

COURSE	Name	: Electric Power Generation
	Code	: EE184612
	Credits	: 3
	Semester	: VI

Description of Course

This course discusses principles of electric energy generation process based on its primary energy. The primary energy resources are conventional fossil fuel-based and renewable. Types, principles, element, and control of conventional and renewable based generation system are introduced. Student also learns to calculate economic aspect on generation system such as generation cost and simple payback period analysis.

Learning Outcomes

KNOWLEDGE

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

SPECIFIC SKILL

(KK03) Able to describe system design for problem solving in power systems, control systems, multimedia telecommunications, or electronics by concerning technical standards, performance aspect, reliability, ease of application, and assurance of sustainability.

GENERAL SKILL

(KU11) Able to implement sustainability principles and develop knowledge

ATTITUDE

(S11) Trying his/her best to achieve perfect results.

Course Learning Outcomes

KNOWLEDGE

Mastering the concept of Power Generation from various primary energy types, whether the type of non-renewable energy and the type of renewable energy.

SPECIFIC SKILL

Capable and understand the parts of the plant, the energy conversion process, the calculation of fuel or primary energy requirements as well as the calculation of generation costs.

GENERAL SKILL

Able to determine; generating capacity, daily fuel requirements (and every month) and generating costs

ATTITUDE

Able to take responsibility for the work, either individually or in groups

Main Subjects

1. Hydro Power Generation system
2. Coal-Fired Steam Power Plant
3. Gas-Fired Power Plant
4. Combined-Cycle Power Plant
5. Nuclear Powre Plant
6. Geothermal Power Plant
7. Diesel Engine Power Plant

Reference(s)

- [1] Soedibyo, "PEMBANGKITAN TENAGA LISTRIK - Proses Pembangkitan, Perhitungan Kapasitas, Bahan Bakar serta Biaya Pembangkitan" Penerbit; ITS Press, ISBN: 978-602-0917-22-1, 2015
- [2] Allen J Wood, "Power Generation Operation and Control" 3th edition, 2014
- [3] Power Generation from Coal, IEA (International energy agency), 2010
- [4] J. Aabakken, Power Technology Energy Databook 3th Edition, 2005

Prerequisite(s)

EE184402 Introduction to Power System
