

## PPE204SYSTEM SIMULATION LABORATORY

<b>L</b>	<b>T</b>	<b>P</b>	<b>Cr</b>
<b>0</b>	<b>0</b>	<b>4</b>	<b>2.0</b>

To analyze, design and simulate different power converters studied in the core courses on power converters, Inverters and dynamics of electrical machines.

1. Simulation of single phase half and full wave controlled converter fed RLE load.
2. Simulation of single phase half and fully controlled converter fed RL/RLE load.
3. Simulation of three phase half and fully controlled converter fed RL/RLE load
4. Simulation of Single phase Dual converter in circulating and non circulating mode operation
5. Simulation of single phase ac phase controlled fed R/RL load (lighting and fan control)
6. Simulation of single phase VSI fed RL/RC load
7. Single phase full bridge inverter using PWM techniques
8. Simulation of i) LC tank circuit resonance Basic / modified series inverter
9. Series loaded series resonant inverter
10. Simulation of single phase current source inverter fed induction heating load.
11. Three phase inverter (120<sup>0</sup>mode & 180<sup>0</sup>mode)
12. Simulation of three phase to single phase cyclo - converter fed RL load
13. Three phase inverter fed induction motor drive
14. Simulation of Cascaded multilevel inverter and other topologies
15. Open loop and closed loop control of single phase semi converter fed dc drive
16. Open loop and closed loop control of chopper fed dc drive
17. Four quadrant operation of three-phase induction motor
18. Micro controller based speed control of Converter/Chopper fed DC motor
19. Micro controller based speed control of VSI fed three-phase induction motor
20. Simulation of converters through fuzzy logic controllers, Neural controllers.
21. Simulation of FACTS controller for power flow control
22. Simulation of dynamics of armature plunger / relay contactor arrangement.
23. Numerical solution of ordinary differential equations.
24. Numerical solution of partial differential equations.
25. System validation using dspace
26. System validation using pSpice/LTspice
27. Filter design using webench/nuhertz.

### Evaluation Scheme:

S. No.	Evaluation Elements	Weightage (%)
1.	MST (Lab simulation)	10
2.	EST	35
3.	Sessionals (May include Assignments/Projects/Tutorials/Quizes etc.)	40