

Mata Kuliah Course	Nama MK <i>Name</i>	: Pengantar Teknologi Elektro <i>Introduction to Electrical Technology</i>
	Kode MK <i>Code</i>	: EW184001
	Semester <i>Semester</i>	: I (Wajib) <i>I (Compulsory)</i>
	Kredit <i>Credits</i>	: 2 sks
	Beban Belajar <i>Workload</i>	Kuliah : 2 x 50 = 100 menit/minggu Latihan/tugas : 2 x 60 = 120 menit/minggu Belajar mandiri : 2 x 60 = 120 menit/minggu <i>Lectures : 2 x 50 = 100 min/week</i> <i>Exercises/Assignments : 2 x 60 = 120min/week</i> <i>Self learning : 2 x 60 = 120 min/week</i>
	Tingkatan <i>Module Level</i>	: Sarjana (S1) <i>Undergraduate</i>
	Penanggung Jawab <i>PIC</i>	: Ir. Tasripan, MT
	Pengajar <i>Lecturer</i>	Ir. Tasripan, MT Dr.Ir. Ari Santoso, DEA Devy Kuswidiastuti, ST, M.Sc Sri Rahayu, ST, M.Kom : Dr. Ir. Endroyono, DEA Dr. Ir. Margo Pujiantara, MT Dr.Ir. Yoyon Kusnendar Suprpto, M.Sc Prof.Dr.Ir. Moch. Nuh, DEA M. Hilman Fatoni, ST, MT
	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 Pengantar Teknologi Elektro membahas dasar-dasar teknologi elektro yang meliputi materi pengantar ke teknik sistem tenaga, teknik sistem pengaturan, elektronika, teknik telekomunikasi, teknik komputer, dan teknik biomedik serta sejarah dan dampak teknologi elektro bagi peradaban, peran fisika dan matematika dalam teknologi elektro, dan pentingnya kreativitas dan integritas bagi sarjana teknologi elektro.

Introduction to Electrical Technology course discusses the basics of electrical technology which includes introductory material into power systems engineering, control systems engineering, electronics, telecommunications engineering, computer engineering, and biomedical engineering also the history and impact of electrical technology for civilization, the role of physics and

mathematics in technology electrical engineering, and the importance of creativity and integrity for student in electrical technology.

CPL Prodi yang Dibebankan

Learning Outcomes

(CPL-04) Mampu bekerja secara efektif dalam kelompok yang beranggotakan lintas disiplin dan budaya dengan menunjukkan sifat kepemimpinan, dan mampu mendefinisikan tujuan, rencana kerja, dan capaian

(PLO-4) Capable to work effectively in groups of members across disciplines and cultures by showing leadership traits, and being able to define goals, work plans, and achievements

(CPL-07) Mampu berkomunikasi secara efektif baik dalam bentuk tulisan maupun lisan

(PLO-7) Capable to communicate effectively both in written and oral form

(CPL-12) Mampu menunjukkan sikap religius, nasionalis, saling menghormati.

(PLO-12) Capable to show religious, nationalist, and mutual respect characters

Capaian Pembelajaran Mata Kuliah

Course Learning Outcomes

(CPMK-01) Menguasai konsep, prinsip dan prosedur perancangan sistem tenaga listrik, sistem pengaturan, telekomunikasi multimedia, elektronika, teknik komputer, dan teknik biomedik.

(CLO-01) Mastering the concepts, principles and procedures of electric power system design, regulatory systems, multimedia telecommunications, electronics, computer engineering, and biomedical engineering.

(CPMK-02) Mampu memformulasikan permasalahan rekayasa pada sistem tenaga listrik, sistem pengaturan, telekomunikasi multimedia, elektronika, teknik komputer, dan teknik biomedik.

(CLO-02) Be able to formulate engineering problems in electric power systems, control systems, multimedia telecommunications, electronics, computer engineering, and biomedical engineering.

(CPMK-03) Mampu mendeskripsikan penyelesaian permasalahan rekayasa pada sistem tenaga listrik, sistem pengaturan, telekomunikasi multimedia, elektronika, teknik komputer, dan teknik biomedik.

(CLO-03) Be able to describe the resolution of engineering problems in electric power systems, control systems, multimedia telecommunications, electronics, computer engineering, and biomedical engineering.

(CPMK-04) Mampu mengambil keputusan secara tepat dalam konteks penyelesaian masalah di bidang keahliannya, berdasarkan hasil analisis informasi dan data.

(CLO-04) Able to make decisions appropriately in the context of problem solving in his field of expertise, based on the results of analysis of information and data.

(CPMK-05) Menunjukkan sikap bertanggungjawab atas pekerjaan di bidang keahliannya secara mandiri

(CLO-05) Demonstrating attitude of responsibility on work in his/her field of expertise independently.

Topik/Pokok Bahasan

Main Subjects

1. Pengantar teknik sistem tenaga
Introduction to power system techniques
2. Pengantar teknik sistem pengaturan
Introduction to control system techniques
3. Pengantar elektronika
Introduction to electronics
4. Pengantar teknik telekomunikasi
Introduction to telecommunications techniques
5. Pengantar teknik komputer
Introduction to computer engineering
6. Pengantar teknik biomedika
Introduction to biomedical techniques
7. Sejarah/timeline teknologi elektro (Volta, Ohm, Kelvin, Faraday, Biot Savart, Laplace, Ampere, Maxwell, dan seterusnya)
History/timeline of electrical technology (Volta, Ohm, Kelvin, Faraday, Biot Savart, Laplace, Ampere, Maxwell, and so on)
8. Dasar fenomena listrik dan magnet (elektron, arus listrik, listrik magnet, batere, dst)
Basic phenomena of electricity and magnetism (electrons, electric current, magnetic electricity, batteries, etc.)
9. Fisika dan matematika dalam teknologi elektro (fenomena fisika dari elektro, pemodelan matematika untuk sinyal dan sistem dalam teknologi elektro)
Physics and mathematics in electrical technology (electro physical phenomena, mathematical modeling for signals and systems in electrical technology)
10. Dampak teknologi elektro terhadap perkembangan peradaban (transportasi, dsb)
Impact of electrical technology on the development of civilization (transportation, etc.)
11. Kreativitas bagi sarjana teknologi elektro dalam menghadapi perkembangan teknologi (memiliki penguasaan dasar yang kuat)
Creativity for graduates of electrical technology in the face of technological developments (having strong basic mastery)
12. Kode etik dan integritas bagi sarjana teknologi elektro (pengakuan terhadap hasil karya orang lain, upaya mandiri dalam menyelesaikan permasalahan, dst)
Code of ethics and integrity for scholars of electrical technology (recognition of the work of others, independent efforts to solve problems, etc.)

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] Anthonie Meijers, Philosophy of Technology and Engineering Sciences, Elsevier, 2009.
- [2] Clive Maxfield dkk, Electrical Engineering, Elsevier, 2008.



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- [3] Don Johnson, J. D. Wise, Fundamentals of Electrical Engineering, University Press of Florida, 2009.
 - [4] Charles Gross, Thaddeus Roppel, Fundamentals of Electrical Engineering, Taylor and Francis, 2012.
 - [5] Stan Gibilisco, Teach Yourself Electricity and Electronics, ed. 4, McGraw-Hil, 2006.
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Prasyarat***Prerequisite(s)***

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