DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EE506PC: POWER ELECTRONICS LAB (R22)

III Year B.Tech. EEE I-Sem

Any eight experiments should be conducted

1. Study of Characteristics of SCR, MOSFET & IGBT,
2. Gate firing circuits for SCR's
3. Single Phase AC Voltage Controller with R and RL Loads
4. Single Phase half controlled &fully controlled bridge converter with R and RL loads
5. Forced Commutation circuits (Class A, Class B, Class C, Class D & Class E)
6. Single Phase Cyclo-converter with R and RL loads
7. Single Phase series& parallel inverter with R and RL loads
8. Single Phase Bridge inverter with R and RL loads

Any two experiments should be conducted

1. DC Jones chopper with R and RL Loads
2. Three Phase half-controlled bridge converter with R-load
3. Single Phase dual converter with RL loads
4. (a)Simulation of single-phase Half wave converter using R and RL loads (b)Simulation of single-phase full converter using R, RL and RLE loads (c)Simulation of single-phase Semi converter using R, RL and RLE loads
5. (a)Simulation of Single-phase AC voltage controller using R and RL loads (b)Simulation of Single phase Cyclo-converter with R and RL-loads
6. Simulation of Buck chopper
7. Simulation of single-phase Inverter with PWM control
8. Simulation of three phase fully controlled converter with R and RL loads, with and without freewheeling diode. Observation of waveforms for Continuous and Discontinuous modes of operation.
9. Study of PWM techniques

BRILLIANT INSTITUTE OF ENGINEERING & TECHNOLOGY-**QA**
(Approved by A.I.C.T.E, New Delhi, Affiliated to SBTET, Hyderabad, Accredited by NAAC with 'A' Grade)
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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EE604PC: POWER SYSTEM LAB (R22)

III Year B.Tech. EEE II-Sem

The following experiments are required to be conducted as compulsory experiments: Part - A

1. Characteristics of IDMT Over-Current Relay.
2. Differential protection of 1-Φ transformer.
3. Characteristics of Micro Processor based Over Voltage/Under Voltage relay.
4. A,B,C,D constants of a Long Transmission line
5. Finding the sequence impedances of 3-Φ synchronous machine.
6. Finding the sequence impedances of 3-Φ Transformer.

In addition to the above six experiments, at least any four of the experiments from the following list are required to be conducted.

Part - B

1. Formation of Y_{BUS}.
2. Load Flow Analysis using Gauss Seidal (GS) Method.
3. Load Flow Analysis using Fast Decoupled (FD) Method.
4. Formation of Z_{BUS}.
5. Simulation of Compensated Line

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EE605PC: CONTROL SYSTEMS LAB (R22)

III Year B.Tech. EEE II-Sem

The following experiments are required to be conducted compulsory experiments:

1.Time response of Second order system

2. Characteristics of Synchros

3. Programmable logic controller – Study and verification of truth tables of logic gates, simple Boolean expressions, and application of speed control of motor.

4. Effect of feedback on DC servo motor

5. Transfer function of DC motor

6. Transfer function of DC generator

7. Characteristics of AC servo motor

8. Lag and lead compensation – Magnitude and phase plot

In addition to the above eight experiments, at least any two of the experiments from the following list are required to be conducted

9. Temperature controller using PID

10. Effect of P, PD, PI, PID Controller on a second order systems

11. (a) Simulation of P, PI, PID Controller.

(b) Linear system analysis (Time domain analysis, Error analysis) using suitable software

12. Stability analysis (Bode, Root Locus, Nyquist) of Linear Time Invariant system using suitable software.

13. State space model for classical transfer function using suitable software -Verification.

14. Design of Lead-Lag compensator for the given system and with specification using suitable software.

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

EE703PC: SIMULATION OF RENEWABLE ENERGY SYSTEMS LAB (R22)

IV Year B.Tech. EEE I-Sem

List of experiments:

1. Modeling the steady state and dynamic characteristics of the following

(i) PV,

(ii) Fuel cell and.

(iii) Wind energy sources.

2. Power converter topologies for stand –alone and grid connected

(i) PV,

(ii) Fuel cell and.

(iii) Wind energy sources.

3. Maximum Power Point Tracking Schemes.
4. Power factor correction techniques for AC to DC systems.
5. Switched capacitor DC – DC power converters.
6. ZVS, ZCS configurations.
7. Compensation Schemes for VAR, harmonics and phase imbalance Power conversion and Electric Drives.
8. New power converter topologies and their analysis, modeling and simulation.
9. High frequency link power conversion.
10. Radiation effects on power electronic systems and components EMI/EMC.
11. Analysis, measurement and mitigation of EMI in Electronic and power electronic systems.
12. Micro grid Power Quality.