**17EE41P2-POWER SYSTEMS LAB**

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| **Course Category:** | Professional core | **Credits:** | 2 |
| **Course Type:** | Laboratory | **Lecture-Tutorial-Practical:** | 0-0-3 |
| **Pre-requisite:** | Power system Analysis, Switchgear and Protection | **Sessional Evaluation:****Univ.Exam Evaluation:****Total Marks:** | 4060100 |

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| **Course Objectives:** | Students undergoing this course are expected to: |
| 1. Learn about various system studies and different techniques used for  system planning.2.Learn about the dynamic analysis of power system3. Present problem oriented knowledge of power system analysis  methods.4. Learn to analyze the performance of relays.5. Learn about the characteristics of the fuses.6. Learn to measure the earth resistance and breakdown voltage of the  transformer oil. |
| **Course Outcomes:** | After completing the course the student will be able |
| **CO1** | Understand inverse over current, differential over current and percentage differential relay characteristics |
| **CO2** | Understand the fuse characteristics |
| **CO3** | Understand modeling of transmission lines |
| **CO4** | To measure the earth resistance and oil testing |
| **CO5** | Understand load flow studies by using G-S method |
| **CO6** | Understand load frequency dynamics of single and two area power systems  |
| **Course Content:** | Minimum of 10 experiments to be conducted out of the following:**LIST OF EXPERIMENTS**1. Voltage distribution in a string of insulators
2. Inverse over current relay characteristics
3. Directional over current relay characteristics
4. Percentage differential relay characteristics
5. Fuse characteristics
6. ABCD parameters of a transmission line.
7. Sequence impedance of synchronous machine
8. Characteristics of a typical power system load
9. Measurement of earth resistance
10. Oil testing
11. Computation of parameter & modelling of transmission  lines
12. Formation of Y bus & Z bus
13. Solution of power flow using G-S method
14. Economic dispatch in power systems
15. DVR with & without stabilizer using Matlab program and simulation
16. Load-frequency dynamics of single and two area power systems
17. Numerical solution of the swing equation

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