EE425-3: Switchgear and Protection of Power Systems

Course code and name	EE425-3: Switchgear and Protection of Power Systems
Credits units	3 Credit units
Contact hours	5 Contact hours: 2 lecture, 1tutorial and 2 practical
Instructor name	Dr. Houssem Ben Aribia
Textbook	Power System Protection & Switchgear, McGraw Hill Education (1 July 2017), 504 pages, ISBN-10: 0070671184
Other supplemental materials	- Technical guide - 6th edition 2010 Electrical installation handbook Protection, control and electrical devices, by ABB SACE, Published by ABB SACE via Baioni, 35 - 24123 Bergamo (Italy). - National and International Standards: IEC, EN, BS and SASO.
	Specific course information
a. Course description	This course will give students a sufficient background on the protection schemes of an electrical network: protection requirements, protective devices, protection zones, primary and back-up protection, classification of protective relays, principles characteristic of the different protective relays and protection schemes.
b. Prerequisite	EE322-3
c. Required / Elective	Required
	Course Learning Outcomes
<u>CLO of the Lecture Activities:</u> CLO1: Recognize the function of switchgear in power systems. CLO2: Explain the theory, construction, and applications of main types of protective relays. CLO3: Calculate the different parameters needed for the setting of a protective relay. CLO4: Evaluate alternative protection designs and solutions with an understanding of the impact of the proposed solution.	

CLO5: Design a protective scheme to generation, transmission, and distribution system components.

CLO6: Design and define a seminar in one of the course topics.

CLO of the Laboratory Activities:

CLO1: Verify theory and to improve knowledge learned in class.

CLO2: Formulate and solve problems related to theory.

CLO3: Design and safety conducts an experimental procedure.

CLO4: Independently perform accurate quantitative measurements, interpret experimental results, perform calculations on these results and draw a reasonable, accurate conclusion.

CLO5: Communicate critical analysis of scientific information through written reports.

CLO6: Be integrated inside a group of work and respect the team working.

Brief list of topics to be covered

- Introduction to power system protection and switchgear
- Electrical protections relay principles
- Instrument Transformers
- Over current protection
- Differential protection
- Generator protection schemes
- Motor protection schemes
- Transformer protection schemes
- Line protection schemes

Mapping Course Learning Outcomes to Student Outcomes

	Lecture Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							
CLO2							
CLO3							
CLO4							

CLO5							
CLO6							
	Laboratory Activities						
	SO1	SO2	SO3	SO4	SO5	SO6	SO7
CLO1							
CLO2							
CLO3							
CLO4							
CLO5							
CLO6							