

<b>Mata Kuliah</b> <b>Course</b>	Nama MK <i>Name</i>	: Rangkaian Elektronika <i>: Electronic Circuits</i>
	Kode MK <i>Code</i>	: EE184306
	Kredit <i>Credits</i>	: 3 sks
	Semester <i>Semester</i>	: III (Wajib) <i>: III (Compulsory)</i>
	Beban Belajar <i>Workload</i>	: Kuliah : 3 x 50 = 150 menit/minggu Latihan/tugas : 3 x 60 = 180 menit/minggu Belajar mandiri : 3 x 60 = 180 menit/minggu <i>: Lectures : 3 x 50 = 150 min/week Exercises/Assignments : 3 x 60 = 180 min/week Self learning : 3 x 60 = 180 min/week</i>
	Tingkatan <i>Module Level</i>	: Sarjana (S1) <i>: Undergraduate</i>
	Penanggung Jawab <i>PIC</i>	: Dr. Eng Mohammad Attamimi B. Eng. M. Eng
	Pengajar <i>Lecturer</i>	: Dr. Eng Mohammad Attamimi B. Eng. M. Eng Fajar Budiman, ST, M.Eng Ir. Harris Pirngadi, MT : Dr. Ir. Totok Mujiono, MI.Kom. Dr. Mohammad Rivai, ST, MT Ir. Tasripan, MT Astria Nur Irfansyah, ST, M.Eng, PhD
	Bahasa <i>Language</i>	: Bahasa Indonesia dan Bahasa Inggris <i>: Bahasa Indonesia and English</i>
	Persyaratan dan Peraturan <i>Requirement and Regulation</i>	: Setiap mahasiswa harus menghadiri setidaknya 75% dari jumlah perkuliahan untuk dapat mengikuti ujian <i>: A student must have attended at least 75% of the lectures to sit in the exams</i>

### Deskripsi Mata Kuliah

#### *Description of Course*

Mata kuliah Rangkaian Elektronika membahas tentang proses analisis, simulasi, perancangan dan deskripsi aplikasi komponen Dioda Semikonduktor, Bipolar Junction Transistor, Field-Effect Transistor, Respon frekuensi rangkaian transistor, Power Amplifier, Rangkaian Differential Amplifier, Rangkaian Feedback dan Oscillator, Rangkaian Power Supply, Komponen Silicon-Controlled Rectifier, Diode Alternating Current, Triode for Alternating Current, Unijunction Transistor, Programmable Unijunction Transistor.

*The course of Electronic Circuits discusses: Analysis, simulation, design, and application of Semiconductor Diode, Bipolar Junction Transistor, and Field-Effect Transistor circuits; Analysis of frequency response of the transistor circuits; Analysis of Power Amplifier, Differential Amplifier, Feedback & Oscillator, and Power Supply circuits; Analysis, simulate, design, and application of*

*Silicon-Controlled Rectifier, Alternating Current Diode, Triode for Alternating Current, Unijunction Transistor, and Programmable Unijunction Transistor circuits.*

### **CPL Prodi yang Dibebankan**

#### **Learning Outcomes**

(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-3) 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-05) Mampu mengidentifikasi, memformulasikan dan menyelesaikan permasalahan dibidang teknik elektro

*(PLO-5) Capable to identify, formulate and solve problems in the field of electrical engineering*

(CPL-09) Mampu belajar mandiri untuk menumbuhkan kemampuan belajar sepanjang hayat

*(PLO-9) Capable to learn independently to foster lifelong learning abilities*

### **Capaian Pembelajaran Mata Kuliah**

#### **Course Learning Outcomes**

(CPMK-01) Menguasai konsep dan prinsip komponen elektronika untuk menunjang keperluan proses analisis, simulasi, perancangan dan deskripsi aplikasi rangkaian elektronika.

*(CLO-01) Mastering the concepts and principles of electronic components for analysis, simulation, design, and application of electronic circuits.*

(CPMK-02) Mampu mendeskripsikan proses analisis, simulasi, perancangan dan aplikasi rangkaian elektronika.

*(CLO-02) Able to describe the analysis, simulation, design, and application of electronic circuits.*

(CPMK-03) Mampu menerapkan proses analisis, simulasi, perancangan dan deskripsi aplikasi rangkaian elektronika.

*(CLO-03) Able to apply the analysis, simulation, design, and application of electronic circuits.*

(CPMK-04) Menunjukkan sikap bertanggungjawab yang berkenaan dengan proses analisis, simulasi, perancangan dan deskripsi aplikasi rangkaian elektronika secara mandiri.

*(CLO-04) Demonstrating attitude of responsibility regarding the analysis, simulation, design, and application of electronic circuits independently.*

### **Topik/Pokok Bahasan**

#### **Main Subjects**

1. Dioda Semikonduktor  
*Semiconductor Diode*
2. Bipolar Junction Transistor  
*Bipolar Junction Transistor*
3. Field-Effect Transistor  
*Field-Effect Transistor*
4. Respon Frekuensi Rangkaian Transistor

*The frequency response of the transistor circuits*

5. Power Amplifier  
*Power Amplifier*
6. Differential Amplifier  
*Differential Amplifier*
7. Rangkaian Feedback dan Oscillator  
*Feedback & Oscillator*
8. Power Supply  
*Power Supply*
9. Silicon-Controlled Rectifier, Diode Alternating Current, Triode for Alternating Current, Unijunction Transistor, Programmable Unijunction Transistor  
*Silicon-Controlled Rectifier, Alternating Current Diode, Triode for Alternating Current, Unijunction Transistor, and Programmable Unijunction Transistor circuits*

#### **Pembelajaran dan ujian**

##### ***Study and examination***

- Latihan di kelas  
*In-class exercises*
- Tugas 1, 2, 3  
*Assignment 1, 2, 3*
- Ujian tengah semester  
*Mid-term examination*
- Ujian akhir semester  
*Final examination*

#### **Pustaka**

##### ***Reference(s)***

- [1] Muhammad Rivai, 2018. Diktat: Rangkaian Elektronika.  
*Muhammad Rivai, 2018. Lecture Note: Electronic Circuits*
- [2] Robert L Boylestad and Louis Nashelsky, 2012. Electronic Devices and Circuit Theory, Prentice Hall, Inc.

#### **Prasyarat**

##### ***Prerequisite(s)***

EE184003 Rangkaian Listrik (untuk mahasiswa DTE) atau  
SF184202 Fisika II (untuk mahasiswa Departemen lain)  
*EW184003 Electrical Circuits (for students of the EED) or  
SF184202 Physics II (for students of the other Departments)*