

Mata Kuliah (MK)	Course Name	: Basic Laboratory of Electricity and Telecommunication Systems
	Code	: EE184406
	Credits	: 3
	Semester	: IV

Description of Course

This course is first laboratory session for EE students. In this course students are introduced to laboratory safety and use of basic measurement equipment such as voltmeter, ampere-meter, power-meter, and oscilloscope. Laboratory experiments must be performed in this course are basic electric unit measurement, basic electric circuits laws, and basic telecommunication system.

Learning Outcomes

KNOWLEDGE

(P03) Mastering the concepts and principles of design procedure in power systems, control systems, multimedia telecommunications, or electronics.

SPECIFIC SKILL

(KK05) Being able to utilize analytical and engineering design tools based on appropriate information and computation technology to perform engineering activities in power systems, control systems, multimedia telecommunications, or electronics.

GENERAL SKILL

(KU07) Being able to take responsibility for the achievement of group work and supervise and evaluate the work completion assigned to the worker under his/her responsibility

ATTITUDE

(S08) Internalizing values, norms and academic ethics

Course Learning Outcomes

KNOWLEDGE

Able to understand the concept of basic electrical engineering from hands-on experience in laboratory session

SPECIFIC SKILL

Able to read basic electric schematic diagram and perform wiring of basic electric circuit diagram
Able to interpret and analyse data from experiment

GENERAL SKILL

Able to practice standard operation procedure and safety measure while working in laboratory.
Able to use standard electric measurement equipment in laboratory

ATTITUDE

Able to obey rule and regulation, able to work in team and responsible to her/his work.

Topik/Pokok Bahasan

Main Subjects

Praktikum Pengukuran Listrik

Basic electric measurement lab

1. Pengukuran tegangan AC dan DC
Measurement of AC and DC voltage
2. Pengukuran resistansi, induktansi, dan kapasitansi
Measurement of electrical resistance, inductance, and capacitance
3. Pengukuran daya listrik
Measurement of electric power
4. Penggunaan osiloskop
Measurement using oscilloscope

Praktikum Rangkaian Listrik

Electric circuit lab

1. Hukum Ohm, Hukum Kirchoff, Resistor Seri dan Paralel, Analisis Mesh dan Node
Ohm's law, Kirchoff's law, Series and Parallel Resistors, Mesh and Node analysis.
2. Teorema Superposisi, Thevenin/Norton, Transfer Daya
Superposition theorem, Thevenin/Norton theorem, Power Transfer
3. Analisis Rangkaian RC dan RL
RL and RC circuit analysis
4. Analisis Rangkaian RLC dan Transformator
RLC and transformer circuit analysis

Praktikum Dasar Telekomunikasi

Basic telecommunication lab

1. Amplitude Modulation
Amplitude modulation
2. Modulasi Frekuensi
Frequency modulation
3. Multiplexing
Multiplexing
4. Pulse Code Modulation
Pulse Code Modulation
5. Serat Optik
Fiber optic

Reference(s)

Experiment Worksheet

Prerequisite(s)

EW184003 Electric Circuits

EE184302 Introduction to Telecommunication Systems and Networks