FUNDAMENTALS OF ELECTRICAL ENGINEERING

PROF. DEBAPRIYA DAS
Department of Electrical Engineering
IIT Kharagpur

TYPE OF COURSE : Rerun | Core | UG
COURSE DURATION : 12 weeks (20 Jul'20 - 09 Oct'20)
EXAM DATE : 17 Oct 2020

INTENDED AUDIENCE : B.E/B.Tech
INDUSTRIES APPLICABLE TO : Power Grid, NTPC, NHEC, DVC and State Electricity Boards. In general, this basic course is for all engineering professionals.

COURSE OUTLINE:
This course is mainly for undergraduate First-Year Engineering students from all Specializations. This course will introduce and explain the fundamental concepts of basic electrical engineering. The basic concepts of DC and AC (Single Phase and Three Phase Circuits) network analysis, first order DC transients, steady state and phasor analysis of AC networks, series and parallel resonance and magnetic coupled circuits. This course will also cover Single Phase Transformers, Three Phase Induction Machines and DC Machines. By the end of the course, the students should be able to gather high-quality knowledge of basic Electrical Engineering.

ABOUT INSTRUCTOR:
Prof. Debapriya Das obtained his B.E. degree from Calcutta University (B.E. College (Presently known as IIEST), Shibpur, Howrah, WB), M.Tech. from I.I.T. Kharagpur and Ph.D. from IIT Delhi. He has nearly thirty years of experience in teaching and research. For more information, one can visit his IIT Kharagpur website as well as his personal website www.ddas.co.in/. One can also visit the website https://scholar.google.co.in/citations?user=yZj2uFYAAAAJ.

COURSE PLAN:
Week 01 : Basic Concepts and Basic Laws
Week 02 : Methods of Analysis
Week 03 : DC Network Theorems
Week 04 : Capacitors and Inductors and First Order Circuits
Week 05 : Sinusoidal and Phasors
Week 06 : Sinusoidal Steady-State Analysis
Week 07 : AC Circuit Analysis and Network Theorems
Week 08 : Series and Parallel Resonance and Magnetically Coupled Circuits.
Week 09 : Three Phase Circuits and Power Measurements
Week 10 : Single Phase Transformers
Week 11 : Three Phase Induction Machines
Week 12 : DC Machines