

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**  
**M. TECH. POWER ELECTRONICS**  
**EFFECTIVE FROM ACADEMIC YEAR 2022- 23 ADMITTED BATCH**

**R22 COURSE STRUCTURE AND SYLLABUS**

**I YEAR I SEMESTER**

Course Code	Course Title	L	T	P	Credits
Programme Core - I	Advanced Power Electronic Converters-I	3	0	0	3
Programme Core - II	Electrical Drives	3	0	0	3
Programme Elective - I	1. Machine Modelling and Analysis 2. Microcontroller Applications to Power Electronics 3. Smart Grid Technologies 4. Modern Control Theory	3	0	0	3
Programme Elective - II	1. Power Semiconductor Devices and Modelling 2. Reactive Power Compensation and Management 3. High Frequency Magnetic Components 4. Electric Vehicles and Design	3	0	0	3
	Research Methodology and IPR	2	0	0	2
Lab - I	Advanced Power Electronic Converters Lab-I	0	0	4	2
Lab - II	Electrical Drives Lab	0	0	4	2
Audit-I	Audit Course - I	2	0	0	0
	<b>Total</b>	<b>16</b>	<b>0</b>	<b>8</b>	<b>18</b>

**I YEAR II SEMESTER**

Course Code	Course Title	L	T	P	Credits
Programme Core - III	Advanced Power Electronic Converters-II	3	0	0	3
Programme Core - IV	Power Electronics Application to Power Systems	3	0	0	3
Programme Elective - III	1. Industrial Load Modelling and Control 2. Advanced Digital Signal Processing 3. Power Quality Improvement Techniques 4. Power Electronics for Renewable Energy Systems	3	0	0	3
Programme Elective - IV	1. DSP based Drive Control 2. Distributed Generation 3. Electric Vehicle Charging Techniques 4. Electromagnetic interference and compatibility	3	0	0	3
	Mini Project with Seminar	0	0	4	2
Lab - III	Advanced Power Electronic Converters Lab-II	0	0	4	2
Lab - IV	Power Electronics Application to Power Systems Lab	0	0	4	2
Audit - II	Audit Course - II	2	0	0	0
	<b>Total</b>	<b>14</b>	<b>0</b>	<b>12</b>	<b>18</b>

**II YEAR I SEMESTER**

Course Code	Course Title	L	T	P	Credits
Programme Elective - V	1. Reliability Engineering 2. Dynamics of Electrical Machines 3. Energy Storage Technologies 4. SCADA Systems and Applications	3	0	0	3
Open Elective	1. Business Analytics 2. Industrial Safety 3. Operations Research 4. Cost Management of Engineering Projects 5. Composite Materials 6. Photovoltaic Systems	3	0	0	3
Dissertation	Dissertation work Review - II	0	0	12	6
	<b>Total</b>	<b>6</b>	<b>0</b>	<b>12</b>	<b>12</b>

**II YEAR II SEMESTER**

Course Code	Course Title	L	T	P	Credits
Dissertation	Dissertation work Review - III	0	0	12	6
Dissertation	Dissertation Viva-Voce	0	0	28	14
	<b>Total</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>20</b>

**\*For Dissertation Work Review - I, Please refer in R22 Academic Regulations.**

**Open Elective**

1. Business Analytics (Offered by **CSE** Department)
2. Industrial Safety (Offered by **Chemical Engineering** Department)
3. Operations Research (Offered by **Mechanical Engineering** Department)
4. Cost Management of Engineering Projects (Offered by **Civil Engineering** Department)
5. Composite Materials (Offered by **Metallurgical Engineering** Department)
6. Photovoltaic Systems (Offered by **EEE** Department)

**Audit Course I & II**

1. English for Research Paper Writing.
2. Disaster Management.
3. Sanskrit for Technical Knowledge.
4. Value Education.
5. Constitution of India.
6. Pedagogy Studies.
7. Stress Management by Yoga.
8. Personality Development through Life Enlightenment Skills.