

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**  
**M. TECH. ELECTRICAL POWER ENGINEERING/ ELECTRICAL POWER SYSTEMS**  
**EFFECTIVE FROM ACADEMIC YEAR 2022- 23 ADMITTED BATCH**

**R22 COURSE STRUCTURE AND SYLLABUS**

**I Year I Semester**

<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
Programme Core - I	Advanced Power System Analysis	3	0	0	3
Programme Core - II	Economic Operation of Power Systems	3	0	0	3
Programme Elective - I	1. Advanced Power Electronic Converters 2. Renewable Energy Technologies 3. Smart Grid Technologies 4. Modern Control Theory	3	0	0	3
Programme Elective - II	1. HVDC Transmission 2. Electrical Power Distribution System 3. Reactive Power Compensation and Management 4. Electric Vehicles and Design	3	0	0	3
	Research Methodology and IPR	2	0	0	2
Lab - I	Power Systems Computation Lab-I	0	0	4	2
Lab - II	Advanced Power Systems 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**

<b>Course Code</b>	<b>Course Title</b>	<b>L</b>	<b>T</b>	<b>P</b>	<b>Credits</b>
Programme Core - III	Digital Protection of Power System	3	0	0	3
Programme Core - IV	Power System Dynamics	3	0	0	3
Programme Elective - III	1. Restructured Power Systems 2. Power Quality Improvement Techniques 3. EHV AC Transmission 4. Swarm Intelligence Techniques in Power Systems	3	0	0	3
Programme Elective - IV	1. AI Techniques in Power Systems 2. Electric Vehicle Charging Techniques 3. Power System Reliability and Planning 4. Industrial Load Modelling and Control	3	0	0	3
	Mini Project with Seminar	0	0	4	2
Lab - III	Power Systems Computation Lab-II	0	0	4	2
Lab - IV	Power System Protection 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. Power System Transients 2. FACTS and custom Power Devices 3. Gas Insulated Systems 4. SCADA System 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 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.