



Rajiv Gandhi Proudyogiki Vishwavidyalaya, Bhopal (M.P.)

Syllabus for Entrance Examination for Admission in Ph.D. Program ENERGY TECHNOLOGY

- **Renewable & Non-Renewable Energy Sources-**

Principles of energy conversion and energy systems such as Solar, Wind, Biomass, Hydroelectric, Nuclear, Geothermal, Ocean Thermal, Tidal, Hybrid Systems and recent innovative technologies in the field of energy sector, Mathematical simulation and optimization of energy systems, Energy security and policy, energy financing and sustainable economy, Design and system integration issues in renewable energy power plants, Fossil fuels, coal, petroleum and natural gas etc., nuclear power generation, bio-energy and bio-fuels, energy use pattern in different parts of the world
- **Power Generation, Transmission & Distribution of renewable & Non-renewable-**

Electrical Energy Generation, concepts, various types of generating stations and their locations. Smart grids and micro grids based on renewable power sources.
- **Energy Sources, Policy & Planning -**

Review of world & Indian energy situation in respect of demand, supply & resources in the historic context. Review of power development in India. Primary & secondary energy resources and their inter convertibility.
- **Clean Coal & Green Power Technology-**

Coal Technologies, Zero Emission Technology, Green Productivity, Advanced Energy Systems-Fluidized Bed Combustion, Atmospheric Fluidized Bed Combustion (AFBC), Pressurized Fluidized Bed Combustion (PFBC) and Circulating Fluidized Bed Combustion (CFBC), Clean Coal Technologies-Supercritical Cycles, Integrated Gasification Combined Cycle (IGCC) Power Plants, Cold and Hot Gas Clean-Up system, Hydrogen generation, Fuel Cell, MHD-generator.
- **Energy Conservation, Management & Audit-**

Energy Audit, Need, Types of Energy Audit, Energy Management Audit, Maximizing System Efficiencies, Optimizing the Input Energy Requirements, Energy Audit Instruments. Investment Need, Financial Analysis Techniques- Financing Options, Energy Performance Contracts and Role of ESCOs
- **Clean Development Mechanism-**

Major objective of CDM, Projects for benefit from CDM finance, CDM methodology, CDM opportunities & priorities in India, flow of fund in Kyoto protocol.