**20EE22P2-POWER ELECTRONICS & 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 Electronics | **Sessional Evaluation:**  **External Exam Evaluation:**  **Total Marks:** | 40  60  100 |

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| **Course Objectives:** | To make the student learn about: | |
| 1.The design of triggering circuits of SCR.  2. The commutation circuits of SCR.  3. The characteristics of SCR, TRIAC, IGBT and MOSFET.  4. The performance of various converters.  5. The chopper circuits.  6. The induction motor drive. | |
| **Course Outcomes:** | After completing the course the student will be able to | |
| **CO1** | Analyze the thyristor turn-on by R,RC,UJT triggering experimentally. |
| **CO2** | Verify the power rectification from 1- Φ A.C to D.C. |
| **CO3** | Verify the power conversion from 1- Φ A.C to A.C. |
| **CO4** | Analyze the forced commutation of thyristor. |
| **CO5** | Verify the power conversion from DC to1-ph A.C . |
| **CO6** | Analyze the performance of induction motor by controllers. |
| **Course**  **Content:** | Minimum of 10 experiments to be conducted out of the following:  **List of Experiments**  1) V-I characteristics of SCR, MOSFET & IGBT.  2) Power control with SCR using R & RC triggering.  3) Power control with SCR using UJT triggering.  4) Thyristor forced commutation Techniques.  5) Series inverter  6) Parallel inverter.  7)Morgan’s chopper  8) Simulation of single phase half wave and full wave converter.  9) Simulation of power control with TRIAC & DIAC.  10) Simulation of speed control of single phase Induction motor.  11) Simulation of D.C Jones chopper.  12) Simulation of 1-Ø to 1- Ø Cyclo converter.  13) Simulation of semi and full wave converters.  14) Simulation of 1-Φ A.C voltage controller | |