

COURSE	Name	: Smart Grid
	Code	: EE185212
	Credit(s)	: 3
	Semester	: II

Description of Course

This course discusses smart grid include communication system and measurement technology on smart grid, smart grid design, smart storage, and smart system, as well as data security and safety on standardized Smart Grid Network.

Learning Outcomes

Knowledge

(P01) Mastering the concepts and principles of science in a comprehensive manner, and to develop procedures and strategies needed for the analysis and design of systems related to the field of power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics as a preparation for further education or professional career.

(P02) Mastering engineering concepts and principles to develop the necessary procedures and strategies for systems analysis and design in the areas of power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

Specific Skill

(KK01) Being able to formulate engineering problems with new ideas for the development of technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

(KK02) Being able to compose problem solving in engineering through depth and breadth of knowledge which adapts to changes in science and technology in power systems, control systems, multimedia telecommunications, electronics, intelligent multimedia network, or telematics.

(KK03) Being able to produce system design for problem solving by utilizing other fields of study and concerning technical standards, performance aspect, reliability, ease of application, and assurance of sustainability.

General Skill

(KU04) Being able to identify the scientific field that becomes the object of his research and positions into a research map developed through interdisciplinary or multidisciplinary approach.

(KU07) Being able to improve the capacity of learning independently.

(KU11) Being able to implement information and communication technology in the context of execution of his/her work.

Attitude

(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 the concept, scientific principles and smart grid engineering comprehensively.

Specific Skill

Being able to formulate problems related to smart grid and make a solution by generating system design.

General Skill

Being able to identify and positioning itself in research map related to smart grid.

Attitude

Being able to demonstrate an attitude of responsibility on work in his/her field of expertise independently.

Being able to work together to be able to make the most of his/her potential.

Main Subjects

1. Overview on smart grid
2. Communication system and measurement technology of smart grid system
3. Performance analysis devices for smart grid design
4. Stability analysis device for smart grid
5. Computational devices for smart grid design
6. Smart grid design flowchart
7. Smart storage
8. Smart energy consumption
9. Standarization of safety and data security of smart grid network
10. Research, education, and training related to smart grid
11. Study cases and test bed of smart grid

Reference(s)

- [1] T. Sato, et. al, Smart Grid Standards: Specifications, Requirements, and Technologies. John Wiley & Sons Singapore Pte. Ltd., 2015
- [2] J. Momoh, Smart Grid: Fundamentals of Design and Analysis. John Wiley & Sons, Inc., 2012

Prerequisite(s)

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