**19EE41P2-POWER SYSTEMS & SIMULATION LAB**

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| **Course Category:** | Professional core | **Credits:** | 1.5 |
| **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 learn: |
| 1. About various system studies and different techniques used for system planning.2.The dynamic analysis of power system3. Present problem oriented knowledge of power system analysis methods.4. To analyze the performance of relays.5. The re-wirablefuse characteristics .6. To measure the earth resistance and breakdown voltage of the transformer oil. |
| **Course Outcomes:** | After completing the course the student will be able to |
| **CO1** | Understand inverse over current, differential over current and percentage differential relay characteristics |
| **CO2** | Describe the fuse characteristics |
| **CO3** | Enumerate the modeling of transmission lines |
| **CO4** | Measure the earth resistance and perform dielectric strength of transformer oil  |
| **CO5** | Explain the load flow studies by using G-S method |
| **CO6** | Apply 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. String efficiency calculation of 3-disc String
2. characteristics of Inverse over current relay
3. characteristics of Directional over current relay
4. characteristics of Percentage differential relay
5. characteristics of re-wirable Fuse characteristics
6. Evaluation of ABCD parameters of a transmission line using MATLAB.
7. Measurement of Sequence impedances of synchronous machine
8. Measurement of earth resistance
9. Testing of dielectric strength of Transformer Oil.
10. Formation of Y bus& Z buspower system network using MATLAB programming.
11. Solution of power flow using G-S method with MATLAB programming.
12. Economic dispatch in power systems with MATLAB programming.
13. DVR with & without stabilizer using MATLAB programming.
14. Load-frequency dynamics of single and two area power systems using MATLAB
15. Numerical solution of the swing equation using MATLAB programming.
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