ONLINE FACULTY DEVELOPMENT PROGRAMME (FDP) ON

Smart Grids and IT: Facilitating Electric Vehicle Integration into Renewable Energy Sources

(17th March - 27th March 2025)

Organised by

Electronics & ICT Academy (Hub), NIT Warangal

in association with

E&ICT Academy (Spoke), NIT Raipur, Raipur – 492010, Chhattisgarh

&

Indian Institute of Technology Bhilai, Bhilai – 491002, Chhattisgarh

Sponsored by

Ministry of Electronics and Information Technology (MeitY), GoI

Smart grids, powered by advanced information technologies (IT), play a pivotal role in integrating electric vehicles (EVs) with renewable energy sources, creating a more sustainable and efficient energy ecosystem. These grids leverage real-time data, automation, and communication systems to enable bidirectional energy flow between the grid, EVs, and renewable power sources like solar and wind. Smart grids help manage the variable and intermittent nature of renewable energy by optimizing the charging and discharging schedules of EVs, ensuring that vehicles charge when excess renewable energy is available, thus reducing reliance on fossil fuels. Additionally, EVs can act as mobile energy storage units, supporting grid stability by feeding energy back during peak demand periods. Through smart grid technologies, such as demand-response systems and predictive analytics, grid operators can efficiently balance supply and demand, making the integration of renewable energy and EVs more reliable and scalable.

Major Course Content:

- Overview of Smart Grids
- Renewable Energy Sources
- Smart Grid Communication Networks
- Introduction to Electric Vehicles (EVs)
- Challenges of EV Integration into Grids
- EV Charging Management
- Role of Information Technology in Smart Grids
- Data Management and Cybersecurity
- Renewable Energy and EV Synergy
- Energy Storage Systems and EVs
- Grid Stability and Management with EVs
- Economic Viability and Cost-benefit Analysis
- Market Mechanisms and EV Grid Services
- Real-world Applications of Smart Grids and EVs
- Future of Smart Grids and EVs: Challenges and Solutions

Faculty conducting this programme:

The program will be conducted by the faculty members from NIT Raipur and IIT Bhilai; Academicians in the concerned field from IITs/NITs/IIITs are invited to deliver lectures in the program. Speakers from industries are also expected to deliver as part of the course.

Fee Particulates

Participants need to pay the Registration Fee Online using the following details.

Faculty/research scholars:	**Rs.750/-**
Industry Participants	**Rs.2250/-**

Online Transfer Details

Account Name: **Electronics & ICT Academy NITW**
Account No : **62423775910**
IFSC : **SBIN0020149**
Bank and Branch: **SBI, NIT**(REC) Warangal

How to apply:

Participants are required to fill in the online registration form by clicking on the following link:

https://forms.gle/s2s9T5rkQEkipX3e9

Selection Criteria:

The selection will be made on a first-come-first-serve basis to a preferable maximum number of 50 (fifty). Candidates will be issued satisfactory certificates on successful completion of the course.

Important Dates:

Last date (Application)	**10.03.2025**
Selection List by E- mail	**12.03.2025**
Duration	**17.03.2025 to 27.03.2025**

About NIT Warangal:

National Institute of Technology, Warangal, is the first among 17 RECs set up as a joint venture of the Government of India and the state government. Over the years, the college has established itself as a premier Institute imparting technical education of a very high standard, leading to B.Tech degrees in various branches of engineering, M.Tech., and Ph.D. programs in various specializations. All B. Tech and M. Tech programs of NIT Warangal are NBA accredited.

About NIT Raipur

National Institute of Technology Raipur (Formerly Government Engineering College Raipur) was established in 1956 and enquired the status of National Institute of Technology (an Institution of National Importance) on 1st December 2005. The institute is committed to the challenging task of development of technical education by preparing seasoned graduates in highly sophisticated fields of engineering and technology. Core values adopted by the Institute as enduring principles are Integrity, Excellence, Transparency and Accountability. At present the institute offers graduate level courses in 12 disciplines, postgraduate in 13 disciplines and doctorate programs in all the advanced and core fields of engineering.

About IIT Bhilai

Indian Institute of Technology (IIT) Bhilai was established in the state of Chhattisgarh by the Ministry of Education in the year 2016. IIT Bhilai is presently housed in its permanent campus at Kutelabhata, Bhilai, Chhattisgarh. IIT Bhilai offers Bachelor of Technology (BTech), Master of Technology (MTech), Master of Science (MSc) and Doctoral programs (PhD) in various departments. The Institute made its modest start with the introduction of BTech program in August 2016.

Coordinators

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