Name of the Course: Electrical Power

Code of the course: ACE124

Level: First Year

Name of the research point	Description
1- Poly-phase Power Systems (PS)	- Introduction - Comparison between poly-phase PS - 3-phase power generation - Current and potential of poly-phase PS - Power calculations of 3-phase PS - Loading of 3-phase PS Power factor calculations and correction of 3-phase PS
2- AC Transmission Line (TL) Parameters	- Introduction - Different types of AC TL - Mechanical and electrical considerations for TL design - Different types and configurations of cables of TL - TL Electrical parameters (description and calculations) - Equivalent model of TL - Evaluation of TL quality
3- Electrical Power Generation (PG)	- Introduction - Renewable energy sources and Electrical PG - Classical methods of power generation - Different configurations of Electrical generators - Equivalent circuit and mathematical description of electrical generator - Parallel generator switching on bus-bar - Control methods of power generators
4- Transmission Line Modelling	- Introduction to transmission lines models

	- Briefly, discuss one of the transmission line models (Short – Medium – Long) - Select one of transmission lines models (T or π) and list its equation - Briefly, discuss the types of power system loads and load characteristics
5- Electrical Power Distribution	- Introduction to Electrical Power Distribution - Briefly, discuss the methods of the design of subtransmission system (Radial or Loop or Networks) - Discuss the Impedance diagram, Reactance Diagram, and single diagram. - Briefly, discuss the load characteristics
6- Electrical Power protection	- Introduction to Electrical Power Protection - Grounding - Sources of surge and its methods of Protections - Electrical power phenomena
7- Design a power system distribution for industrial projects.	- Introduction to Electrical Power Design - Components of electrical power system for any selected project (Hospital, Water treatment, …. Etc.) - Ratings (Currents, Voltages, Power) of the design

Instructor Name **Head of IECE Dept.**

Prof. Hamdi Awad

Dr. Essam A. Gomah **Prof. Hamdi Awad**