

*EE432-2: Protection of power Systems*

Course code and name	EE432-2: Protection of power Systems
Credits units	2 Credit units
Contact hours	4 Contact hours: 1 lecture, 1 tutorial and 2 practical
Instructor name	
Textbook	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).
Other supplemental materials	<ul style="list-style-type: none"><li>- Electrical Installation Guide according to IEC International Standards, Published by Schneider Electric.</li><li>- Manufacturer catalogs: Schneider, ABB, Siemens and Legrand.</li></ul>
Specific course information	
a. Course description	This course allows the students to design a good protected system in low and medium voltage using protective equipment and gives an overview of the controlgear devices used to command the different components of an electric installation. Student will be able to choose the necessary control and protective devices for an electric installation in low or medium voltage.
b. Prerequisite	EE424-3 and EE429-3
c. Required / Elective	Elective
Course Learning Outcomes	
<u>CLO of the Lecture Activities:</u>	
CLO1: Recognize the different types of switchgear and controlgear with their functions in LV and MV power systems.	
CLO2: Calculate the different parameters needed for the selection of switchgear or controlgear.	
CLO3: Design a MV substation as per standard.	
CLO4: Design a feasible control system needed for each main part of an installation.	

CL05: Design and define a seminar in one of the course topics.

CL0 of the Laboratory Activities:

CL01: Verify theory and to improve knowledge learned in class.

CL02: Formulate and solve problems related to theory.

CL03: Design and safety conducts an experimental procedure.

CL04: Independently perform accurate quantitative measurements, interpret experimental results, perform calculations on these results and draw a reasonable, accurate conclusion.

CL05: Communicate critical analysis of scientific information through written reports.

CL06: Be integrated inside a group of work and respect the team working.

**Brief list of topics to be covered**

- Protection fundamentals.
- Short circuit calculation
- Fuses: Types, characteristics and applications
- Circuit breakers and switchgears: Types, characteristics and applications
- Protection discrimination and coordination between upstream and downstream protective devices
- Controlgear: Types, characteristics and applications

**Mapping Course Learning Outcomes to Student Outcomes**

	Lecture Activities						
	S01	S02	S03	S04	S05	S06	S07
CL01							
CL02							
CL03							
CL04							
CL05							
	Laboratory Activities						
	S01	S02	S03	S04	S05	S06	S07

<b>CL01</b>							
<b>CL02</b>							
<b>CL03</b>							
<b>CL04</b>							
<b>CL05</b>							
<b>CL06</b>							