cred	lit We	ight	SEM	IESTER	Compilation Date
Linear ar	nd Ma	atrix Algebra		5730102158					T=2	P=0	ECTS=3.1	В	3	July 17, 2024
AUTHOR	RIZAT	ION		SP Develope	er		С	ours	e Clu	ster C	Coordinato		ly Progr rdinator	
												Do		n Dermawan, S.T., M.T.
Learning model	I	Case Studies												
Program		PLO study pro	ogram	that is char	ged to the co	ourse								
Learning Outcom		Program Obje	ctives	(PO)										
(PLO)		PLO-PO Matri	х											
				P.O]									
		PO Matrix at t	he enc	d of each lea	rning stage ((Sub-Po	0)							
			Р	.0				١	Week	[
				1 2	3 4 5	5 6	7	8	9	10	11 12	13	14	15 16
Short Course Descript	tion	The Linear Alge are related and spaces as well inverses and de basis of vector s	can be as the termina	applied to the operations rel ants of square	field of inform ated to them. matrices, syst	atics. Tl Course tems of	his cours materia linear eo	sé ma I in o quatic	ateria ine se ons ai	l provi emeste nd the	ides basic c er includes: ir solutions,	oncepts matrice vectors	s of matri es and th s in plane	ices and vector neir operations, es and spaces,
Referen	ces	Main :												
		 E. Krey S. Lang S. J. Le 	szig. A J. Introd on. Lin	orres. Elemen dvanced Engir luction to Linea ear Algebra wi ear Algebra an	neering Mather ar Algebra (Un ith Applications	matics – Idergrad s – 8th E	- 10th Ec luate Te: Edition, F	dition, xt in I Pears	, Johr Mathe son, 2	n Wiley ematic 009.	y, 2011. s) – 2nd Ed			
		Supporters:												
Support lecturer		Asmunin, S.Kon Martini Dwi End			M.Kom.									
Week-	eac stag			Evalu	ation			Lear tude	nṫng nt As	earnin metho signn <mark>ted ti</mark> i	ods, nents,	ma	arning terials [erences	Assessment Weight (%)
	(Su	b-PO)	l	ndicator	Criteria & F	orm	Offline offline		0	nline	(online)		1	
(1)	1	(2)		(3)	(4)		(5)			((6)		(7)	(8)

1	Know and understand the concept of matrices and their operations.	 Students understand: the meaning of a matrix and several terminology related to a matrix simple operations of matrix algebra: addition, multiplication of matrices by scalars, and multiplication of matrices understanding matrix inverse, properties of matrix inverse algebraic properties of matrices. 		Discussion 2 X 50		0%
2	Know and understand the concept of matrices and their operations.	 Students understand: the meaning of matrices and some terminology related to matrices simple operations of matrix algebra: addition, multiplication of matrices by scalars, and multiplication of matrices understanding matrix inverse, properties of matrix inverse algebraic properties of matrices. 	Criteria: question and answer	Discussion 2 X 50		0%

3	Understand the meaning of a system of linear equations (SPL) and be able to determine whether a system of equations is SPL or not. Understand the relationship between SPL and matrices. Understand how to represent SPL using matrices	 Students understand: the definition of a system of linear equations (SPL) and its basic properties how to represent SPL in matrix form (augmented matrix and matrix equation). how to perform elementary row operations on a matrix how to find the SPL solution using Gauss-Jordan elimination 	Discussion 2 X 50		0%
4	Understand the meaning of a system of linear equations (SPL) and be able to determine whether a system of equations is SPL or not. Understand the relationship between SPL and matrices. Understand how to represent SPL using matrices.	 Students understand: the definition of a system of linear equations (SPL) and its basic properties how to represent SPL in matrix form (augmented matrix and matrix equation). how to perform elementary row operations on a matrix how to find the SPL solution using Gauss-Jordan elimination. 	Discussion 2 X 50		0%

5	Understand the meaning of a system of linear equations (SPL) and be able to determine whether a system of equations is SPL or not. Understand the relationship between SPL and matrices. Understand how to represent SPL using matrices.	 1. Students understand: the definition of a system of linear equations (SPL) and its basic properties 2. how to represent SPL in matrix form (augmented matrix and matrix and matrix equation). 3. how to perform elementary row operations on a matrix 4. how to find the SPL solution using Gauss-Jordan elimination. 	Discussion and Lecture 2 X 50 Discussion		0%
	to determine the inverse of a matrix using elementary row operations (OBE). Understand how to determine the solution to a system of linear equations of n equations and n variables using the inverse method.	understand: the steps in determining the inverse of a matrix through elementary row operations 2.How to determine the SPL solution for n equations and n variables using the inverse method.	and lecture 2 X 50		
7	Understand how to determine the inverse of a matrix using elementary row operations (OBE). Understand how to determine the solution to a system of linear equations of n equations and n variables using the inverse method	 Students understand: the steps in determining the inverse of a matrix through elementary row operations How to determine the SPL solution for n equations and n variables using the inverse method. 	lectures and discussions 2 X 50		0%
8	UTS		2 X 50		0%

9	Understand the definition of the determinant of a square matrix. Understand how to determine the determinant of a square matrix.	 Students understand: definition of the determinant of a square matrix how to calculate the determinant of a square matrix with cofactor expansion how to calculate the determinant of a square matrix using elementary row operations (OBE). 	Lectures and discussions 2 X 50		0%
10	Understand the relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations and n variables.	 1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and determinants. 	Lectures and discussions 2 X 50		0%

12 Understand the determinant and understand: the understand: the the determinant and the determinants is unverses in square and in variables. Discussion Discussion 0% 14 Understand: the control of the the determinant and the determinants, is unverses in square and in variables. Discussion Discussion 0% 14 Understand the control of the existence of inverses, and SPL solutions with in equations and in variables. Discussion 0% 0% 14 Understand the relationship between the equations and in variables. Discussion 0% 0% 14 Understand the relationship between the equations and in variables. Discussion 0% 0% 14 Understand the relationship between the equations and in variables. Discussion 0% 0% 14 Understand the relationship between the equations and in variables. Discussion and in variables. 0% 0% 14 Understand the relationship between the equations and in variables. Discussion and in variables. 0% 0% 14 Understand the relationship between the equations and in variables. Discussion and in variables. 0% 14 Understand the relationship between the equatio			1		1	
12 Understand the equations and inverse of a matrix using adjoints and determines and in vortables. 2 x 50 12 Understand the equations and inverses of a matrix using adjoints and determines additions of a matrix using adjoints and determines additional powers of a matrix using adjoints and determines additional powers of a matrix using adjoints and adjoints adjoints and adjoints adjoints and adjoints adjoi	11		1.Students	Discussion		0%
12 Understand the determinants, inverses, and service of a matrix using adjunct on the equations and no variables. 2.X 50 14 Understand the determinants, inverses, and service of a matrix using adjunct on the source of a matrix using a djoints and no variables Discussion		relationship		and lecture		
12 Understand the constraints and the evidence of inverses in watches and the evidence of inverses, and set, word nonship between determinants, inverses, and SPL solutions with n equations and n variables 1 12 Understand the constraints and solutions and n variables 1.Students and determinant, inverses in watches 3.How on the equations and n variables 1.Students and the equations and n variables 14 Understand the constraints, inverses in watches 2.Students and determinant, inverses, and set inverses, and set inverses, and set inverses of a matrix using adjoints and determinant, inverses of a matrix using adjoints and determinants, inverses in a square matrix using adjoints and set inverses of a matrix using adjoints and not variables 1.Students 12 Understand the constraints 1.Students 2.X 50 13 Understand the constraints 2.X 50 14 Understand the constraints 2.X 50 15 Students 3.How on the second determinant, inverses of a matrix using adjoints and second no variables 16 Understand the constraints 2.X 50 17 Understand the constraints 1.Students 18 Understand the constraints 1.Students 19 Understand the constra no no not not second no not		between the		2 X 50		
 Square matrix, between determinant, inverses, and source 2. The control of control o						
 Understand the determinants and the existence of inverses in surverses in surverses in within equations and severe existence of inverses and SPL solutions with n equations and severe existence of inverses and SPL solutions with n equations and severe existence of inverses and SPL solutions with n equations and nequations and nequations and severe existence of a matrix using adjoints and determinants, inverses in surverses, and SPL solutions with n equations and nequations and nequations and nequations and nequations and nequations and severe for a equations and nequations and nequatis and determine the inverse of a matrix using adjoints and dete						
12 Understand the existence of more seas in signate matrices matrices matrices matrices matrices and no variables signate matrices matrices and no variables signate matrices and no		Square mains.				
12 Understand the existence of existence of matrices 2.the relationship between determinants, inverses, and 3. avia to associate the split of the split			determinants			
determinant, inverses, and SPL wind n variables. existence of inverses in square natives inverses in square natives 2.he between determinants, inverses, and SPL solutions with n equations and n variables inverses in square natives inverses in square natives 12 Understand the determinants, inverses, and SPL solutions Inverses in splate determinants, inverses, and SPL solutions Discussion and recure 2 X 50 14 Understand the determinants, inverses, and splate entry 1. Students understand: understand the determinants, and the existence of inverses in square matrices Discussion and recure 2 X 50 14 Understand the determinants, existence of inverses in square matrices 1. Students and the existence of inverses in square matrices Discussion and recure 2 X 50 14 Understand the equationship between the determinants and the equationship determinants and the equationship determinants and the equationship determinants and the equationship determinants and the equations and n variables allow to determinants and recure inverses, and n variables allow to determine the inverse of mineses, and n variables allow to determine the diverse of inverses and n variables allow to determine the diverse of mineses, and n variables allow to determine the diverse of mineses, and n variables allow to determine the diverse of mineses, and n variables allow to determine the diverse of matrix using allow in the determine the diverse of a matrix using allow in the determine the diverse of a matrix using			and the			
12 Understand the equations and n variables. 1.Students the equations and n variables of the equations and n variables of the equations and n variables of the equations and n variables and the existence of memory of the equations and n variables and the existence of memory of the equations and n variables and the existence of memory of the equations and n variables. Discussion 12 Understand the equations and n variables and n variables and n variables and n variables. Discussion addetermine the inverses of a matrix using and determinants. Discussion 0% inverses, and SPL, and the equations and n variables. 1.Students the network of the equations and n variables. 0% 14 Understand the existence of memory of the network of the networ			existence of			
12 Understand the relationship between determinants, inverses, and SPL solutions with n equations and n variables Discussion and n variables 12 Understand the relationship between the daterminants, inverse of a matrix using adjoints and determinants, inverses of a understand: the relationship between the daterminants, inverses of a understand: the sources of a understand: the relationship between the daterminants, understand: the sources of a understand: the sources of a matrix sources 2 x 50 Observation and heating adjoints and determinants, inverses in sources 2 x 50 14 Understand: the sources of a matrix sources 2 x 50 Discussion and heating adjoints and determinants, inverses in sources 2 x 50 14 Understand: the sources of a matrix sources 2 x 50 Objectsion and heating adjoints and heating adjoints and heating adjoints and adjoints and heating adjoints and adjoints and heating adjoints and adjoints and heating adjoints and adjoints and heating adjoints and heating adjoints and heating adjoints and heating adjoints and heating adjoints and heating heatin						
and n variables. matrices 2 she relationship between determinants, niverses, and SPL solutions with n equations and n variables 3 show to equations and n variables 3 show to equations and n variables 3 show to equations and n variables 3 show to equations and n variables 3 show to determine the inverse of a square matrix, Understand the determinants, inverse, and SPL solutions Discussion and lecture 2 X 50 12 Understand the inverse of a square matrix, Understand the determinants, inverse, and SPL solutions 1.Students understand: the celationship between determinants, inverse, and SPL solutions Discussion and lecture 2 X 50 14 Understand the existence of inverses in square matrix, Understand the determinants, inverses, and n variables 3 stow to determine the determinents, inverses, and n variables 3 stow to determine the grantices 2 the matrix using and he existence of inverses in square matrices 2 the matrices 2 the matrix using and lecture 2 the matrix using and lecture 2 the matrix using and lecture 2 the matrix using and lecture and lecture and lecture and lecture and lecture inverses of a matrix using adjoints and determine the inverse of a matrix using adjoints and diagents and di		with n equations				
12 2.11e 2.11e 2.11e 2.11e 2.11e 2.11e 1.11e 1.		and n variables.				
12 Understand the relationship between the sPL solutions and n variables and the relationship between the determinants, inverses, and sPL solution is using adjoints and determinants, inverses in square matrix, using adjoints and solutions and n variables is splate inverses in square matrix, using adjoints and determinants, inverses in square matrix, using adjoints and Discussion 12 Understand the relationship between determinants. 1. students understand: the relationship between determinants, inverses in square matrix, using adjoints and adjoints and adjoints and Discussion and is adjoints and adjoints and adjoints and						
12 Understand the equations and n variables susing adjoints and determinants, inverses, and SPL solution for n equations and n variables susing Cramer's rules/method Discussion 12 Understand the elationship between the determinants. I.Students 14 Understand the relationship between the determinants. Discussion 15 Understand the relationship between the determinants. 0% 16 1.Students and restand the relationship between the determinants. 17 Understand the relationship between the determinants. 0% 18 Understand the relationship between the determinants. 0% 19 Understand the relationship between the determinants. 0% 10 Understand the relationship between the determinants. 0% 10 Support Support 11 Students Support 12 Understand the relationship between the determinants. 0% 13 How to determinants. Support 14 Support Support 15 Support Support 16 Support Support 17 Support Support 18 Support Support 19 Support Support 19 Suport Support 10 <th></th> <td></td> <td></td> <td></td> <td></td> <td></td>						
12 Understand the relationship between determinants, inverses, and survivables Discussion and negative standard s			relationship			
12 Understand the equations and n variables 3.How to determine the inverse of a matrix using adjoints and envirables 3.How to determine the inverse of a matrix using adjoints and n variables. Discussion 12 Understand the relationship between the determinants. 1.Students and the existence of inverses, and superior inverses and an variables. 0% 14 Understand the relationship between the determinants. 0.Students and the existence of inverses of a matrix using adjoints and determinants. 0% 15 Understand the relationship between the determinants. 0% 0% 16 1.Students understand: the relationship between the determinants. 0% 17 Understand: the relationship between the determinants. 0% 18 Understand: the setting of the existence of inverses of a matrix using adjoints and determinants. 0% 19 Discussion and n variables. 1.Students understand: the existence of inverses of a matrix using adjoints and and using cramer's rules/method 1.Students and the existence of inverses of a matrix using adjoints and and using cramer's rules/method 10 Understand: the inverse of a matrix using adjoints and and using cramer's rules/method 1.Students and adjoints andjoints and adjoints and			between			
12 Understand the equations and n variables 3.How to determine the inverse of a matrix using adjoints and envirables 3.How to determine the inverse of a matrix using adjoints and n variables. Discussion 12 Understand the relationship between the determinants. 1.Students and the existence of inverses, and superior inverses and an variables. 0% 14 Understand the relationship between the determinants. 0.Students and the existence of inverses of a matrix using adjoints and determinants. 0% 15 Understand the relationship between the determinants. 0% 0% 16 1.Students understand: the relationship between the determinants. 0% 17 Understand: the relationship between the determinants. 0% 18 Understand: the setting of the existence of inverses of a matrix using adjoints and determinants. 0% 19 Discussion and n variables. 1.Students understand: the existence of inverses of a matrix using adjoints and and using cramer's rules/method 1.Students and the existence of inverses of a matrix using adjoints and and using cramer's rules/method 10 Understand: the inverse of a matrix using adjoints and and using cramer's rules/method 1.Students and adjoints andjoints and adjoints and			determinants.			
12 Understand the relationship determinant n variables 1.Students understand: the relationship determinants Discussion 12 Understand the relationship determinant and inverse of a square matrix, Understand: the relationship determinants and in variables. 1.Students understand: the relationship determinants adjents and determinants and the existence of inverses of square matrix, Understand: the relationship determinants and in variables. 0% 12 Understand the relationship determinant adjents and determinants and the existence of inverses, and SPL solutions with n equations and n variables. 1.Students understand: the relationship between determinants and the existence of inverses, and SPL solutions with n equations and n variables. 0% 14 Understand the relationship between determinants and the existence of inverses, and SPL solutions with n equations and n variables. 1.Students understand: the square matrices Slow to determinants and the existence of inverses in square matrices Slow to determine the sing Cramer's rules/method 4.How to determine the inverse of a matrix using Cramer's rules/method						
12 Understand the relationship between the determinants and the existion and the relationship between the determinants and the sPL solutions and n variables. Discussion and n variables and the relationship between the determinants and the solutionship between the determinants and the solutionship between the determinants. 0% 12 Understand the relationship between the determinants and the solutionship between the determine the solutions and n variables. 0% 3.How to determine the solutionship between the solutionship and the solutionship and the solutionship between the solutionship between the solutionship and the solutionship between the solutionship between the solutionship and the solutionship between the solutionship between the solution the solution the solutionship between the solutionship between						
12 Understand the equations and n variables using Cramer's rules/method 4. How to determinants end eterminants e						
12 Understand the relationship between the determinants and the existions and n variables. Discussion and the relationship between the determinants and the existence of metrics. 0% 12 Understand the relationship between the determinants and the relationship between the determinants. 0.5 Summers 0% 3.10 works and the relationship between the determinants. 1. Students and the relationship between the determinants. 0% 3.10 works and the relationship between the determinants and the sextence of metrics. 1. Students and the relationship between the determinants. 0% 3.10 works and the relationship between the determinants and the sextence of metrics. 0% 0% 3.10 works and the relationship between the determinants. 0% 0% 3.10 works and the relationship between the determinants. 0% 0% 3.10 works and the relationship between the determinants. 0% 0% 3.10 works and the relationship between determinants. 0% 0% 3.10 works and the relationship between the determine the splice of a matrix using adjoints and and wariables. 0% 0% 3.10 works and the relationship between the relationship between the relationship at the relationship relatio						
12 Understand the relationship between the determinants, inverses in square mark, with n equations and n variables Discussion and lecture 2 × 50 12 Understand the relationship between the determinants, inverse of a square mark, with n equations and n variables. and n variables Discussion and lecture 2 × 50 14 Understand the relationship between the determinants, inverse of a square mark, with n equations and n variables. and n variables. and n variables. States of the relationship between the determinants, inverses, and SPL solution for n equations and n variables. States of determinants, inverses, and n variables. States of determinants, inverses, and sPL solution for n equations and n variables. States of determinants, inverses, and sPL solution for n equations and n variables using Cramer's rules/method Discussion and n variables and n variables and n variables using Cramer's rules/method 12 Understand the relationship between the determinants, inverses of a mark using and n variables using Cramer's rules/method Discussion and n variables using Cramer's rules/method 12 Understand the relationship between the determinants, inverses of a mark using Cramer's rules/method Discussion and n variables 13 How to determine the inverse of a mark using Cramer's rules/method Discussion and n variables 14 How to determine the inverse of a mark using Cramer's rules/method Discussion and n variables 14 How to determine the inverse of a mark using adjoints and determine the inverse of a mark using adjoints and determine the inverse of a ma						
12 Understand the relations and n variables using Cramer's nules/method Discussion and electron and no variables. 0% 12 Understand the relationship between the relationship between the relationship between the system contained and the relationship between the system contained and no variables. Discussion and no variables. 0% 14 Understand the relationship between the system contained and the system contained and the relationship between the determinants and no variables. Discussion and no variables. 0% 15 Understand the relationship between the determinants and no variables. Discussion and no variables. 0% 2 The relationship between the determinants, inverses, in square matrices 2. The relationship between the relationship between the system contained and no variables. Discussion and no variables. 0% 3.How to determine the SPL solution for n equations and no variables using Cramer's nules/method AHow to determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the inverse of a matrix using adjoints and determine the						
12 Understand the relationship between the determinant, inverse of a square matrix, using adjoints and using inverse of a square matrix, using adjoints and the existence of inverse of a square matrix, using adjoints and the existence of inverse of a square matrix, using adjoints and the equations and n variables. Discussion and lecture 2 × 50 12 Understand the relationship between the determinant and inverse of a square matrix, using adjoints and determinants, inverses in square matrix, using and n variables. Discussion and lecture 2 × 50 21 Understand the relationship between the determinants, inverses in square matrix, using and n variables. Discussion and n variables. 0% 22 Sput Solutions Discussion and n variables. 0%			3.How to			
12 Understand the relationship between the determinant, inverse of a square matrix, using adjoints and using inverse of a square matrix, using adjoints and the existence of inverse of a square matrix, using adjoints and the existence of inverse of a square matrix, using adjoints and the equations and n variables. Discussion and lecture 2 × 50 12 Understand the relationship between the determinant and inverse of a square matrix, using adjoints and determinants, inverses in square matrix, using and n variables. Discussion and lecture 2 × 50 21 Understand the relationship between the determinants, inverses in square matrix, using and n variables. Discussion and n variables. 0% 22 Sput Solutions Discussion and n variables. 0%			determine the			
12 Understand the relationship between the determinants and the relationship between the determinants, inverses in square matrix. Wind estimates inverses of a matrix using adjoints and determinants and the relationship between the determinants and the specifies and the additional specifies and the relationship between the relationship between the determinants, inverses, and specifies and n variables. Discussion and n variables and the existence of inverses of a matrices 2. The relationship between the relationship between the relationship between the relationship between the determinants, inverses in square matrices 2. The relationship between the relationship be						
12 Understand the relationship between the determinants. 1.Students understand: the relationship between the determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the determinant and inverse of a subscream of the relationship between the determinant and inverses in a with n equations and n variables. 1.Students understand: the relationship between the determinants and the relationship between the determinant and inverses in subscream of the relationship between the determinants and the relationship between the determinants. 0% 3.How to determinants, inverses, and SPL with n equations and n variables. SPL solutions with n equations and n variables. 0% 3.How to determine the inverse of a matrix using adjoints and SPL solutions with n equations and n variables. 0%						
12 Understand the relationship between the determinants. Discussion and lecture 2X 50 12 Understand the relationship between the determinants. Discussion and lecture 2X 50 14 Understand the relationship between the determinants. Discussion and lecture 2X 50 15 Understand the relationship between the determinants and the existence of inverse of a square matrix. Discussion and lecture 2X 50 16 Understand the relationship between the determinants and the existence of inverses in square matrix. Discussion and n variables. 2.the relationship between the determinants, inverses, and SPL solutions with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and adjoints and adjoints and adjoints and set using Cramer's rules/method for n equations and n variables						
12 Understand the relationship between the determinants. 1.Students understand: the relationship between the determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the determinants. 1.Students understand: the existence of inverses in and the existence of inverses in square matrix. Discussion and lecture 2 × 50 2.the relationship between the determinants and n variables. 1.Students understand: the existence of inverses in square matrix. Discussion and lecture 2 × 50 3.How to determinants, inverses, and SPL solutions with n equations and n variables. SPL solutions with n equations and n variables and n variables and n variables and n variables and n variables. Camer's rules/method inverses of a matrix using adjoints and and n variables						
12 Understand the relationship between the determinant and inverse of a square matrix using adjoints and determinants. Discussion and lecture 2 × 50 12 Understand the relationship between the determinant and inverse of a square matrix the determinant, inverse of a square matrix be ween the determinant, inverses in square matrix is square matrix is square matrices 2.the relationship between the determinant, inverses, and SPL with n equations and n variables. Discussion and lecture 2 × 50 3.How to determine the inverse of a square matrix is inverses, and SPL solutions with n equations and n variables. 2.the relationship between the determinants, inverses, and SPL solutions with n equations and n variables using Cramer's rules/method 4. How to determine the inverse of a matrix using adjoints and adjust and inverse of a square matrix is using adjoints and adjust and the set solution for n equations and n variables are adjusted as a specific to the set solution for a equations and n variables are adjusted as a specific to the inverse of a square and inverse of a square matrix using adjoints and adjust and the set solution for h equations and n variables are adjusted as a specific to the inverse of a square and inverse of a specific to the set solution for h equations and n variables are adjusted as a specific to the inverse of a specific to the specific to the inverse of a specific to the i						
12 Understand the inverse of a matrix using adjoints and determinants. Discussion and lecture 2 × 50 12 Understand the relationship between the determinant and inverse of a square matrix. Understand: the relationship between differentiations with n equations and n variables. Discussion and lecture 2 × 50 3.500 With 0 = 0.0000 With 0 = 0.00000 With 0 = 0.000000 With 0 = 0.000000 With 0 = 0.000000 With 0 = 0.00000 With 0 = 0.000000 With 0 = 0.000000 With 0 = 0.000000 With 0 = 0.0000000 With 0 = 0.000000000 With 0 = 0.00000000000 With 0 = 0.00000000000000000000000000000000						
12 Understand the relationship between the determinant and inverse of a square matrix. Using understand: the relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant and inverses of a square matrix. Understand the relationship between the determinants, and n variables. 1. Students understand: the prelationship between the determinants, and the existence of inverses in matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables. 0% 3. How to determinants, inverses, and spL with n equations and n variables. 1. Subject to the existence of inverses, and spL solutions of n variables of the relationship between determinants, inverses, and n variables of the spL solution for n equations and n variables of the sp			Cramer's			
12 Understand the relationship between the determinant and inverse of a square matrix. Using understand: the relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant and inverses of a square matrix. Understand the relationship between the determinants, and n variables. 1. Students understand: the prelationship between the determinants, and the existence of inverses in matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables. 0% 3. How to determinants, inverses, and spL with n equations and n variables. 1. Subject to the existence of inverses, and spL solutions of n variables of the relationship between determinants, inverses, and n variables of the spL solution for n equations and n variables of the sp			rules/method			
12 Understand the relationship between the determinant and inverse of a matrix using adjoints and determinants. 1.Students understand: the relationship between the determinant, inverse, and SPL with n equations and n variables. Discussion and lecture 2 × 50 24 Understand the relationship between the determinant, inverse, and SPL with n equations and n variables. 1.Students understand: the relationship between determinant, inverses, and SPL square matrices 0% 25 0 25 0						
12 Understand the relationship between the determinants. Discussion and lecture 2 × 50 12 Understand the relationship between the determinants. Understand: the relationship between the determinants and the existence of inverse of a square matrix. Understand: the relationship between the determinants and the existence of inverses in square matrix. Understand: the state of inverses in square matrix. Understand: the state of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables. Discussion and n variables. 0% 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoins and Discussion inverse in inverse in square matrices in square relationship between in the the set solutions with n equations and n variables (solutions inverse) and invariables (solutions inverse) and invariables (solutions is inverse) and invariables (solution is guare is inverse) and invariables (solution is guare is inverse) and invariables (solution is inverse) and invariables (solution is is guare is inverse) and invariables (solution is is guare is inverse) and invariables (solution is is guare is is guare is is guare is inverse) and invariables (solution is is guare is is guare is inverse) (solution is is guare is is is guare is inverse). Discussion is is is is inverse) (solution is inverse) (solution is						
12 Understand the relationship between the determinant and understand: the relationship between the determinant and understand the relationship between the determinant, inverse, and SPL with n equations and n variables. 1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and Discussion and lecture 2 × 50						
12 Understand the relationship between the determinant and inverse of a square matrix. Understand: the relationship between determinants and the relationship between the determinants and the existence of inverses in square and n variables. Discussion and lecture 2 X 50 0%						
12 Understand the relationship between the determinants. Discussion and lecture 2 × 50 13 Understand the relationship between the determinants square matrix. Understand the relationship between the determinants and the square matrices Discussion and lecture 2 × 50 14 With n equations and no variables. Discussion and lecture 2 × 50 15 With n equations and no variables. Discussion and lecture 2 × 50 16 With n equations and no variables. Discussion and lecture 2 × 50 17 Ween the determinants inverses and SPL. Discussion and lecture 2 × 50 18 With n equations and no variables. SPL solutions with n equations and no variables 19 SPL solutions for n equations and no variables using Cramer's nules/method Cramer's nules/method 10 How to determine the inverse of a matrix using adjoints and distributions and no variables Discussion and no variables						
12 Understand the relationship between the determinant and inverse of a square matrix. Understand: the relationship between the determinants and the relationship between the determinants and the existence of inverse, and SPL solutions and n variables. Discussion and lecture 2 X 50 0% 2 Vinder stand: the relationship between the determinants and the existence of inverses in square matrices 0.1.5 Line relationship between determinants, inverses, and SPL solutions with n equations and n variables. 0% 3 How to determine the system of a square strutue of a square strutue of a matrices square sq			adjoints and			
relationship between the determinant and inverse of a square matrix. Understand the determinants understand the determinants determinant inverse, and SPL with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and			determinants.			
relationship between the determinant and inverse of a square matrix. Understand the determinants understand the determinants determinant inverse, and SPL with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and						
relationship between the determinant and inverse of a square matrix. Understand the between the determinant, inverse, and SPL with n equations and n variables. 2.the relationship between the determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables 4.How to determine the inverse of a matrix using adjoints and						
determinant and inverse of a square matrix. Understand the relationship between the determinant, with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables 3.How to determine the SPL solution for n equations and n variables 3.How to determine the sPL solution for n equations and n variables 4.How to determine the sPL solution for n equations and n variables adjoints and	12			Discussion		0%
determinant and une relationship square matrix. between Understand the relationship between the and the determinant, existence of inverse, and SPL with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship	1.Students			0%
square matrix. between Understand the relationship determinants between the determinant, existence of inverse, and SPL inverses in square with n equations square and n variables. 2.the relationship between determinants, inverses, and SPL solutions SPL solutions with n equations and n variables 3.How to determine the SPL solution square and n variables autors autor gradient cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the	1.Students understand:	and lecture		0%
Understand the relationship between the determinant, inverse, and SPL with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and	1.Students understand: the	and lecture		0%
relationship between the determinant, inverse, and SPL with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a	1.Students understand: the relationship	and lecture		0%
between the determinant, inverse, and SPL with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables 3.How to determine the SPL solution for n equations and n variables Using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix.	1.Students understand: the relationship	 and lecture		0%
existence of inverses, and SPL with n equations and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables 4.How to determine the sPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the	1.Students understand: the relationship between	 and lecture		0%
inverse, and SPL with n equations and n variables. and n variables. 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship	1.Students understand: the relationship between determinants	 and lecture		0%
with n equations and n variables. square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables SPL solution 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method SPL solution 4.How to determine the inverse of a matrix using adjoins and adjoins and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the	1.Students understand: the relationship between determinants and the	 and lecture		0%
and n variables. matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant,	1.Students understand: the relationship between determinants and the existence of	and lecture		0%
1 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL	1.Students understand: the relationship between determinants and the existence of inverses in	and lecture		0%
relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square	and lecture		0%
between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices	and lecture		0%
between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the	and lecture		0%
inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship	and lecture		0%
inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship	and lecture		0%
SPL solutions with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between	and lecture		0%
with n equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants,	and lecture		0%
equations and n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and	and lecture		0%
n variables 3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions	and lecture		0%
3.How to determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n	and lecture		0%
determine the SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and	and lecture		0%
SPL solution for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables	and lecture		0%
for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables	and lecture		0%
for n equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to 	and lecture		0%
equations and n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the	and lecture		0%
n variables using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	1.Students understand: the relationship between determinants and the existence of inverses in square matrices 2.the relationship between determinants, inverses, and SPL solutions with n equations and n variables 3.How to determine the SPL solution	and lecture		0%
using Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n 	and lecture		0%
Cramer's rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and 	and lecture		0%
rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables 	and lecture		0%
rules/method 4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using 	and lecture		0%
4.How to determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using 	and lecture		0%
determine the inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using Cramer's 	and lecture		0%
inverse of a matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using Cramer's rules/method 	and lecture		0%
matrix using adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using Cramer's rules/method 	and lecture		0%
adjoints and	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using Cramer's rules/method 	and lecture		0%
	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using Cramer's rules/method How to determine the inverse of a 	and lecture		0%
	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using Cramer's rules/method How to determine the inverse of a matrix using 	and lecture		0%
	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using Cramer's rules/method How to determine the inverse of a matrix using 	and lecture		0%
	12	relationship between the determinant and inverse of a square matrix. Understand the relationship between the determinant, inverse, and SPL with n equations	 Students understand: the relationship between determinants and the existence of inverses in square matrices the relationship between determinants, inverses, and SPL solutions with n equations and n variables How to determine the SPL solution for n equations and n variables using Cramer's rules/method How to determine the inverse of a matrix using adjoints and 	and lecture		0%

14 Understand the relationship between the material that has been explained; matrices, systems of linear equations, and determinants. 2 × 50 14 Understand the relationship between the matrix algebra and determinants. 1.Students Discussions and lecture and determinants. 14 Understand the relationship between the matrix algebra and determinants. 1.Students Discussion and lecture and determinants. 0% 2.basic properties of matrix algebra and determinants. 0.Students 0% 0% 2.basic systems of linear equations, and determinants. 0.Students 0% 0% 14 Understand the relationship between the matrix algebra and determinants. 0.Students 0% 0% 14 Understand the relationship between the matrix algebra and determinants. 0.Students 0% 0% 15 Systems of linear equations, and determinants. 0% 0% 0% 0% 16 Understand the relationship between the matrix algebra and determinants. 0% 0% 0% 0% 0% 18 Understand the relationship between the matrix algebra and determinants. 0.Students, and determinants. 0% 0% 0% 0% 18 Discussion and Gauss-Jord						
14 Understand: understand: determinants. 1.Students understand: that between the material that has been explained: matrices, systems of linear equations, and determinants 1.Students understand: that has been explained: matrices, systems of linear equations, and determinants Discussion aiscussions and lectures 14 Understand: the relationship material that has been explained: matrices, systems of linear equations, and determinants 1.Students understand: the the relationship between the material that has been explained: matrices, systems of linear equations, and determinants Discussion aiscussions and Gauss- Jordan 0//// determinants 14 Understand: the relationship material that has been explained: matrices, systems of linear equations, and determinants 1.Students understand: the relationship between the material that has been explained: matrices, systems of linear equations, and determinants Discussion aid elcure 2 X 50 0/%	13	Understand the	1.Students			0%
14 Understand the relationship determinants. 1.Students relationship between the explained: matrices, systems of linear equations, and determinants Discussion and lictures 14 Understand the relationship determinants. 1.Students understand: the relationship determinants Discussion and determinants 0.0000 licear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and determinants. 1.Students understand: the relationship between the material that has been equations, and determinants. Discussion and licture 2 X 50 0%			understand:			
14 Understand the relationship determinants. 1.Students equations, and determinants. 1.Students understand: the systems of linear equations, and determinants. Discussion and Gauss- Jordan determinants. 0% 14 Understand the relationship determinants. 1.Students understand: the relationship elementary row Discussion and Gauss- Jordan determinants. 0% 14 Understand the relationship determinants. 1.Students understand: the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 0%			the			
14 Understand the regulations, and determinants. 1.Students understand: properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan eliminants. Discussion and lecture 2 X 50 14 Understand the regulationship between the material that has been explained: properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan eleminants. Discussion and lecture 2 X 50 14 Understand the regulationship between the material that has been explained: matrix algebra 3.use of elementary row operations and determinants. Discussion and lecture 2 X 50			relationship			
 of linear equations, and determinants. and matrix algebra and determinants. Loasic properties of matrix algebra and determinants. Loasic of elementary row operations and determinants. Understand the relationship between the material that has been explained: the splained: matrices, systems of linear equations, and determinants. Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Understand the relationship between the material that has been explained: material that has been explained and determinants. 		matrices, systems		lectures		
14 Understand the relationship between the matrices, systems of linear equations, and determinants 2.basic Discussion and Gauss- Jordan elimination on matrices, systems of linear equations, and determinants. Discussion and Gauss- Jordan elimination on matrices, systems of linear equations, and determinants. 0% 14 Understand the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 0% 14 Understand the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 0%		of linear	material that			
14 Understand the relationship between the matrices, systems of linear equations, and determinants Discussion and Gaues-Jordaneat the systems of linear equations, and determinants 14 Understand the relationship between the matrix algebra determinants. Discussion and lecture and determinants 14 Understand the relationship between the material that thas been explained: matrices, systems of linear equations, and determinants. Discussion and lecture and determinants. 14 Understand the relationship between the material that thas been explained: material that the equations, and determinants. Discussion and lecture and determinants. 15 Understand the relationship relationship between the material that as been explained: material that as been explained: material that has been explained: matrix algebra 3 use of elementary row operations and determinants 2.basic properties of matrix algebra 3 use of elementary row operations and e		equations, and				
14 Understand the relationship between the matrices, systems of linear equations, and determinants 2.basic properties of elementary row operations and Gauss- Jordan elimination on matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 24 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 30 0%		determinants.				
14 Understand the relationship between the relatinship relationship the relationship between the relationship the re						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 15 0.00000000000000000000000000000000000						
14 Understand the relationship elementary row operations and Gauss- Jordan elimination on matrix algebra Discussion and lecture equations, and determinants. 0% 14 Understand the relationship televeen the material that has equations, and determinants. 1.Students understand: the relationship between the relationship between the material that has equations, and determinants. Discussion and lecture 2 X 50 0% 14 Understand the relationship between the material that has beine explained: matrices, systems of linear equations, and determinants 1.Students understand: the relationship between the explained: matrices, systems of linear equations, and determinants 0% 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elemination on 0%						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and cleause determinants. 0% 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 x 50 0% 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 x 50 0% 15 Discussion and determinants. 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0% 0% 0 0% 0% 0%						
14 Understand the relationship between the matrix algebra 1.Students understand: the equations, and determinants. Discussion and Iscussion and Gauss- Jordan elimination on 0%			•			
14 Understand the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the the matrices of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the the matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the the matrix and the speen equations, and determinants. Discussion and lecture 2 × 50 14 Understand the the matrix and the speen explained: matrix and that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 15 Understand the explained: matrix and that equations, and determinants. Discussion and determinants 2.basic properties of matrix agebra 3.use of elementary row operations and Gauss-Jordan elementary row row constrained elementary row						
14 Understand the relationship between the material that has been explained: relations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the material that has been explained: relationship between the material that has been explained: systems of linear equations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the material that has been explained: relationship between the material that and determinants. Discussion and lecture 2 X 50 14 Understand: the relationship between the of linear equations, and determinants. Discussion and lecture 2 X 50 15 Understand: the relationship between the of linear equations, and determinants. Discussion and lecture 2 X 50 16 Understand: the material that has been explained: matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on eliminat						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the dilecter material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the dilecter material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 15 Discussion and Gauss-Joint and lecture 2 X 50 0% 16 Discussion and lecture 2 X 50 0%						
3.use of elementary row operations and Gauss- Jordan elimination on matrices, systems of linear equations, and determinants. 3.use of elementary row Image: Comparison of linear equations, and determinants. 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 1.Students understand: the relationship between the material that has been explained: matrices, systems of linear equations, and determinants Discussion and lecture 2 X 50 14 Understand the relationship between the explained: matrices, systems of linear equations, and determinants 1.Students understand: the has been explained: matrices, systems of linear equations, and determinants Discussion and lecture 2 X 50						
14 Understand the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the matrices, systems of linear, equations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the matrices, systems of linear, equations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the matrices, systems of linear, equations, and determinants. Discussion and lecture 2 X 50 14 Understand the relationship between the matrices, systems of linear, equations, and determinants. Discussion and lecture 2 X 50 15 Discussion and Gauss-joint and gebra and gebra and gebra and Gauss-jordan elementary row operations and Gauss-jordan elementary row Discussion and Gauss-jordan elementary row						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% and determinants. 1.Students understand: the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 0% 0% and determinants. 0.Students understand: the material that has been explained: matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on 0%						
14 Understand the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% atrices, systems of linear equations, and determinants. 1.Students understand: the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% and determinants. 1.Students understand: the relationship between the matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on Discussion and lecture 2 × 50 0%						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 15 Understand: the relationship between the material that has been explained: matrices, systems of linear equations, and determinants 2. basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on Discussion and Causs-Jordan elimination on						
14 Understand the elementary row operations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 1.Students understand: the material that has been explained: systems of linear equations, and determinants. 0% 2 × 50 0% 0% 3.use of elementary row operations and Gauss-Jordan elimination on 0%						
14 Understand the relationship between the material that has been equations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the material that has been equations, and determinants. 1.Students understand: the material that has been equations, and determinants. Discussion and lecture 2 × 50 0% 15 Understand: the material that has been equations, and determinants. 1.Students understand: the material that has been equations, and determinants 2.basic properties of matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on 0%						
14 Understand the relationship between the matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 15 Systems of linear equations, and determinants. Discussion and lecture 2 × 50 16 Systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on Systems of elementary row operations and Gauss-Jordan elimination on			Jordan			
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the material that has been equations, and determinants. 1.Students understand: the relationship between the material that has been equations, and determinants. Discussion and lecture 2 × 50 0% 15 Systems of linear equations, and determinants. 1.Students understand: the has been explained: matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on 0%			elimination on			
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the material that has been equations, and determinants. 1.Students understand: the relationship between the material that has been equations, and determinants. Discussion and lecture 2 × 50 0% 15 Systems of linear equations, and determinants. 1.Students understand: the has been explained: matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on 0%			matrices,			
14 Understand the relationship between the material that has been explained: material that has been equations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the material that has been equations, and determinants. 1.Students understand: the material that has been explained: material that has been explained: matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on Discussion and lecture 2 × 50 0%						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 1.Students understand: the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 0% 1.Students 0.Students 0% 0.Students 0%						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 1.Students understand: the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 X 50 0% 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 1.Students Discussion and lecture 2 X 50 0% 15 Discussion and lecture 2 X 50 0% 0% 0% 0% 16 Discussion and lecture 2 X 50 0% 0% 0% 0% 17 Discussion and lecture 2 X 50 0% 0% 0% 0% 18 Discussion and lecture 2 X 50 0% 0% 0% 0% 19 Discussion and lecture 2 X 50 0% 0% 0% 0% 19 Discussion and lecture 2 X 50 0% 0% 0% 0% 0% 10 Discussion and Gauss-Jordan elimination on 0% 0% 0% 0% 0%						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 1.Students understand: the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. Discussion and lecture 2 × 50 0% 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 1.Students 0%						
14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants. 1.Students understand: the relationship between the material that has been explained: matrices, systems of linear equations, and determinants Discussion and lecture 2 x 50 0% 14 Understand the relationship between the material that has been explained: matrices, systems of linear equations, and determinants 1.Students understand: the material that has been explained: matrices, systems of linear equations, and determinants 0% 14 Understand: the material that has been equations, and determinants 1.Students understand: the material that has been explained: matrix algebra 0% 15 1.Students understand: the material that has been equations, and determinants 1.Students understand: matrix algebra 0% 16 1.Students understand: matrix algebra 1.Students understand: matrix algebra 1.Students understand: matrix algebra 1.Students understand: und						
relationship between the material that has been explained: matrices, systems of linear equations, and determinants.			determinanto.			
relationship between the material that has been explained: matrices, systems of linear equations, and determinants.	14	Understand the	1 Studente	Discussion		0%
between the material that has been explained: matrices, systems of linear equations, and determinants.		relationship				0,0
material that has relationship been explained: material that equations, and has been determinants. explained: matrices, systems of linear equations, and determinants determinants. systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elemination on elemination on		between the				
matrices, systems of linear equations, and determinants. between the material that has been explained: matrices, systems of linear equations, and determinants and categories between the material that has been explained: matrices, systems of linear equations, and determinants and categories systems of linear equations, and determinants categories subscription group et al. and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss-Jordan elimination on		material that has				
equations, and determinants. Particle and that been explained: matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on		been explained:				
equations, and determinants. Particle and that been explained: matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on		of linear				
determinants. explained: matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on		equations, and				
matrices, systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on		determinants.				
systems of linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on						
linear equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on						
equations, and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on						
and determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on						
determinants 2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on						
2.basic properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on			and			
properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on						
properties of matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on						
matrix algebra 3.use of elementary row operations and Gauss- Jordan elimination on						
3.use of elementary row operations and Gauss- Jordan elimination on			matrix algebra			
elementary row operations and Gauss- Jordan elimination on			3.use of			
row operations and Gauss- Jordan elimination on						
operations and Gauss- Jordan elimination on						
and Gauss- Jordan elimination on						
Jordan elimination on						
elimination on						
manneae			matrices,			
systems of						
linear						
equations,						
and						
determinants			determinants			

15	Understand the definition of the basis and dimensions of a vector space. Understand the relationship between the basis and dimensions of a vector space and its subspaces.	 Students understand: the meaning of basis sets in a vector space how to check whether a set of vectors is a basis or not 3. understanding dimensions in a vector space 4.how to determine the dimensions of a vector space 5.the relationship between the basis and dimensions of a vector space 5.the relationship between the basis and dimensions of a vector space 	Discussion and lecture 2 X 50		0%
16	UAS		2 X 50		0%

Evaluation Percentage Recap: Case Study

0%	No	Evaluation	Percentage
070			0%

Notes

- 1. Learning Outcomes of Study Program Graduates (PLO Study Program) are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
- The PLO imposed on courses are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
- 3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
- 4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
- 5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
- 6. Assessment Criteria are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
- 7. Forms of assessment: test and non-test.
- 8. Forms of learning: Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
- 9. Learning Methods: Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
- **10. Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
- 11. The assessment weight is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
- 12. TM=Face to face, PT=Structured assignments, BM=Independent study.