



MADANAPALLE INSTITUTE OF TECHNOLOGY & SCIENCE, MADANAPALLE


DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING


B. Tech III Year II Semester – R 20


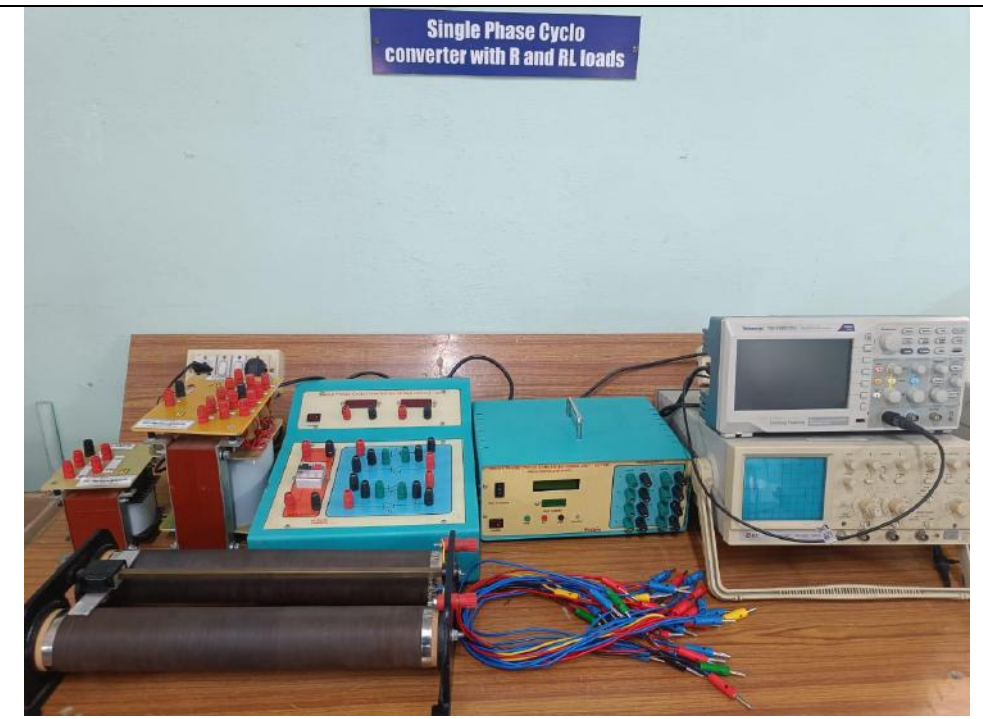
POWER ELECTRONICS LABORATORY – 20EEE212


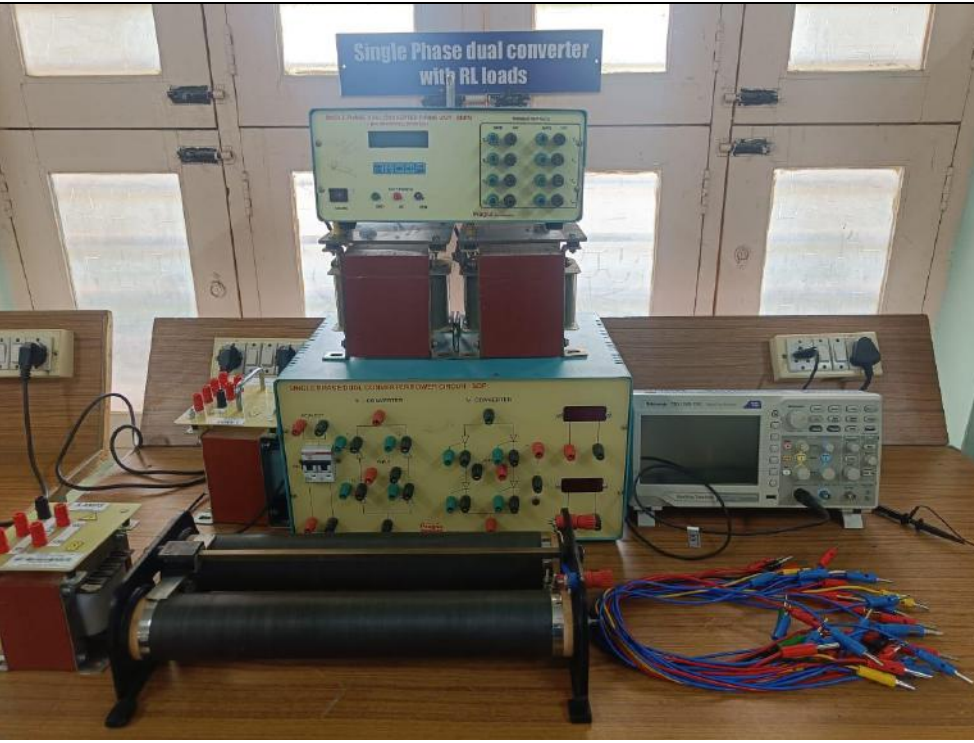
LIST OF EXPERIMENTS

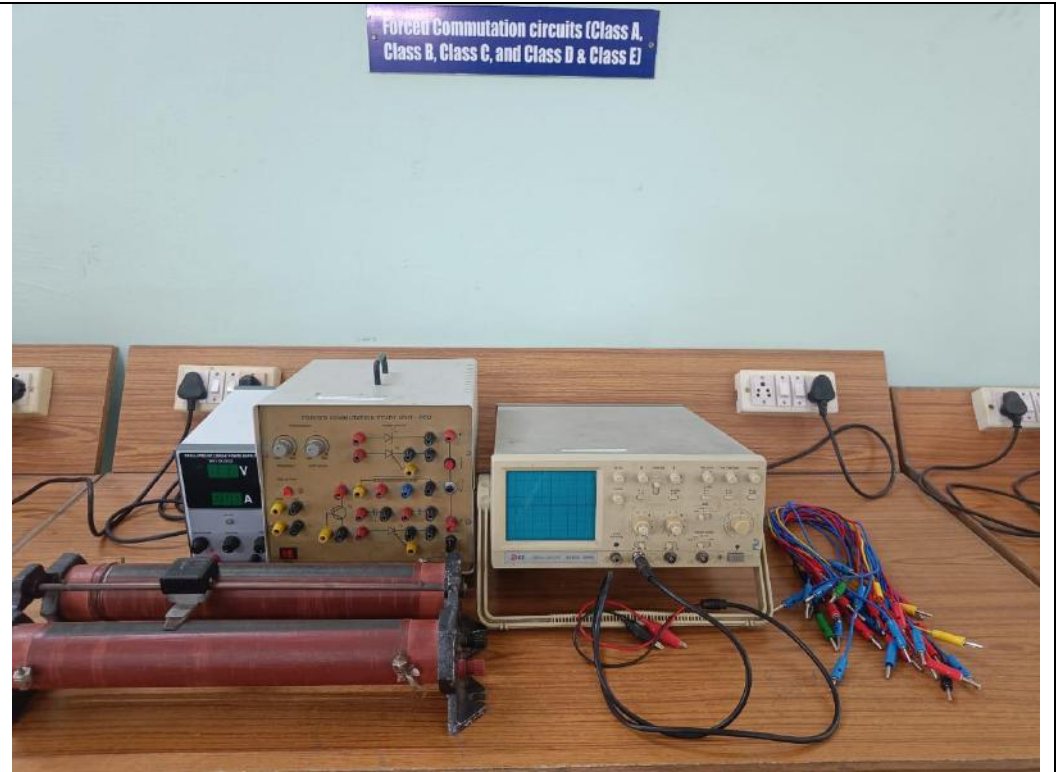
SI NO	NAME OF THE EXPERIMENTS	Equipment details	Image
1	Study of Characteristics of SCR, MOSFET & IGBT.	<ol style="list-style-type: none">1. SCR, MOSFET, IGBT Characteristics Study Unit2. Voltmeters – (0-30V)3. Ammeters – (0 – 50mA)	
2	Gate firing circuits for SCR's.	<ol style="list-style-type: none">1. RC-Firing circuit study unit2. UJT-Firing circuit study unit.3. Digital Storage Oscilloscope (DSO) – 100 MHz/CRO – 20 MHz	

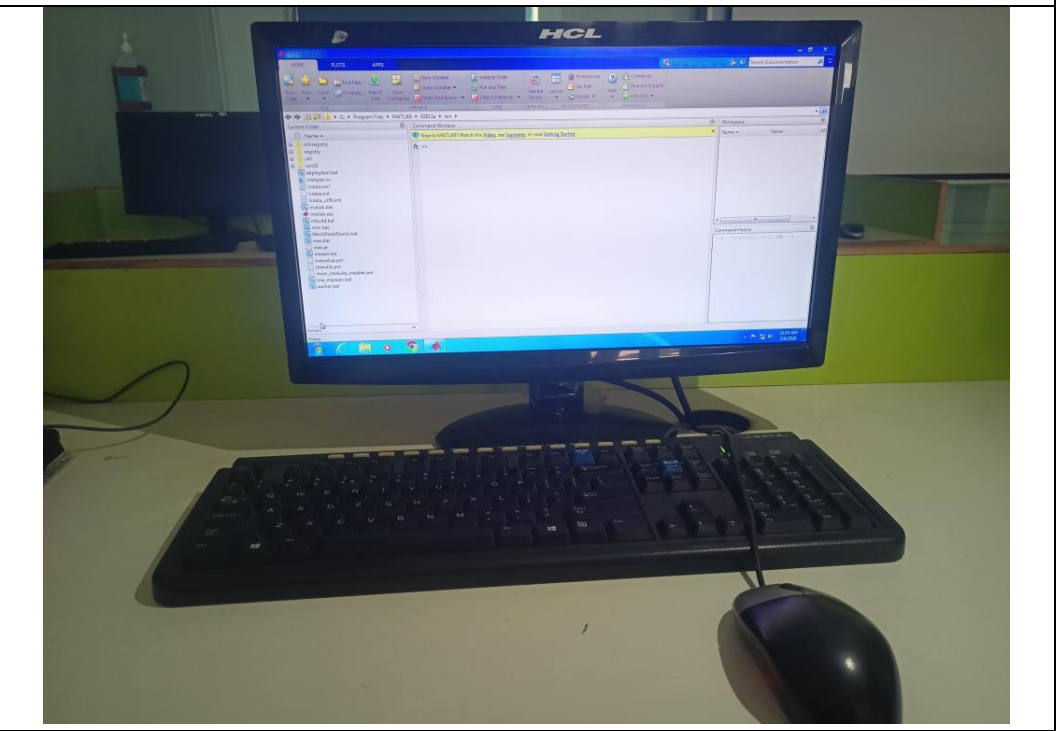
3	Single Phase AC Voltage Controller with R and RL Loads.	<ol style="list-style-type: none"> 1. Single phase ac voltage controller study unit. 2. Single phase ac voltage controller firing Board. 3. Digital Storage Oscilloscope (DSO) – 100 MHz/CRO – 20 MHz 4. Rheostat-150 ohms/5A 5. Variable Inductive Load (0-150mA) 	
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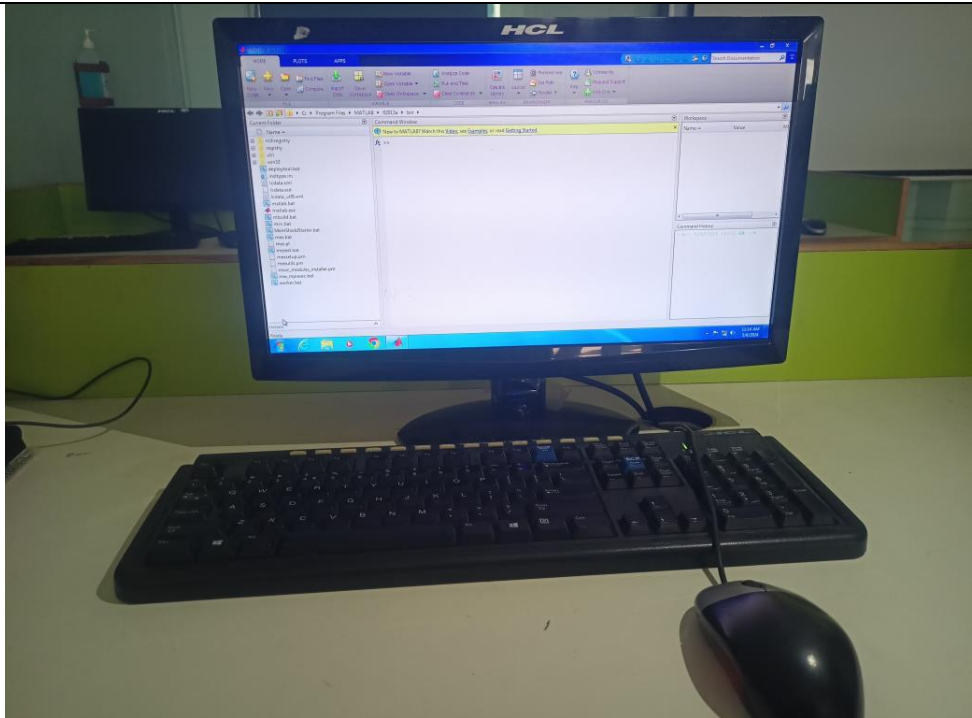
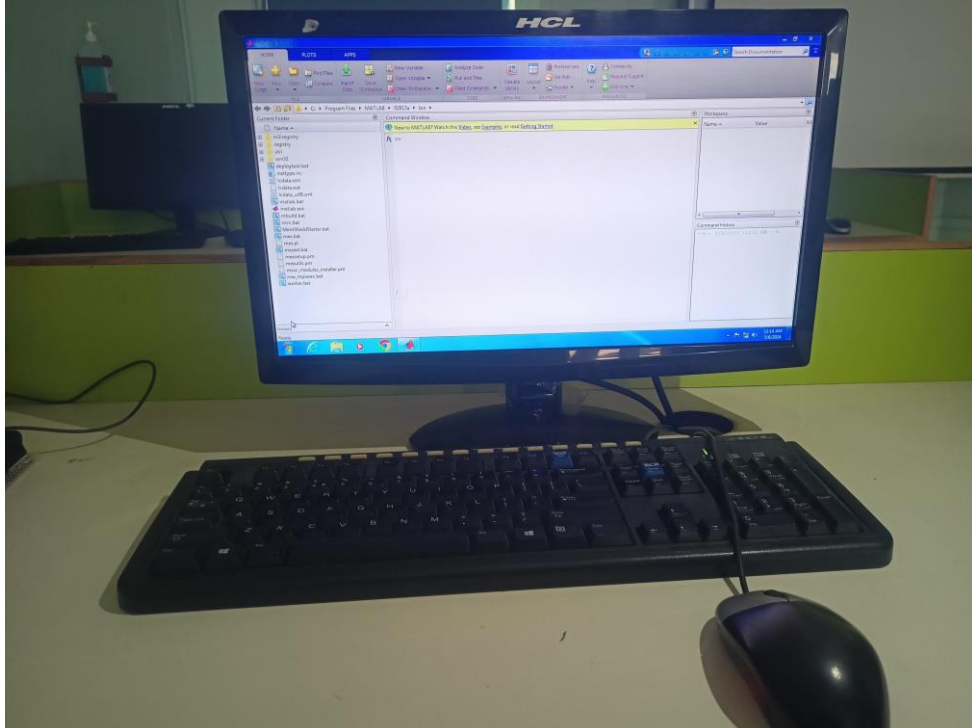
4	Single-phase half & fully controlled bridge converter with R and RL loads.	<ol style="list-style-type: none"> 1. Single phase fully controlled bridge study unit 2. Single phase fully controlled bridge firing unit 3. Single phase 230V isolation Transformer 4 Digital Storage Oscilloscope (DSO) – 100 MHz/CRO – 20 MHz 5. Rheostat-150 ohms/5A 6. Variable Inductive Load (0-150mA) 	
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5	Single Phase thyristor-based inverter with R and RL loads.	<ol style="list-style-type: none"> 1. Regulated Power Supply – (0-30V) 2. Series and Parallel Inverter Study Unit 3. Digital Storage Oscilloscope (DSO) – 100 MHz/CRO – 20 MHz 4. Rheostat-50 ohms/2A 5. Inductance load 300mH / 2A 	
6	Single Phase Cycloconverter with R and RL loads.	<ol style="list-style-type: none"> 1. Single phase Cycloconverter Study unit 2. Single phase Cycloconverter firing Unit 3. Single phase 230V isolation Transformer 4. Rheostat – 500 Ohms 5. Variable Inductive Load (0-150mA) 6. Digital Storage Oscilloscope (DSO) – 100 MHz/CRO – 20 MHz 	

7	<p>Three-phase half-controlled bridge converter with R-load.</p>	<ol style="list-style-type: none"> 1. Three phase half controlled converter power circuit 2. Three phase converter firing circuit 3. Three phase solation transformer 4. Digital Storage Oscilloscope (DSO) – 100 MHz/CRO – 20 MHz 5. Rheostat – 600V/5A 	
8	<p>Single Phase dual converter with RL loads.</p>	<ol style="list-style-type: none"> 1. Single phase dual converter. (Power circuit & firing circuit.) 2. Single phase 230V isolation Transformer 3. Digital Storage Oscilloscope (DSO) – 100 MHz/CRO – 20 MHz 4. Rheostat – 200 Ohms/5A 5. Variable Inductive Load (0-150mA) 	

9	Forced Commutation circuits.	<ol style="list-style-type: none"> 1. Forced Commutation Study Module 2. Regulated Power Supply – (0-30V) 3. Digital Storage Oscilloscope (DSO) – 100 MHz/CRO – 20 MHz 4. Rheostat – 150 Ohms/5A 	
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10	Modeling and simulation of gate driver circuits for MOSFET, IGBT.	<p>System Configuration</p> <ol style="list-style-type: none"> 1. Model : HCL 2. Processor: i3 – 2nd Generation 3. RAM: 6 GB DDR3 4. HDD: 500 GB SATA 5. Monitor: 15.6” 	
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11	Simulation of three phase voltage source inverter with Sine PWM technique.	<p>System Configuration</p> <ol style="list-style-type: none"> 1. Model : HCL 2. Processor: i3 – 2nd Generation 3. RAM: 6 GB DDR3 4. HDD: 500 GB SATA 5. Monitor: 15.6” 	
12	Simulation of Buck, Boost and Buck-Boost converter.	<p>System Configuration</p> <ol style="list-style-type: none"> 1. Model : HCL 2. Processor: i3 – 2nd Generation 3. RAM: 6 GB DDR3 4. HDD: 500 GB SATA 5. Monitor: 15.6” 	

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Study of Characteristics of
SCR, MOSFET & IGBT.
(Simulation)

System Configuration

1. Model : HCL
2. Processor: i3 – 2nd Generation
3. RAM: 6 GB DDR3
4. HDD: 500 GB SATA
5. Monitor: 15.6”

