



माधव प्रौद्योगिकी एवं विज्ञान संस्थान ग्वालियर



MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE GWALIOR
DEEMED UNIVERSITY

October-December 2024

THE FUSION FRONTIER

**CENTRE FOR COMPUTER SCIENCE
AND BUSINESS MANAGEMENT**

E-NEWSLETTER

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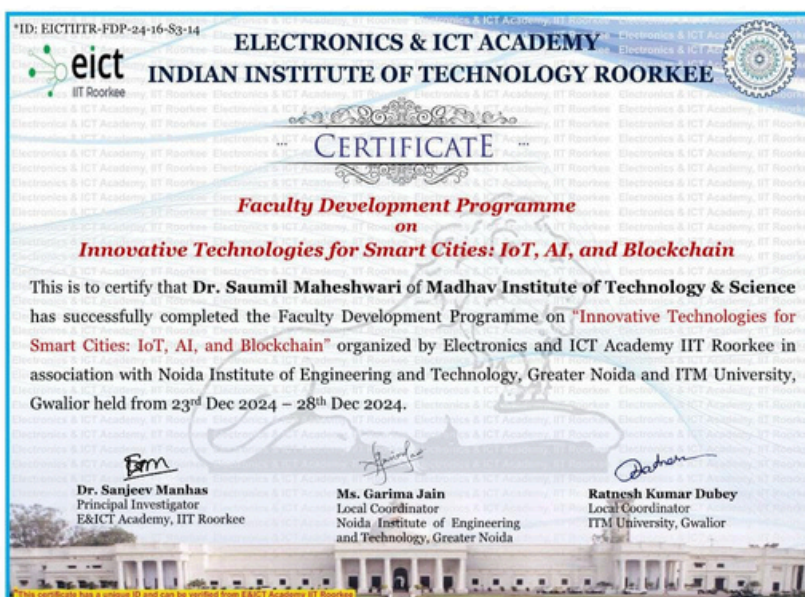
October- December 2024

Recognition by Faculty Members

- **Dr. Devanshu Tiwari** is recognized as 'NPTEL Believer', July-Dec 2024.

FDP Attended by Faculty Members

- **Dr. Saumil Maheshwari** attended a Faculty Development Programme on "Innovative Technologies for Smart Cities: IoT, AI, and Blockchain" organized by EICT Academy, IIT Roorkee from 23rd December 2024 to 28th December 2024.
- **Dr. Abhishek Dixit** attended a Faculty Development Programme on "Innovative Technologies for Smart Cities: IoT, AI, and Blockchain" organized by EICT Academy, IIT Roorkee from 23rd December 2024 to 28th December 2024.
- **Dr. Abhishek Dixit** has completed Industrial Training in Data Analytics using Spreadsheets from 26/11/2024 to 12/12/2024 conducted by NIELIT Gorakhpur.





NPTEL Course Attended by Faculty

- **Dr. Devanshu Tiwari** attended and completed the NPTEL FDP on Big Data Computing and Intellectual Property Rights and Competition Law.
- **Mr. Utkarsh Sharma** attended and completed the NPTEL FDP on Big Data Computing.

Activities Organized (Workshop/Conference/FDP/STC) at Institute level

- Centre for CSBM organized a workshop on Indian Constitution and Traditional knowledge for the students of first year on 19th and 20th October 2024.

Book Chapter/Books Published

- **Devanshu Tiwari et al.** Electrical digital twins-enabled smart grid. In Digital Twins for Smart Cities and Villages (pp. 489-512). Elsevier. DOI: <https://doi.org/10.1016/B978-0-443-28884-5.00021-X>. Available online 31 October 2024.
- **Reena, A. Tiwari, S. Maheshwari**, “Development of an Enhanced Pattern Mining Model Leveraging Deep Learning and Genetic Algorithms” 2nd International Conference on Artificial Intelligence, Computing Technologies, Internet of Things (IoT) and Data Analytics (AICTA-2024), held at NIT, Raipur, 15-17th November 2024.

Latest Technologies

Green Energy: Powering a Sustainable Future

Green energy refers to energy that is produced from renewable, environmentally friendly sources, reducing our reliance on fossil fuels and minimizing environmental impact. As we face the growing challenges of climate change, green energy plays a vital role in creating a more sustainable, clean future. Here's an overview of key green energy technologies and their benefits:

1. Solar Energy: Harnessing the Power of the Sun

Solar energy is one of the most popular forms of green energy. Photovoltaic (PV) panels capture sunlight and convert it into electricity. With advancements in solar technology, solar energy is now more affordable and accessible than ever. Residential and commercial solar installations not only help reduce energy bills but also reduce greenhouse gas emissions.

Benefits of Solar Energy:

- Reduces carbon footprint
- Low operational and maintenance costs
- Can be used in remote areas where the grid isn't accessible

2. Wind Energy: Capturing the Breeze

Wind turbines convert the kinetic energy of wind into electricity. Wind energy is rapidly growing around the world, with large-scale wind farms being developed both offshore and on land. Countries like Denmark and Spain have made significant strides in generating a substantial percentage of their electricity from wind.

Benefits of Wind Energy:

- Sustainable and renewable source of power
- Can be used on both large and small scales
- Creates jobs in manufacturing, installation, and maintenance

"India has the potential to become one of the leading economies in the world. But this potential can only be realized through hard work, determination, and political will."

Dr. Manmohan Singh

3. Hydropower: The Power of Water

Hydropower has been used for centuries to generate electricity. It involves harnessing the energy of moving water, typically from rivers or dams, to produce electricity. While large-scale hydropower projects are common, small-scale and micro-hydropower systems are also becoming more widespread.

Benefits of Hydropower:

- Consistent and reliable power generation
- Can provide both electricity and water management solutions
- Long lifespan and low maintenance costs

4. Geothermal Energy: Heat from the Earth

Geothermal energy utilizes heat from beneath the Earth's surface to generate electricity and provide heating. Geothermal power plants use steam or hot water reservoirs to drive turbines that produce electricity. This technology is particularly effective in regions with high volcanic activity, such as Iceland, the Philippines, and parts of the U.S.

Benefits of Geothermal Energy:

- Low emissions of greenhouse gases
- Can provide a continuous, stable power supply
- Minimal land footprint and long-term reliability

5. Biomass Energy: Organic Waste into Power

Biomass energy is derived from organic materials such as wood, agricultural waste, and even algae. These materials can be burned directly or processed into biofuels for electricity generation or transportation. Biomass can be a carbon-neutral option when managed sustainably, as the CO₂ released during combustion is offset by the CO₂ absorbed during plant growth.

Benefits of Biomass Energy:

- Reduces waste in landfills by repurposing organic materials
- Can provide a consistent and reliable energy source

"Education is the most powerful tool to bring about change in society and to create a more equitable world"

Dr. Manmohan Singh

The Future of Green Energy

As technology advances, the cost of renewable energy is expected to continue decreasing, making it more accessible to businesses, homeowners, and entire communities. Governments worldwide are setting ambitious goals to transition to 100% renewable energy, making green energy not just an environmentally friendly choice, but an economic and socially beneficial one too.

What Can You Do?

- **Consider Solar or Wind for Your Home or Business:** Take advantage of incentives and rebates to make the switch.
- **Support Green Energy Policies:** Advocate for policies that prioritize renewable energy investments.
- **Be Energy Efficient:** Reduce energy use by opting for energy-efficient appliances, and weatherproof your home to reduce heating and cooling costs.

By embracing green energy, we can take meaningful steps toward reducing carbon emissions, protecting the environment, and ensuring a sustainable future for generations to come.