

**PROGRAM NAME: POST GRADUATE DIPLOMA IN ENERGY MANAGEMENT
(RENEWABLE ENERGY) PGDEM (RE)**

PROGRAMME STRUCTURE

Semester I

Conventional Energy & Environmental Implication

1. Energy Resources - An Overview
2. Energy Use and Impact on Environment
3. Conventional & Sustainable Energy
4. Energy Production and Consumptions

Fundamentals of Heat and Electricity

1. Graphing Functions, Domain and Range
2. Polynomial and Rational Functions
3. Limits
4. Derivatives
5. Integration
6. Current and Resistance
7. Introduction to Magnetic Fields
8. Faraday's Law of Induction
9. Thermodynamics
10. Heat Transfer Mechanisms

Business Law

1. Indian Contract Act, 1872 – Part I
2. Indian Contract Act, 1872 – Part II
3. Special Types of Contracts
4. Partnership Act, 1932
5. Sale of Goods Act, 1930
6. The Negotiable Instruments Act, 1881
7. The Consumer Protection Act, 1986
8. Companies Act, 2013

Renewable Energy Sources

1. Introduction to Renewable Energy Resources
2. Solar Energy
3. Bio-Energy
4. Wind Energy
5. Other Renewable Energy Sources

Semester II

Renewable Energy Technologies

1. Solar Energy
2. Bio Energy
3. Wind Energy
4. Other Renewable Energy Technologies

Renewable Energy Economics

1. Policy issues and economic implications.
2. The Energy Transition -Economic Development Co-relation.
3. Economic Rationale for renewables
4. Market situation
5. Accelerating energy transition to Renewables
6. Impact of renewable Energy Consumption on economics in India.

Government Policies and Regulations

1. Government Policies And Regulations
2. Laws And Acts Of Electricity In India
3. Regulations
4. State Governments Policies

Project Management (Operations)

1. Projects Overview
2. Projects Management Process
3. Projects Financing and Evaluation
4. Project Estimation and Economic Analysis
5. Organizing for Project
6. Project Planning
7. Networks for Project Management
8. Resource Levelling and Project Crashing
9. Project Implementation and Monitoring
10. Controlling Project
11. Projects Contracts Management
12. Management Risk in Projects
13. Project Quality Management
14. Software Project Management
15. Issues in Project Management

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Semester III

Shared Energy Infrastructure

1. National Grid operation and management
2. State Electricity companies
3. Load Dispatch Centres
4. Renewable energy integration with grid

Introduction to Energy Management and Auditing

1. Definitions and objectives of energy management and audit.
2. Need for energy audit. Types of energy audit
3. Energy audit methodology. Energy management approach
4. Energy audit instrumentation
5. Data and information analysis.

Environmental & Health Impact of Energy Use

1. Energy and the challenge of Sustainability
2. Energy and Health Impacts of a Policy to Phase out nuclear power in India
3. Environmental and Health Impact of Coal use for energy.
4. Environmental Challenges in Energy Carbon Dioxide, Air, Water and Land use.
5. Energy Impact of Renewable Electricity Generation

Energy Conservation and Management

1. Energy Management & Conservation
2. General Principles of Energy Management
3. Energy Management Planning ,Energy Consumption pattern
4. Energy Storage Devices

Semester IV

Fundamentals of Solar Power

1. Solar Energy
2. Photo voltaic cell working principle, Photovoltaic Sensor
3. Photovoltaic Design
4. Photovoltaic Installation
5. Residential Photovoltaic Systems.

Integration of Renewable Systems.

1. Grid Integration Issues of Renewable Energy Sources
2. Case Study – Renewable Integration
3. Harnessing and Integrating India's Renewable Energy Resources
4. Computer Aided Power Systems Operation and Analysis

Project Work

Students are required to submit the hard copy of the project by the end of the semester IV.