NITTTR BHOPAL

EEE-3/2025-2026
Emerging Trends in Renewable Energy Systems and Technologies
26-05-2025 to 30-05-2025
NITTTR Bhopal

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Rationale

The rationale behind studying emerging trends in renewable energy technologies lies in the urgent global need to transition towards sustainable and low-carbon energy systems. With the increasing concerns over climate change, depleting fossil fuel resources, and rising energy demands, renewable energy sources such as solar, wind, hydro, and biomass have become critical components of future energy strategies. Emerging technologies like advanced photovoltaic materials, floating solar farms, offshore wind turbines, smart inverters, energy storage systems, and green hydrogen are revolutionizing how clean energy is harnessed, stored, and distributed. These innovations aim to improve efficiency, reduce costs, and enhance grid integration, making renewable energy more reliable and scalable.

Programme Outcomes

•Describe the current status and future scope of various renewable energy technologies
•Explain the role of energy storage systems and smart grid integration
•Examine the impact of IoT in the monitoring, control, and optimization of renewable energy systems.
•Interpret policy frameworks and incentives for deployment of renewable energy technologies.
•Design emerging renewable technologies for real-world applications.

Programme Content

Global and national energy trends and targets, Role of renewables in sustainable development, Challenges and drivers of renewable energy adoption, Emerging photovoltaic technologies, Floating solar systems and building-integrated photovoltaics (BIPV), Solar thermal systems and Concentrated Solar Power (CSP), Vertical-axis wind turbines (VAWTs), Next-generation biofuels, Bioenergy sustainability and carbon footprint, Advanced battery technologies, Integration of storage with renewables for grid stability

Target Group

Faculty of all disciplines

Coordinator & Co-Faculty

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