Mata Kuliah ***Course***	Nama MK *Name*	:	Transmisi Gelombang Elektromagnetik dan Antena *Electromagnetic Wave Transmission and Antenna*
	Kode MK *Code*	:	EE184532
	Kredit *Credit*	:	4 sks
	Semester *Semester*	:	V (Wajib) *V (Compulsory)*
	Beban Belajar *Workload*	:	Kuliah : 4 x 50 = 200 menit/minggu Latihan/tugas : 4 x 60 = 240 menit/minggu Belajar mandiri : 4 x 60 = 240 menit/minggu *Lectures : 4 x 50 = 200 min/week* *Exercises/Assignments : 4 x 60 = 200 min/week* *Self learning : 4 x 60 = 240 min/week*
	Tingkatan *Module Level*	:	Sarjana (S1) *Undergraduate*
	Penanggung Jawab *PIC*	:	Dr. Ir. Achmad Mauludiyanto, MT
	Pengajar *Lecturer*	:	Dr. Ir. Achmad Mauludiyanto, MT Dr. Ir. Puji Handayani, MT
	Bahasa *Language*	:	Bahasa Indonesia dan Bahasa Inggris *Bahasa Indonesia and English*
	Persyaratan dan Peraturan *Requirement and Regulation*	:	Setiap mahasiswa harus menghadiri setidaknya 75% dari jumlah perkuliahan untuk dapat mengikuti ujian *A student must have attended at least 75% of the lectures to sit in the exams*

Deskripsi Mata Kuliah
Description of Course

Transmisi Gelombang Elektromagnetik dan Antena mempelajari Saluran Transmisi tanpa-rugi dan saluran merugi, Propagasi gelombang bidang dalam media tanpa-rugi dan media merugi, Pantulan dan tranmisi gelombang dengan kedatangan normal dan kedatngan menyudut, konsep radiasi antenna melalui Integral radiasi pada antenna dipole ideal, Parameter antena : pola radiasi, directivity, gain,bandwidth, effective aperture,polarisasi, Antena kawat, Antena pita lebar, Antena array, dan Teknik pengukuran antena.

The course studies the no-loss and loss-line transmission lines, field wave propagation in no-loss media and loss media, wave reflection and transmission with normal arrival and angles, the concept of radiation antenna through the integral radiation at the ideal dipole antenna, antenna parameters: pattern radiation, directivity, gain, bandwidth, effective aperture, polarization, wire antenna, wide band antenna, array antenna, and antenna measurement technique.

CPL Prodi yang Dibebankan
Learning Outcomes

(CPL-01) Mampu menerapkan ilmu pengetahuan alam dan matematika pada bidang teknik elektro

(PLO-01) Capable to apply knowledge of natural sciences and mathematics to solve electrical engineering problem

(CPL-03) Mampu mendesain komponen, sistem, dan proses yang logis dan realistis sesuai dengan spesifikasi yang ditentukan dengan mempertimbangkan aspek keselamatan, sosial, budaya, lingkungan, dan ekonomi

(PLO-03) Capable to design logical and realistic components, systems and processes in accordance with specified specifications by considering safety, social, cultural, environmental and economic aspects

(CPL-10) Mampu mengetahui dan menyikapi perkembangan terkini dibidang ilmu pengetahuan dan teknologi dengan mengedepankan nilai-nilai universal

(PLO-10) Capable to know and respond to the latest developments in science and technology by promoting universal values

Capaian Pembelajaran Mata Kuliah

Course Learning Outcomes

(CPMK-01) Menguasai konsep Transmisi Gelombang Elektromagnetik.

(CLO-01) Mastering the concept of Electromagnetic Wave Transmission.

(CPMK-02) Menguasai konsep radiasi dari suatu antena, parameter-parameter antena, pengukuran antena dan jenis-jenis yang umum digunakan: antena kawat, antena pita lebar, antena aperture, dan antena array.

(CLO-02) Mastering the concept of radiation from an antenna, antenna parameters, antenna measurements and commonly used types: wire antenna, broadband antenna, aperture antenna, and antenna array.

(CPMK-03) Mampu menganalisis persamaan gelombang dan turunannya.

(CLO-03) Able to analyze wave equations and derivatives.

(CPMK-04) Mampu menganalisis parameter-parameter antena.

(CLO-04) Able to analyze antenna parameters.

(CPMK-05) Mampu menyelesaikan permasalahan tentang saluran transmsi, mampu menggunakan smith chart.

(CLO-05) Able to solve problems about transmission channels, able to use the smith chart.

(CPMK-06) Mampu mendesain dan membuat suatu antena dan mengukur parameternya.

(CLO-06) Able to design and make an antenna and measure its parameters.

(CPMK-07) Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri.

(CLO-07) Demonstrating attitude of responsibility on work in his/her field of expertsei independently.

Topik/Pokok Bahasan
Main Subjects

1. Saluran Transmisi
   Transmission Channels
2. Propagasi gelombang bidang
   Field wave propagation
3. Pantulan dan transmisi gelombang
   Reflection and wave transmission
4. Integral radiasi
   Integral radiation
5. Parameter antenna
   Antenna parameters
6. Antena kawat
   Wire antenna
7. Antena pita lebar
   Broadband antenna
8. Antena array
   Antenna array
9. Teknik pengukuran antenna
   Antenna measurement technique

Pustaka
Reference(s)

[1] Fundamentals of Applied Electromagnetics, by Fawwas T. Ulaby, Prentice Hall International,Inc.
[2] Electronic Transmission technology by William Sinnema, Prentice Hall International, Inc.
[3] W. L. Stutzman, G. A. Thiele, Antenna Theory and Design 3rd Ed., John Wiley & Sons, 2012.
[4] C. A. Balanis, Antenna Theory, Analysis and Design 3rd Ed., John Wiley & Sons, 2005.

Prasyarat
Prerequisite(s)

EE184303 Medan Elektromagnetik
EE184303 Electromagnetic Fields