

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M. TECH. POWER ENGINEERING AND ENERGY SYSTEMS
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	Renewable Energy Technologies	3	0	0	3
Programme Core - II	Advanced Power Electronic Converters	3	0	0	3
Programme Elective - I	1. High Frequency Magnetic Components 2. Optimization of Energy Systems 3. Smart Grid Technologies 4. Modern Control Theory	3	0	0	3
Programme Elective - II	1. Distributed Generation 2. Reactive Power Compensation and Management 3. Electric Vehicles and Design 4. Industrial Load Modelling and Control	3	0	0	3
	Research Methodology and IPR	2	0	0	2
Lab - I	Advanced Power Electronic Converters Lab	0	0	4	2
Lab - II	Renewable Energy Lab	0	0	4	2
Audit-I	Audit Course - I	2	0	0	0
	Total	16	0	8	18

I YEAR II SEMESTER

Course Code	Course Title	L	T	P	Credits
Programme Core - III	Digital Protection of Power System	3	0	0	3
Programme Core - IV	Energy Storage Systems	3	0	0	3
Programme Elective - III	1. Restructured Power Systems 2. Energy Conversion Processes 3. Power Quality Improvement Techniques 4. Electric Vehicle Charging Techniques	3	0	0	3
Programme Elective - IV	1. AI Techniques in Energy Systems 2. Wind Energy Conversion Systems 3. Energy Auditing and Management 4. Power System Reliability and Planning	3	0	0	3
	Mini Project with Seminar	0	0	4	2
Lab - III	Energy Systems Lab	0	0	4	2
Lab - IV	Power System Protection Lab	0	0	4	2
Audit-II	Audit Course - II	2	0	0	0
	Total	14	0	12	18

II YEAR I SEMESTER

Course Code	Course Title	L	T	P	Credits
Programme Elective - V	1. Hydrogen Fuel Cells 2. FACTS and custom Power Devices 3. Gas Insulated Systems 4. SCADA System and Applications	3	0	0	3
Open Elective	Open Elective	3	0	0	3
Dissertation	Dissertation work Review - II	0	0	12	6
	Total	6	0	12	12

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
	Total	0	0	40	20

***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.