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|  | **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** |
| Aljabar Linier | TEE1108 |  | **2** |  |  | 7 AGUSTUS 2022 |
| **OTORISASI / PENGESAHAN** | **Dosen Pengembang RPS** | **Koordinator RMK** | **Ka Prodi** |
| M. Razali, S.Si, M.Si |  | Suherman, ST., M.Comp., Ph.D |
| **Capaian Pembelajaran** | **CPL-PRODI yang dibebankan pada MK**  |  |
| 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 realistik 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. |
| **Capaian Pembelajaran Mata Kuliah (CPMK)**  |  |
| CPMK 1 |  |
| CPMK 2 |  |
| CPMK 3 |  |
| CPMK 4 |  |
| **Peta CPL – CPMK** |

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|  | **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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| **Diskripsi Singkat MK** | 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. |
| **Bahan Kajian:** Materi pembelajaran | 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; 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 Menyelesaikkan 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• Perkiraan Terbaik; metode kuadrat terkecil• Pemodelan Matematika Menggunakan Metode Kuadrat Terkecil• 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 |
| **Pustaka** | **Utama:** |  |
| 1. |
| **Pendukung:** |  |
| 1. |
| **Dosen Pengampu** |  |
| **Matakuliah syarat** |  |

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| **Mg Ke-** | **Kemampuan akhir tiap tahapan belajar (Sub-CPMK)** | **Penilaian** | **Bantuk Pembelajaran;****Metode Pembelajaran;****Penugasan Mahasiswa;****[ Estimasi Waktu]** | **Materi Pembelajaran****[Pustaka]** | **Bobot Penilaian (%)** |
| **Indikator** | **Kriteria & Teknik** |
| **(1)** | **(2)** | **(3)** | **(4)** | **Tatap Muka(5)** | **Daring (6)** | **(7)** | **(8)** |
| 1 | Mahasiswa menguasai teori matrik | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**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**Referensi:****Mohon diisikan** | 5% |
| 2 | Mahasiswa memahami operasi perkalian matrik dan konsep determinan, invers matrik | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Pengantar Transformasi Linier• Komposisi Transformasi Matriks• Aplikasi Sistem Linier Pada:- Analisis Jaringan- Rangkaian listrik- Menyeimbangkan Persamaan Kimia- Interpolasi Polinomial- Model Input-Output Leontief**Referensi:** | 5% |
| 3 | Mahasiswa menguasai terapan invers matrik pada spl | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Pengantar Transformasi Linier• Komposisi Transformasi Matriks• Aplikasi Sistem Linier Pada:- Analisis Jaringan- Rangkaian listrik- Menyeimbangkan Persamaan Kimia- Interpolasi Polinomial- Model Input-Output Leontief**Referensi:** | 5% |
| 4 | Mahasiswa mampu menerapkan teori metode eliminasi gauss | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Determinan• Determinan dengan Ekspansi Kofaktor• Mengevaluasi Determinan dengan Reduksi Baris (Operasi Baris Elementer)• Sifat-Sifat Determinan• Aturan Cramer Untuk Menyelesaikkan Sistem Persamaan Linier**Referensi:** | 5% |
| 5 | Mahasiswa dapat mengerjakan latihan tentang jenis-jenis matrik dan sifat2nya | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**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)**Referensi:** | 5% |
| 6 | Mahasiswa memahami perkembangan teori vektor 1 | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Mahasiswa memahami perkembangan teori vektor 1**Referensi:** | 5% |
| 7 | Mahasiswa dapat mempresentasikan pengetahuan operasi vektor | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**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**Referensi:** | 5% |
| 8 | UJIAN TENGAH SEMESTER |  |  |  |  |  |  |
| 9 | Mahasiswa menguasai teori vektor runag 3d | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**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**Referensi:** | 5% |
| 10 | Mahasiswa memahami vektor satuan | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Nilai Eigen dan Vektor Eigen• Nilai Eigen dan Vektor Eigen• Diagonalisasi• Ruang Vektor Kompleks• Persamaan Diferensial• Sistem Dinamis dan Rantai Markov**Referensi:** | 5% |
| 11 | Mahasiswa menguasai aljabar linear dengan numpy | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Nilai Eigen dan Vektor Eigen• Nilai Eigen dan Vektor Eigen• Diagonalisasi• Ruang Vektor Kompleks• Persamaan Diferensial• Sistem Dinamis dan Rantai Markov**Referensi:** | 5% |
| 12 | Mahasiswa mampu menerapkan teori terapan alj linear - clustering | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Ruang Perkalian Dalam• Perkalian Dalam• Sudut dan Ortogonalitas dalam Ruang Perkalian Dalam• Proses Gram-Schmidt; Dekomposisi QR• Perkiraan Terbaik; metode kuadrat terkecil• Pemodelan Matematika Menggunakan Metode Kuadrat Terkecil• Hampiran Fungsi dengan Deret Fourier**Referensi:** | 5% |
| 13 | Mahasiswa dapat mengerjakan latihan tentang regresi linear dan terapannya untuk prediksi | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
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**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
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| 14 | Mahasiswa memahami perkembangan teori regresi berganda | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
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**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Transformasi Linier Umum• Transformasi Linier Umum• Komposisi dan Transformasi Invers• Isomorfisme• Matriks untuk Transformasi Linier Umum• Kesamaan• Geometri Operator Matriks• Matriks Hermitian, Matriks satuan, dan Matriks Normal**Referensi:** | 5% |
| 15 | Mahasiswa memahami regression with numpy | 1. *The accuracy in providing the information required*
2. *The student’s fluency in reading the memo (spelling, intonation, and speed)*
3. *The correctness of the student’s answers*
 | **Kriteria:***Marking Scheme***Bentuk:***Worksheet* (Non-Tes)1. *Reading the memo provided.*
2. *Responding to the opening questions given.*
3. *Completing the table (problem-solution) according to the information in the memo.*
4. *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.* | BM [(1x(2x60”)]**Kegiatan:**1. *Reviewing the previous lessons.*
2. *Reading the added learning materials.*
3. *Recording the presence.*
4. *Responding to opening questions in the ‘Discussion Forum’ section.*
5. *Submitting the assigned tasks.*

PT [(1x(2x60”)]**Task 3:***Restating the information obtained in the form of an a-150-words paragraph.* **Moda (*Learning Management System*):**elearning@usu.ac.id | TM [(1x(2x50”)]**Kegiatan:**1. *Making notes of the learning materials explained.*
2. *Responding to the questions or instructions given.*
3. *Completing all the provided exercises individually.*
4. *Discussing the exercises completed.*

**Media:***Power Point Presentation (PPT)**Zoom Meeting* *Audio Recording**English Handout***Metode Pembelajaran:**1. *Online Lecture*
2. *Discussion*
3. *Self-Paced*

*Learning* | **Pokok Bahasan:**Transformasi Linier Umum• Transformasi Linier Umum• Komposisi dan Transformasi Invers• Isomorfisme• Matriks untuk Transformasi Linier Umum• Kesamaan• Geometri Operator Matriks• Matriks Hermitian, Matriks satuan, dan Matriks Normal**Referensi:** | 5% |
| 16 | UJIAN AKHIR SEMESTER |  |  |  |  |  |  |
|  | Total  | **100** |