EE221-2: Electrical Safety

Course code and name	EE221-2: Electrical Safety
Credits units	2 Credit units
Contact hours	4 Contact hours: 1 lecture, 1 tutorial and 2 practical
Instructor name	Prof. Atef Aly Mohamed Elemary
Textbook	Massimo A.G. Mitolo, "Electrical Safety of Low Voltage Systems", McGraw Hill, 2009.
Other supplemental materials	Lecture notes on electrical safety prepared by the instructor. Multi-media associated with the text book and the relevant websites.
	Specific course information
a. Course description	This course will be devoted to the study of rules for protection persons against direct and indirect contacts. Different part will be developed: the various parameters to assess the danger in an electric network, earthing system TT, TN (S, C and CS) and IT, Residual current devices, Criteria for selection of earthing systems, Grounding resistance. Worker under power line. .
b. Prerequisite	EE112-2
c. Required / Elective	Required
	Course Learning Outcomes

CLO of the Lecture Activities:

CLO1: Explain basic information and nomenclature of safety, de-energized line work, ground resistance (hemisphere, rod, etc.), ground resistance of person.

CLO2: Demonstrate neutral point connection to earth, electric hazards, earthing system in low voltage networks, RCD.

CLO3: Calculate electric shock of person at home, current flowing a person, touch and step voltage, time it take to induce ventricular fibrillation, based on IT, TT and TN(-C, -S, C-S-), electric shock under power line (step and touch voltage).

CLO4: Analyze the results of shock and fault loop impedance to check safety of person, circuit protective conductor (cpc), based on BS and IT, TT and TN(-C, -S, C-S-).

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

- Basic Definitions and Nomenclature
- Electrical Hazards
- Grounding Resistance
- Electric Safety at Home
- Safety of Personnel Working on Power Lines
- Review and Exam

Mapping Course Learning Outcomes to Student Outcomes

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

CLO3							
CLO4							
CLO5							
CLO6							