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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** |
| Saluran Transmisi Telekomunikasi | TEE3229 |  | **2** |  |  | 7 AGUSTUS 2022 |
| **OTORISASI / PENGESAHAN** | **Dosen Pengembang RPS** | **Koordinator RMK** | **Ka Prodi** |
|  |  | 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** | Mampu memahami konsep perambatan gelombang elektromagnetik (radio dan mikrowave) pada media transmisi dan mampu menganalisis serta merancang sistem saluran transmisi yang sesuai untuk menyalurkan sinyal pada sistem komunikasi |
| **Bahan Kajian:** Materi pembelajaran | - Defenisi dan Klasifikasi Saluran Transmisi - Spektrum Gelombang Elektromagnetik - Kecepatan Rambat Gelombang Elektromagnetik Pada Medium Yang Berbeda - Mode Perambatan Gelombang Elektromagnetik; - Konstanta Rlc Terdistribusi - Rangkaian Ekivalen Saluran Transmisi - Persamaan Tegangan dan Arus Pada Saluran Transmisi - Penyelesaian Persamaan Tegangan dan Arus - Lossless Line dan Lossy Line - Impedansi Saluran Transmisi; - Impedansi Karakteristik - Kecepatan Phase - Kecepatan Group - Factor Redaman - Konstanta Phase - Rugi-Rugi Pada Saluran Transmisi; - Gelombang Datang (Incident Wave) dan Gelombang Pantulan (Reflection Wave) - Koefisien Pantulan - Diagram Refleksi - Gelombang Berdiri (Standing Wave) - Vswr (Voltage Standing Wave Ratio) - Return Loss; - Saluran Transmisi Beban Match - Saluran Transmisi Open Circuit - Saluran Transmisi Short Circuit - Perhitungan Vswr, Return Loss, Impedansi Saluran Pada Jarak Tertentu Dari Ujung Beban; - Defenisi dan Kegunaan Diagram Smith - Skala Pada Diagram Smith - Penggunaan Diagram Smith Untuk Menyelesaikan Permasalahan- Permasalahan Saluran Transmisi; - Defenisi Penyesuai Impedansi - Jenis-Jenis Teknik Penyesuai Impedansi (Trafo ¼ Lambda, Single Stub Tuner dan Double Stub Tuner); - Beban Dengan Impedansi Riil - Beban Dengan Impedansi Kompleks; - Beban Dengan Impedansi Riil - Beban Dengan Impedansi Kompleks; - Beban Dengan Impedansi Riil - Beban Dengan Impedansi Kompleks; - Struktur Kabel Koaksial - Bentuk dan Spesifikasi Kabel Koaksial - Persamaan Kakteristik Kabel Koaksial - Perancangan dan Analisis Kabel Koaksial Sebagai Saluran Transmisi; Mahasiswa dapat mengerjakan latihan tentang - struktur saluran mikrostrip- bentuk dan spesifikasi saluran mikrostrip- persamaan kakteristik saluran mikrostrip- perancangan dan analisis mikrostrip sebagai saluran transmisi; Mahasiswa memahami perkembangan teori - defenisi dan klasifikasi filter- low pass filter- high pass filter- band pass filter- band stop filter; Mahasiswa memahami - rancangan lpf dengan mikrostrip- rancangan hpf dengan mikrostrip- rancangan bpf dengan mikrostrip- rancangan bsf dengan mikrostrip |
| **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 - defenisi dan klasifikasi saluran transmisi spektrum gelombang elektromagnetik, kecepatan rambat gelombang elektromagnetik pada medium yang berbeda, mode perambatan gelombang elektromagnetik | 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:**- Defenisi dan Klasifikasi Saluran Transmisi - Spektrum Gelombang Elektromagnetik - Kecepatan Rambat Gelombang Elektromagnetik Pada Medium Yang Berbeda - Mode Perambatan Gelombang Elektromagnetik**Referensi:****Mohon diisikan** | 5% |
| 2 | Mahasiswa memahami: konstanta rlc terdistribusi, rangkaian ekivalen saluran transmisi, persamaan tegangan dan arus pada saluran transmisi, penyelesaian persamaan tegangan dan arus, lossless line dan lossy line, impedansi saluran transmisi | 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:**- Konstanta Rlc Terdistribusi - Rangkaian Ekivalen Saluran Transmisi - Persamaan Tegangan dan Arus Pada Saluran Transmisi - Penyelesaian Persamaan Tegangan dan Arus - Lossless Line dan Lossy Line - Impedansi Saluran Transmisi**Referensi:** | 5% |
| 3 | Mahasiswa menguasai: impedansi karakteristik, kecepatan phase, kecepatan group, factor redaman, konstanta phase, dan rugi-rugi pada saluran transmisi | 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:**- Impedansi Karakteristik - Kecepatan Phase - Kecepatan Group - Factor Redaman - Konstanta Phase - Rugi-Rugi Pada Saluran Transmisi**Referensi:** | 5% |
| 4 | Mahasiswa mampu menerapkan teori - gelombang datang (incident wave) dan gelombang pantulan (reflection wave), koefisien pantulan, diagram refleksi, gelombang berdiri (standing wave), vswr (voltage standing wave ratio), dan return loss | 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:**- Gelombang Datang (Incident Wave) dan Gelombang Pantulan (Reflection Wave) - Koefisien Pantulan - Diagram Refleksi - Gelombang Berdiri (Standing Wave) - Vswr (Voltage Standing Wave Ratio) - Return Loss**Referensi:** | 5% |
| 5 | Mahasiswa dapat mengerjakan latihan tentang - saluran transmisi beban match: saluran transmisi open circuit, saluran transmisi short circuit, perhitungan vswr, return loss, impedansi saluran pada jarak tertentu dari ujung beban | 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:**- Saluran Transmisi Beban Match - Saluran Transmisi Open Circuit - Saluran Transmisi Short Circuit - Perhitungan Vswr, Return Loss, Impedansi Saluran Pada Jarak Tertentu Dari Ujung Beban**Referensi:** | 5% |
| 6 | Mahasiswa memahami perkembangan teori - defenisi dan kegunaan diagram smith skala pada diagram smith, penggunaan diagram smith untuk menyelesaikan permasalahan- permasalahan saluran transmisi | 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 - defenisi dan kegunaan diagram smith skala pada diagram smith, penggunaan diagram smith untuk menyelesaikan permasalahan- permasalahan saluran transmisi**Referensi:** | 5% |
| 7 | Mahasiswa dapat mempresentasikan pengetahuan - defenisi penyesuai impedansi, jenis-jenis teknik penyesuai impedansi (trafo ¼ lambda, single stub tuner dan double stub tuner) | 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:**- Defenisi Penyesuai Impedansi - Jenis-Jenis Teknik Penyesuai Impedansi (Trafo ¼ Lambda, Single Stub Tuner dan Double Stub Tuner)**Referensi:** | 5% |
| 8 | UJIAN TENGAH SEMESTER |  |  |  |  |  |  |
| 9 | Mahasiswa menguasai teori - beban dengan impedansi riil- beban dengan impedansi kompleks | 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:**- Beban Dengan Impedansi Riil - Beban Dengan Impedansi Kompleks**Referensi:** | 5% |
| 10 | Mahasiswa memahami - beban dengan impedansi riil beban dengan impedansi kompleks | 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:**- Beban Dengan Impedansi Riil - Beban Dengan Impedansi Kompleks**Referensi:** | 5% |
| 11 | Mahasiswa menguasai - beban dengan impedansi riil beban dengan impedansi kompleks | 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:**- Beban Dengan Impedansi Riil - Beban Dengan Impedansi Kompleks**Referensi:** | 5% |
| 12 | Mahasiswa mampu menerapkan teori struktur kabel koaksial, bentuk dan spesifikasi kabel koaksial- persamaan kakteristik kabel koaksial- perancangan dan analisis kabel koaksial sebagai saluran transmisi | 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:**- Struktur Kabel Koaksial - Bentuk dan Spesifikasi Kabel Koaksial - Persamaan Kakteristik Kabel Koaksial - Perancangan dan Analisis Kabel Koaksial Sebagai Saluran Transmisi**Referensi:** | 5% |
| 13 | Mahasiswa dapat mengerjakan latihan tentang - struktur saluran mikrostrip- bentuk dan spesifikasi saluran mikrostrip- persamaan kakteristik saluran mikrostrip- perancangan dan analisis mikrostrip sebagai saluran transmisi | 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:**- Struktur Saluran Mikrostrip - Bentuk dan Spesifikasi Saluran Mikrostrip - Persamaan Kakteristik Saluran Mikrostrip - Perancangan dan Analisis Mikrostrip Sebagai Saluran Transmisi**Referensi:** | 5% |
| 14 | Mahasiswa memahami perkembangan teori - defenisi dan klasifikasi filter- low pass filter- high pass filter- band pass filter- band stop filter | 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:**- Defenisi dan Klasifikasi Filter - Low Pass Filter - High Pass Filter - Band Pass Filter - Band Stop Filter**Referensi:** | 5% |
| 15 | Mahasiswa memahami - rancangan lpf dengan mikrostrip- rancangan hpf dengan mikrostrip- rancangan bpf dengan mikrostrip- rancangan bsf dengan mikrostrip | 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:**- Rancangan Lpf Dengan Mikrostrip - Rancangan Hpf Dengan Mikrostrip - Rancangan Bpf Dengan Mikrostrip - Rancangan Bsf Dengan Mikrostrip**Referensi:** | 5% |
| 16 | UJIAN AKHIR SEMESTER |  |  |  |  |  |  |
|  | Total  | **100** |