COURSE	Name	: Partial Discharge
	Code	: EE185610
	Credit(s)	: 2
	Semester	: (Elective Course)

Description of Course

This subject describes all partial discharge phenomena occurring on dielectric materials such as Gaseous, liquid, and solid. The development of Partial discharge starting from stable corona until breakdown of dielectric material is explained in detail. Detection and measurement system of partial discharge include electric, physic, chemical by product methods as well as its electromagnetic characteristics are explained in general. Intepretation of partial discharge in a dielectric system is discussed based on current data base available. Mitigation systems are also discussed briefly.

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.

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.

General Skill

(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

Understanding and mastering of the phenomenon of partial discharge on the gas, liquid, solid, dielectric material with various terminology of partial discharge according to its electrical and physical characteristics.

Mastering methods of measurement and detection of partial discharge

Specific Skill

Being able to explain the electrical and physical characteristics of partial discharges on gas, liquid, solid and dielectric materials and able to classify partial discharges based on these characteristics and compare it with various terminology from various researcher.

Being able to explain and perform measurements of electrical and non-electric PDs.

Being able to interpret material degradation based on partial discharge measurement results.

General Skill

Being able to understand the flow of scientific journal and able to do a journal review.

Attitude

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

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

Main Subjects

1. Introduction: Terminology of Partial Discharge from the various point of view
2. Partial discharge mechanism on gas dielectric and modes of positive and negative corona of air in non-uniform field.
3. Partial discharge on SF6 gas
4. The development of a streamer on a liquid dielectric for non-uniform field
5. Partial discharge on solid dielectric
6. Detection of partial discharge electrically non-electrically method
7. Journal review

Reference(s)

[1] Ravindra Arora, Wolfgang Mosch, “High Voltage and Electrical Insulation Engineering”, IEEE Press, John Wiley and Sons, 2011
[2] F.H. Krueger, “Partial Discharge Detection in High Voltage Equipment”, Butterworths, 1989
[3] Farouk A. M. Rizk, Giao N. Trinh, “High Voltage Engineering”, CRC Press, 2014
[4] Beberapa jurnal tentang peluahan sebagian dari international Journal

Prerequisite(s)

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