Anan College	Year	2024	Course Title	Electric Power Network

Course Information

Course Code	1314E21	Course Category	Specialized / Compulsory
Class Format	Lecture	Credits	Academic Credit: 2
Department	Course of Electrical Engineering	Student Grade	4th
Term	First Semester	Classes per Week	前期:2
Textbook and/or Teaching Materials	Power transmission and distribution engineering by Tsutomu Michigami (Institute of Electrical Engineers of Japan)		
Instructor	, ,Negoro Takashi,Matsumoto Isamu,Nakamura Yuichi		

Course Objectives

1. Be able to explain technology related to electrical characteristics in power transmission and distribution.
2. Be able to explain failure calculations, stability, and line protection methods.
3. Be able to explain the functions of substation equipment and power distribution methods.

Rubric

	Ideal Level	Standard Level	Minimum achievement level
Achievement 1	Able to explain technology related to power system configurations and electrical characteristics in power transmission and distribution.	Able to explain technology related to electrical characteristics in power transmission and distribution.	Able to partially explain technology related to electrical characteristics in power transmission and distribution.
Achievement 2	Able to explain failure calculations, stability, line protection methods, as well as configuration and installation methods.	Able to explain failure calculations, stability, and line protection methods.	Able to partially explain failure calculations, stability, and line protection methods.
Achievement 3	Able to explain the control and protection of power systems, information and communications, various functions of substation equipment, and power distribution methods.	Able to explain the functions of substation equipment and power distribution methods.	Able to partially explain the functions of substation equipment and power distribution methods.

Assigned Department Objectives

Teaching Method

Outline	The purpose is to help students learn the basics and practice of power transmission and distribution technology that supports the stable supply of electrical energy. *Relationship with practice This course is a lecture-style course that provides an overview of power system configuration, power transmission and distribution equipment, operation, and electrical characteristics of power transmission and distribution systems. All 15 weeks of training will be conducted by practitioners who are actually involved in power transmission and distribution operations.
Style	The class will be taught in a lecture format. The first semester mainly teaches electricity transmission, and the second semester mainly teaches electricity distribution.
Notice	This lecture is compulsory to be certified as a Type 2 and Type 3 Chief Electrical Engineer.

Characteristics of Class / Division in Learning

☐ Active Learning	☐ Aided by ICT	☐ Applicable to Remote Class	☐ Instructor Professionally Experienced

Course Plan

			Theme	Goals
1st Semester	1st Quarter	1st	Power system configuration	Aable to explain system configuration and economic operation.
		2nd	Power system reliability and quality	Able to explain the reliability and quality of power transmission systems and their maintenance measures.
		3rd	Electrical characteristics of power transmission and distribution systems	Able to explain line constants and electrical characteristics of power transmission systems.
		4th	Electrical characteristics of power transmission and distribution systems	Able to explain how to calculate failures in power transmission systems.
		5th	Electrical characteristics of power transmission and distribution systems	Able to explain unbalanced fault calculations and system stability.
		6th	Distribution line	Able to explain the configuration of power distribution lines and power distribution plans.
		7th	Distribution line	Able to explain indoor wiring for power distribution lines.
		8th	Mid-term exam	
	2nd Quarter	9th	Overhead power transmission	Able to explain the configuration and grounding method of overhead distribution lines.
		10th	Overhead power transmission	Able to explain failures caused by overhead distribution lines and countermeasures.
		11th	Underground power line	Able to explain the configuration and characteristics of underground power transmission.
		12th	Power system control protection	Able to explain protective relaying methods.

		13th	Power system control protection	Able to explain voltage/reactive power control.
		14th	Power system control protection	Able to explain power flow control and operational methods.
		15th	Power system information and communication	Able to explain the configuration of power communication.
		16th	Return of final exam	

Evaluation Method and Weight (%)

	Examination	Portfolio	Total
Subtotal	70	30	100
Basic Proficiency	20	10	30
Specialized Proficiency	50	20	70
Cross Area Proficiency	0	0	0