

COURSE	Name : Power System Laboratory
	Code : EE184711
	Credits : 3
	Semester : VII

Description of Course

Power system laboratory is a course based on experiment on laboratories as well as based on software package simulation. This course is comprehensive course which consist of three experiment modules from three laboratories of power system simulation, energy conversion, and high voltage laboratories. Three main experiments will be conducted are electric machines include transformer, dielectric material testing, and power system related to transmission system, protection system, and ETAP software.

Learning Outcomes

KNOWLEDGE

(P02) Mastering the concepts and principles of science and engineering mathematics, and implementing them in the form of procedures for analysis and design in power systems, control systems, multimedia telecommunications, or electronics.

SPECIFIC SKILL

(KK01) Able to formulate engineering problems in power systems, control systems, multimedia telecommunications, or electronics.

GENERAL SKILL

(KU11) Able to implement sustainability principles and develop knowledge

(KU12) Able to implement information and communication technology (ICT) in the context of implementation of his/her work

ATTITUDE

(S06) Working together, having social sensitivity and caring for community and environment

(S09) Demonstrating attitude of responsibility on work in his/her field of expertise independently

(S12) Working together to be able to make the most of his/her potential

Course Learning Outcomes

KNOWLEDGE

Mastering on implementation of power system analysis on laboratory scale plant, operation and control of electric machines include transformer, and mastering on high voltage generation for dielectric strength testing.

SPECIFIC SKILL

Mastering on data analysis obtained from all laboratory experiment modules and comparing the data analysis results with theoretical knowledge they have learned on related subjects.

GENERAL SKILL

Able to conduct laboratory scale experiment to understand the characteristic of electric machines

and apparatus being studied by using their background knowledge

ATTITUDE

Able to work as team to solve problem related to electric engineering and be responsible on their work

Main Subjects

1. Power system transmission line performance
2. Micro SCADA monitoring system
3. ETAP software package
4. 3 phase synchronous generator
5. 3 phase synchronous motor
6. 3 phase induction motor (squirrel cage and wave rotor)
7. 3 phase transformer
8. HV generation (ac, dc)
9. Dielectric testing (gaseous, solid, and liquid)
10. Insulator testing under high voltage ac

Reference(s)

- [1] Experimental Module of Power System Analysis
- [2] Experimental Module of Alternating Current Electric Machines
- [3] Experimental Module of High Voltage

Prerequisite(s)

EE184511 Power System Analysis
EE184512 Alternating Current Electric Machine
EE184513 High Voltage Engineering
