

<b>Course</b>	Name	: Electrical Engineering Laboratory 2
	Code	: EE184503
	Credits	: 3
	Semester	: V

### Description of Course

In this course student applies basic theories obtained in classes into hands on or experiments in the laboratory. The experiment was carried out in the laboratory to observe the fields of electric power systems and control systems. Student is expected to have comprehensive understanding on the theories and its application.

### Learning Outcomes

#### KNOWLEDGE

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

#### SPECIFIC SKILL

(KK05) 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) 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

Mastering system modeling, setting system analysis, determining response specifications, designing controllers, and their applications in equipment, dc machines, synchronous machines and single-phase transformers

#### SPECIFIC SKILL

Able to model systems, analyze system stability, determine response specifications and design control systems, electronics and power systems.

#### GENERAL SKILL

Able to use Matlab or other software to analysis and visualize of system responses.

#### ATTITUDE

Have passion to increase knowledge in the field of electrical engineering in order to improve the quality of the Indonesian people in mastering technology

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### Main Subjects

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1. System modeling and identification and control system analysis
2. Implementation of control systems
3. Controller design and analysis settings
4. Control system simulation
5. Automation system using PLC
6. Programming basic instructions on the PLC
7. DC generator
8. DC motor
9. 3-phase synchronous generator
10. 3-phase asynchronous motor
11. 1-phase transformer

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### Reference(s)

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- [1] Ogata, Katsuhiko: "Modern Control Engineering", 3rd Ed., Prentice-Hall 1997
- [2] Jacob, J.M.: "Industrial Control Electronics: Application and Design", PHI 1989
- [3] Modul Praktikum Sistem Pengaturan
- [4] Modul Praktikum Dasar Sistem Tenaga Listrik
- [5] Modul Praktikum Elektronika

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### Prerequisite(s)

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EE184306 Electronic Circuits  
EE184402 Introduction to Power System Engineering  
EE184404 Introduction to Control Systems

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