



**UNIVERSITAS SUMATERA UTARA (USU)**  
**FAKULTAS TEKNIK**  
**DEPARTEMEN TEKNIK ELEKTRO**

**Kode  
Dokumen**

**RENCANA PEMBELAJARAN SEMESTER**

MATA KULIAH (MK)	KODE	Rumpun MK	BOBOT (sks)	SEMESTER	Tgl Penyusunan
<b>Aljabar Linier</b>	TEE1108		2		7 AGUSTUS 2022
<b>OTORISASI / PENGESAHAN</b>	<b>Dosen Pengembang RPS</b>		<b>Koordinator RMK</b>		<b>Ka Prodi</b>
	M. Razali, S.Si, M.Si				Suherman, ST., M.Comp., Ph.D
<b>Capaian Pembelajaran</b>	<b>CPL-PRODI yang dibebankan pada MK</b>				
	CPL-1	Mampu menerapkan pengetahuan matematika, ilmu pengetahuan alam/atau material, teknologi informasi dan kerekayasaan untuk mendapatkan pemahaman menyeluruh tentang prinsip-prinsip Teknik Elektro.			
	CPL-2	Mampu mendesain komponen, sistem dan/atau proses untuk memenuhi kebutuhan yang diharapkan oleh masyarakat dengan dihadapkan pada batasan realistis yang meliputi aspek hukum, ekonomi, lingkungan, sosial, politik, kesehatan dan keselamatan, keberlanjutan.			
	CPL-3	Mampu mendesain eksperimen laboratorium dan/atau lapangan serta menganalisis dan mengartikan data untuk memperkuat penilaian teknik khususnya dalam bidang Teknik Elektro.			
	CPL-4	Mampu menyelesaikan permasalahan teknik khususnya dalam bidang Teknik Elektro secara bertanggungjawab dan memenuhi etika profesi.			
	CPL-5	Mampu menerapkan metode, keterampilan dan perangkat teknik modern yang diperlukan untuk praktek profesi Teknik Elektro.			
	CPL-6	Mampu berkomunikasi secara efektif, baik lisan maupun tulisan.			
	CPL-7	Mampu mengevaluasi tugas-tugas dalam batasan yang ada secara disiplin dan menyeluruh.			
	CPL-8	Mampu untuk bekerja dalam tim lintas disiplin dan multikultural serta global internasional.			
	CPL-9	Mampu untuk bertanggung jawab kepada masyarakat dan mematuhi etika profesi dalam menyelesaikan permasalahan Teknik Elektro.			

	CPL-10	Memiliki kapasitas pembelajaran sepanjang hayat termasuk akses pengetahuan yang relevan tentang isu-isu terkini.																																																																												
	CPL-11	Mampu mengidentifikasi potensi daerah di Sumatera Utara dan menerapkan inovasi, metode, keterampilan, dan perangkat teknik elektro yang relevan untuk mengembangkan potensi daerah tersebut.																																																																												
	CPL-12	Mampu mendesain sistem dan/atau proses untuk memanfaatkan energi baru dan terbarukan sebagai sumber energi listrik alternatif dari potensi sumber daya lokal dan nasional dengan wawasan global.																																																																												
	<b>Capaian Pembelajaran Mata Kuliah (CPMK)</b>																																																																													
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<b>Peta CPL – CPMK</b>	<table border="1"> <thead> <tr> <th></th> <th>CPL 01</th> <th>CPL 02</th> <th>CPL 03</th> <th>CPL 04</th> <th>CPL 05</th> <th>CPL 06</th> <th>CPL 07</th> <th>CPL 08</th> <th>CPL 09</th> <th>CPL 10</th> <th>CPL 11</th> <th>CPL 12</th> </tr> </thead> <tbody> <tr> <td>CPMK 1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CPMK 2</td> <td></td> <td>Mohon</td> <td>diceklis</td> <td>yang</td> <td>sesuai</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CPMK 3</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CPMK 4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>														CPL 01	CPL 02	CPL 03	CPL 04	CPL 05	CPL 06	CPL 07	CPL 08	CPL 09	CPL 10	CPL 11	CPL 12	CPMK 1													CPMK 2		Mohon	diceklis	yang	sesuai								CPMK 3													CPMK 4												
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<b>Diskripsi Singkat MK</b>	Mata kuliah ini membahas tentang matriks dan operasinya, sistem persamaan linear dan determinan. Lingkup materi perkuliahan meliputi Matriks dan Operasinya, Sistem Persamaan Linear, Eliminasi Gauss, Eliminasi Gauss-Jordan, Sistem Persamaan Linear Homogen, Metode untuk Mencari A-1, Sistem Persamaan dan Keterbalikan, Fungsi Determinan, Sifat-sifat Fungsi Determinan, Menghitung Determinan dengan Reduksi Baris, dan Ekspansi Kofaktor.																																																																													
<b>Bahan Kajian:</b> Materi pembelajaran	Pendahuluan: RPS dan kontrak kuliah, <ul style="list-style-type: none"> <li>• Pengenalan Sistem Persamaan Linier</li> <li>• Eliminasi Gauss</li> <li>• Operasi Matriks dan Matriks</li> <li>• Invers; Sifat Aljabar Matriks</li> <li>• Matriks Elementer dan Metode untuk Mencari Inverse</li> <li>• Lebih Lanjut tentang Sistem Linier dan Matriks Invertible</li> </ul>																																																																													

- Matriks Diagonal, Segitiga, dan Simetris; Pengantar Transformasi Linier
- Komposisi Transformasi Matriks
- Aplikasi Sistem Linier Pada:
  - Analisis Jaringan
  - Rangkaian listrik
  - Menyeimbangkan Persamaan Kimia
  - Interpolasi Polinomial
  - Model Input-Output Leontief; Pengantar Transformasi Linier
- Komposisi Transformasi Matriks
- Aplikasi Sistem Linier Pada:
  - Analisis Jaringan
  - Rangkaian listrik
  - Menyeimbangkan Persamaan Kimia
  - Interpolasi Polinomial
  - Model Input-Output Leontief; Determinan
- Determinan dengan Ekspansi Kofaktor
- Mengevaluasi Determinan dengan Reduksi Baris (Operasi Baris Elementer)
- Sifat-Sifat Determinan
- Aturan Cramer Untuk Menyelesaikan Sistem Persamaan Linier; Ruang Vektor Euclidean
- Vektor dalam Ruang-2, Ruang-3, dan Ruang-n

- Norm, Hasil Kali Titik, dan Jarak dalam Ruang-n
- Ortogonalitas
- Geometri Sistem Linier
- Perkalian Silang (Cross Product); Ruang Vektor Euclidean
- Vektor dalam Ruang-2, Ruang-3, dan Ruang-n
- Norm, Hasil Kali Titik, dan Jarak dalam Ruang-n
- Ortogonalitas
- Geometri Sistem Linier
- Perkalian Silang (Cross Product); Ruang Vektor Umum
- Ruang Vektor Real (Nyata)
- Subruang
- Spanning Set
- Independensi Linier
- Koordinat dan Basis
- Dimensi
- Perubahan Dasar
- Ruang Baris, Ruang Kolom, dan Ruang Kosong (Hampa)
- Peringkat, Nullity, dan Ruang Matriks Fundamental; Ruang Vektor Umum
- Ruang Vektor Real (Nyata)
- Subruang

- Spanning Set
- Independensi Linier
- Koordinat dan Basis
- Dimensi
- Perubahan Dasar
- Ruang Baris, Ruang Kolom, dan Ruang Kosong (Hampa)
- Peringkat, Nullity, dan Ruang Matriks Fundamental; Nilai Eigen dan Vektor Eigen
- Nilai Eigen dan Vektor Eigen
- Diagonalisasi
- Ruang Vektor Kompleks
- Persamaan Diferensial
- Sistem Dinamis dan Rantai Markov; Nilai Eigen dan Vektor Eigen
- Nilai Eigen dan Vektor Eigen
- Diagonalisasi
- Ruang Vektor Kompleks
- Persamaan Diferensial
- Sistem Dinamis dan Rantai Markov; Ruang Perkalian Dalam
- Perkalian Dalam
- Sudut dan Ortogonalitas dalam Ruang Perkalian Dalam
- Proses Gram-Schmidt; Dekomposisi QR

	<ul style="list-style-type: none"> <li>• Perkiraan Terbaik; metode kuadrat terkecil</li> <li>• Pemodelan Matematika Menggunakan Metode Kuadrat Terkecil</li> <li>• Hampiran Fungsi dengan Deret Fourier; Mahasiswa dapat mengerjakan latihan tentang regresi linear dan terapannya untuk prediksi; Mahasiswa memahami perkembangan teori regresi berganda; Mahasiswa memahami regression with numpy</li> </ul>
<b>Pustaka</b>	<b>Utama:</b> <ol style="list-style-type: none"> <li>1.</li> </ol>
	<b>Pendukung:</b> <ol style="list-style-type: none"> <li>1.</li> </ol>
<b>Dosen Pengampu</b>	
<b>Matakuliah syarat</b>	

Mg Ke-	Kemampuan akhir tiap tahapan belajar (Sub-CPMK)	Penilaian		Bentuk Pembelajaran; Metode Pembelajaran; Penugasan Mahasiswa; [Estimasi Waktu]		Materi Pembelajaran [Pustaka]	Bobot Penilaian (%)
		Indikator	Kriteria & Teknik	Tatap Muka (5)	Daring (6)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	Mahasiswa menguasai teori matrik	<ol style="list-style-type: none"> <li><i>The accuracy in providing the information required</i></li> <li><i>The student's fluency in reading the memo (spelling, intonation, and speed)</i></li> <li><i>The correctness of the student's answers</i></li> </ol>	<p><b>Kriteria:</b> <i>Marking Scheme</i></p> <p><b>Bentuk:</b> <i>Worksheet (Non-Tes)</i></p> <ol style="list-style-type: none"> <li><i>Reading the memo provided.</i></li> <li><i>Responding to the opening questions given.</i></li> <li><i>Completing the table (problem-solution) according to the information in the memo.</i></li> <li><i>Finding the word or phrase with similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the</i></li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li><i>Reviewing the previous lessons.</i></li> <li><i>Reading the added learning materials.</i></li> <li><i>Recording the presence.</i></li> <li><i>Responding to opening questions in the 'Discussion Forum' section.</i></li> <li><i>Submitting the assigned tasks.</i></li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b> <i>Restating the information obtained in the form of an a-150-words paragraph.</i></p> <p><b>Moda (Learning Management System):</b> <a href="mailto:learning@usu.ac.id">learning@usu.ac.id</a></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li><i>Making notes of the learning materials explained.</i></li> <li><i>Responding to the questions or instructions given.</i></li> <li><i>Completing all the provided exercises individually.</i></li> <li><i>Discussing the exercises completed.</i></li> </ol> <p><b>Media:</b> <i>Power Point Presentation (PPT)</i> <i>Zoom Meeting</i> <i>Audio Recording</i> <i>English Handout</i></p> <p><b>Metode Pembelajaran:</b></p> <ol style="list-style-type: none"> <li><i>Online Lecture</i></li> <li><i>Discussion</i></li> <li><i>Self-Paced</i></li> </ol>	<p><b>Pokok Bahasan:</b> Pendahuluan: RPS dan kontrak kuliah, • Pengenalan Sistem Persamaan Linier • Eliminasi Gauss • Operasi Matriks dan Matriks • Invers; Sifat Aljabar Matriks • Matriks Elementer dan Metode untuk Mencari Inverse • Lebih Lanjut tentang Sistem Linier dan Matriks Invertible • Matriks Diagonal, Segitiga, dan Simetris</p> <p><b>Referensi:</b> <b>Mohon diisikan</b></p>	5%

			<i>correct headings.</i>		<i>Learning</i>		
2	Mahasiswa memahami operasi perkalian matrik dan konsep determinan, invers matrik	<ol style="list-style-type: none"> <li><i>The accuracy in providing the information required</i></li> <li><i>The student's fluency in reading the memo (spelling, intonation, and speed)</i></li> <li><i>The correctness of the student's answers</i></li> </ol>	<p><b>Kriteria:</b> <i>Marking Scheme</i></p> <p><b>Bentuk:</b> <i>Worksheet (Non-Tes)</i></p> <ol style="list-style-type: none"> <li><i>Reading the memo provided.</i></li> <li><i>Responding to the opening questions given.</i></li> <li><i>Completing the table (problem-solution) according to the information in the memo.</i></li> <li><i>Finding the word or phrase with</i></li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li><i>Reviewing the previous lessons.</i></li> <li><i>Reading the added learning materials.</i></li> <li><i>Recording the presence.</i></li> <li><i>Responding to opening questions in the 'Discussion Forum' section.</i></li> <li><i>Submitting the assigned tasks.</i></li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li><i>Making notes of the learning materials explained.</i></li> <li><i>Responding to the questions or instructions given.</i></li> <li><i>Completing all the provided exercises individually.</i></li> <li><i>Discussing the exercises completed.</i></li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b> Pengantar Transformasi Linier</p> <ul style="list-style-type: none"> <li>• Komposisi Transformasi Matriks</li> <li>• Aplikasi Sistem Linier Pada: <ul style="list-style-type: none"> <li>- Analisis Jaringan</li> <li>- Rangkaian listrik</li> <li>- Menyeimbangkan Persamaan Kimia</li> <li>- Interpolasi Polinomial</li> <li>- Model Input-Output Leontief</li> </ul> </li> </ul> <p><b>Referensi:</b></p>	5%

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3	Mahasiswa menguasai terapan invers matrik pada spl	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b> Marking Scheme</p> <p><b>Bentuk:</b> Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Pengantar Transformasi Linier</p> <ul style="list-style-type: none"> <li>Komposisi Transformasi Matriks</li> <li>Aplikasi Sistem Linier Pada: <ul style="list-style-type: none"> <li>- Analisis Jaringan</li> <li>- Rangkaian listrik</li> <li>- Menyeimbangkan Persamaan Kimia</li> <li>- Interpolasi Polinomial</li> <li>- Model Input-Output Leontief</li> </ul> </li> </ul> <p><b>Referensi:</b></p>	5%

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4	Mahasiswa mampu menerapkan teori metode eliminasi gauss	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b>  Marking Scheme</p> <p><b>Bentuk:</b>  Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Determinan</p> <ul style="list-style-type: none"> <li>Determinan dengan Ekspansi Kofaktor</li> <li>Mengevaluasi Determinan dengan Reduksi Baris (Operasi Baris Elementer)</li> <li>Sifat-Sifat Determinan</li> <li>Aturan Cramer Untuk Menyelesaikan Sistem Persamaan Linier</li> </ul> <p><b>Referensi:</b></p>	5%

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5	Mahasiswa dapat mengerjakan latihan tentang jenis-jenis matrik dan sifat2nya	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b> Marking Scheme</p> <p><b>Bentuk:</b> Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b></p> <p>Ruang Vektor Euclidean</p> <ul style="list-style-type: none"> <li>Vektor dalam Ruang-2, Ruang-3, dan Ruang-n</li> <li>Norm, Hasil Kali Titik, dan Jarak dalam Ruang-n</li> <li>Ortogonalitas</li> <li>Geometri Sistem Linier</li> <li>Perkalian Silang (Cross Product)</li> </ul> <p><b>Referensi:</b></p>	5%

			<p>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</p>	<p>Restating the information obtained in the form of an a-150-words paragraph.</p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</p> <p><b>Metode Pembelajaran:</b></p> <p>13. Online Lecture  14. Discussion  15. Self-Paced Learning</p>		
6	Mahasiswa memahami perkembangan teori vektor 1	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b>  Marking Scheme</p> <p><b>Bentuk:</b>  Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Mahasiswa memahami perkembangan teori vektor 1</p> <p><b>Referensi:</b></p>	5%

			<p>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</p>	<p>Restating the information obtained in the form of an a-150-words paragraph.</p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</p> <p><b>Metode Pembelajaran:</b>  16. Online Lecture  17. Discussion  18. Self-Paced Learning</p>		
7	Mahasiswa dapat mempresentasikan pengetahuan operasi vektor	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b>  Marking Scheme</p> <p><b>Bentuk:</b>  Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b></p> <ul style="list-style-type: none"> <li>Ruang Vektor Umum</li> <li>Ruang Vektor Real (Nyata)</li> <li>Subruang</li> <li>Spanning Set</li> <li>Independensi Linier</li> <li>Koordinat dan Basis</li> <li>Dimensi</li> <li>Perubahan Dasar</li> <li>Ruang Baris, Ruang Kolom, dan Ruang Kosong (Hampa)</li> <li>Peringkat, Nullity, dan Ruang Matriks Fundamental</li> </ul> <p><b>Referensi:</b></p>	5%

			<p>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</p>	<p>Restating the information obtained in the form of an a-150-words paragraph.</p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</p> <p><b>Metode Pembelajaran:</b>  19. Online Lecture  20. Discussion  21. Self-Paced Learning</p>		
8	UJIAN TENGAH SEMESTER						
9	Mahasiswa menguasai teori vektor runag 3d	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b>  Marking Scheme</p> <p><b>Bentuk:</b>  Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> </ol>	<p><b>BM [(1x(2x60"))</b>  <b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))</b></p>	<p><b>TM [(1x(2x50"))</b>  <b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Ruang Vektor Umum</p> <ul style="list-style-type: none"> <li>Ruang Vektor Real (Nyata)</li> <li>Subruang</li> <li>Spanning Set</li> <li>Independensi Linier</li> <li>Koordinat dan Basis</li> <li>Dimensi</li> <li>Perubahan Dasar</li> <li>Ruang Baris, Ruang Kolom, dan Ruang Kosong (Hampa)</li> <li>Peringkat, Nullity, dan Ruang Matriks Fundamental</li> </ul> <p><b>Referensi:</b></p>	5%

			<p>4. <i>Finding the word or phrase with similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</i></p>	<p><b>Task 3:</b> <i>Restating the information obtained in the form of an a-150-words paragraph.</i></p> <p><b>Moda (Learning Management System):</b> <a href="mailto:learning@usu.ac.id">learning@usu.ac.id</a></p>	<p><i>Power Point Presentation (PPT)</i> <i>Zoom Meeting</i> <i>Audio Recording</i> <i>English Handout</i></p> <p><b>Metode Pembelajaran:</b> 22. <i>Online Lecture</i> 23. <i>Discussion</i> 24. <i>Self-Paced Learning</i></p>		
10	Mahasiswa memahami vektor satuan	<p>1. <i>The accuracy in providing the information required</i></p> <p>2. <i>The student's fluency in reading the memo (spelling, intonation, and speed)</i></p> <p>3. <i>The correctness of the student's answers</i></p>	<p><b>Kriteria:</b> <i>Marking Scheme</i></p> <p><b>Bentuk:</b> <i>Worksheet (Non-Tes)</i></p> <p>1. <i>Reading the memo provided.</i></p> <p>2. <i>Responding to the opening questions given.</i></p> <p>3. <i>Completing the table (problem-solution) according to the information in the memo.</i></p> <p>4. <i>Finding the word or phrase with</i></p>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <p>1. <i>Reviewing the previous lessons.</i></p> <p>2. <i>Reading the added learning materials.</i></p> <p>3. <i>Recording the presence.</i></p> <p>4. <i>Responding to opening questions in the 'Discussion Forum' section.</i></p> <p>5. <i>Submitting the assigned tasks.</i></p> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <p>1. <i>Making notes of the learning materials explained.</i></p> <p>2. <i>Responding to the questions or instructions given.</i></p> <p>3. <i>Completing all the provided exercises individually.</i></p> <p>4. <i>Discussing the exercises completed.</i></p> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b> Nilai Eigen dan Vektor Eigen • Nilai Eigen dan Vektor Eigen • Diagonalisasi • Ruang Vektor Kompleks • Persamaan Diferensial • Sistem Dinamis dan Rantai Markov</p> <p><b>Referensi:</b></p>	5%

			<p>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</p>	<p>Restating the information obtained in the form of an a-150-words paragraph.</p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</p> <p><b>Metode Pembelajaran:</b></p> <p>25. Online Lecture  26. Discussion  27. Self-Paced Learning</p>		
11	Mahasiswa menguasai aljabar linear dengan numpy	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b> Marking Scheme</p> <p><b>Bentuk:</b> Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Nilai Eigen dan Vektor Eigen  • Nilai Eigen dan Vektor Eigen  • Diagonalisasi  • Ruang Vektor Kompleks  • Persamaan Diferensial  • Sistem Dinamis dan Rantai Markov</p> <p><b>Referensi:</b></p>	5%

			<p>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</p>	<p>Restating the information obtained in the form of an a-150-words paragraph.</p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</p> <p><b>Metode Pembelajaran:</b>  28. Online Lecture  29. Discussion  30. Self-Paced Learning</p>		
12	Mahasiswa mampu menerapkan teori terapan alj linear - clustering	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b> Marking Scheme</p> <p><b>Bentuk:</b> Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Ruang Perkalian Dalam</p> <ul style="list-style-type: none"> <li>Perkalian Dalam</li> <li>Sudut dan Ortogonalitas dalam Ruang Perkalian Dalam</li> <li>Proses Gram-Schmidt; Dekomposisi QR</li> <li>Perkiraan Terbaik; metode kuadrat terkecil</li> <li>Pemodelan Matematika Menggunakan Metode Kuadrat Terkecil</li> <li>Hampiran Fungsi dengan Deret Fourier</li> </ul> <p><b>Referensi:</b></p>	5%

			<p>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</p>	<p>Restating the information obtained in the form of an a-150-words paragraph.</p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</p> <p><b>Metode Pembelajaran:</b></p> <ol style="list-style-type: none"> <li>31. Online Lecture</li> <li>32. Discussion</li> <li>33. Self-Paced Learning</li> </ol>		
13	Mahasiswa dapat mengerjakan latihan tentang regresi linear dan terapannya untuk prediksi	<ol style="list-style-type: none"> <li>1. <i>The accuracy in providing the information required</i></li> <li>2. <i>The student's fluency in reading the memo (spelling, intonation, and speed)</i></li> <li>3. <i>The correctness of the student's answers</i></li> </ol>	<p><b>Kriteria:</b>  Marking Scheme</p> <p><b>Bentuk:</b>  Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>1. <i>Reading the memo provided.</i></li> <li>2. <i>Responding to the opening questions given.</i></li> <li>3. <i>Completing the table (problem-solution) according to the information in the memo.</i></li> <li>4. <i>Finding the word or phrase with</i></li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>1. <i>Reviewing the previous lessons.</i></li> <li>2. <i>Reading the added learning materials.</i></li> <li>3. <i>Recording the presence.</i></li> <li>4. <i>Responding to opening questions in the 'Discussion Forum' section.</i></li> <li>5. <i>Submitting the assigned tasks.</i></li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>1. <i>Making notes of the learning materials explained.</i></li> <li>2. <i>Responding to the questions or instructions given.</i></li> <li>3. <i>Completing all the provided exercises individually.</i></li> <li>4. <i>Discussing the exercises completed.</i></li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Ruang Perkalian Dalam</p> <ul style="list-style-type: none"> <li>• Perkalian Dalam</li> <li>• Sudut dan Ortogonalitas dalam Ruang Perkalian Dalam</li> <li>• Proses Gram-Schmidt; Dekomposisi QR</li> <li>• Perkiraan Terbaik; metode kuadrat terkecil</li> <li>• Pemodelan Matematika Menggunakan Metode Kuadrat Terkecil</li> <li>• Hampiran Fungsi dengan Deret Fourier</li> </ul> <p><b>Referensi:</b></p>	5%

			<p>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</p>	<p>Restating the information obtained in the form of an a-150-words paragraph.</p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</p> <p><b>Metode Pembelajaran:</b>  34. Online Lecture  35. Discussion  36. Self-Paced Learning</p>		
14	Mahasiswa memahami perkembangan teori regresi berganda	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b> Marking Scheme</p> <p><b>Bentuk:</b> Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Transformasi Linier Umum</p> <ul style="list-style-type: none"> <li>Transformasi Linier Umum</li> <li>Komposisi dan Transformasi Invers</li> <li>Isomorfisme</li> <li>Matriks untuk Transformasi Linier Umum</li> <li>Kesamaan</li> <li>Geometri Operator Matriks</li> <li>Matriks Hermitian, Matriks satuan, dan Matriks Normal</li> </ul> <p><b>Referensi:</b></p>	5%

			<p>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</p>	<p>Restating the information obtained in the form of an a-150-words paragraph.</p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</p> <p><b>Metode Pembelajaran:</b>  37. Online Lecture  38. Discussion  39. Self-Paced Learning</p>		
15	Mahasiswa memahami regression with numpy	<ol style="list-style-type: none"> <li>The accuracy in providing the information required</li> <li>The student's fluency in reading the memo (spelling, intonation, and speed)</li> <li>The correctness of the student's answers</li> </ol>	<p><b>Kriteria:</b> Marking Scheme</p> <p><b>Bentuk:</b> Worksheet (Non-Tes)</p> <ol style="list-style-type: none"> <li>Reading the memo provided.</li> <li>Responding to the opening questions given.</li> <li>Completing the table (problem-solution) according to the information in the memo.</li> <li>Finding the word or phrase with</li> </ol>	<p><b>BM [(1x(2x60"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Reviewing the previous lessons.</li> <li>Reading the added learning materials.</li> <li>Recording the presence.</li> <li>Responding to opening questions in the 'Discussion Forum' section.</li> <li>Submitting the assigned tasks.</li> </ol> <p><b>PT [(1x(2x60"))]</b></p> <p><b>Task 3:</b></p>	<p><b>TM [(1x(2x50"))]</b></p> <p><b>Kegiatan:</b></p> <ol style="list-style-type: none"> <li>Making notes of the learning materials explained.</li> <li>Responding to the questions or instructions given.</li> <li>Completing all the provided exercises individually.</li> <li>Discussing the exercises completed.</li> </ol> <p><b>Media:</b></p>	<p><b>Pokok Bahasan:</b>  Transformasi Linier Umum</p> <ul style="list-style-type: none"> <li>Transformasi Linier Umum</li> <li>Komposisi dan Transformasi Invers</li> <li>Isomorfisme</li> <li>Matriks untuk Transformasi Linier Umum</li> <li>Kesamaan</li> <li>Geometri Operator Matriks</li> <li>Matriks Hermitian, Matriks satuan, dan Matriks Normal</li> </ul> <p><b>Referensi:</b></p>	5%

			<p><i>similar meaning (synonym) according to the information in the memo. Classifying the words or phrases with the correct headings.</i></p>	<p><i>Restating the information obtained in the form of an a-150-words paragraph.</i></p> <p><b>Moda (Learning Management System):</b>  <a href="mailto:elearning@usu.ac.id">elearning@usu.ac.id</a></p>	<p><i>Power Point Presentation (PPT)  Zoom Meeting  Audio Recording  English Handout</i></p> <p><b>Metode Pembelajaran:</b></p> <p>40. <i>Online Lecture</i>  41. <i>Discussion</i>  42. <i>Self-Paced Learning</i></p>		
16	UJIAN AKHIR SEMESTER						
	Total						<b>100</b>