Medi-Caps University

Indore, Madhya Pradesh

Department of Electrical Engineering

Value Added Course for the students of Electrical Engineering

"Simulation of Power System Studies using Power World Simulator"

Course Objective:

The objective of the course is to impart training on Power World Simulator tool for simulation of various Power System studies such as Load Flows, Economic Load Dispatch, Market Clearing Price, Contingency Analysis, Fault Studies, and study of Blackout in Power System.

Course Outcomes (CO):

CO	On successful completion of this course, the students will be able to,
CO 1	Understand the basic features of the tool and development of single line diagram.
CO2	Analyze the load flow studies with a 5 bus example.
CO3	Evaluate the market clearing price, contingency analysis, fault studies, and simulation of blackout in a simple power system.

Module - 1:

Basic features: Introduction to Power World Simulator –Creating new file – Edit mode, Run mode – Draw mode - network (different electrical components identification) – background options – each electrical component field options – development of a single line diagram for a simple power system – explore pie charts and line limits to avoid overload on the transmission lines.

Module - 2:

Load flows: 5 bus system example **–** build the network with load flow data – run the Gauss Seidal Load flow and Newton Raphson (NR) load flow – case information - explore Ybus and compare the results with both the load flows – DC load flow – difference flows with increment of load.

Module - 3:

Incorporating cost curves to the generators – Economic Load dispatch – market clearing price – contingency analysis – fault studies - Simulation of tripping of a line due to overload – simulation of blackout.

Reference Text Books:

1. Modern Power System Analysis by I. J. Nagarath & D. P. Kothari, TMH, 2nd Edition.
2. Power system analysis by Hadi Saadat, MGH International.
3. Computer Techniques in Power System Analysis by M. A. Pai, TMH, 2nd Edition.
4. Computer Techniques and Models in Power Systems by K. Uma Rao, I. K. International.

Faculty Profile

Dr. M. Murali working as an Associate Professor and Head in the Department of Electrical Engineering at Medi-Caps University, Indore, MP, India. He obtained B.Tech Degree in Electrical and Electronics Engineering from Jawaharlal Nehru Technological University, Hyderabad, Telangana, India in 2006. He received M.Tech degree in Power Systems specialization from NIT Tiruchirapalli, Tamilnadu, India in 2008. He acquired Ph.D degree in Electrical Engineering from NIT Warangal, Telangana, India in 2015. He has 10 years of teaching experience and 4 years of research experience. He has published various SCIE, SCOPUS indexed journals, Book chapters and Patents. His current research areas of interest are Transmission Pricing, Artificial Intelligence & Meta heuristic techniques applications in Power

Systems, Operation and control of Power Systems, Power System Deregulation and Renewable Energy Technologies.