ONLINE FACULTY DEVELOPMENT PROGRAMME (FDP) ON

Next-Generation EV Propulsion Control: Energy-Efficient Vector Control, Model Predictive & Fault-Tolerant Designs

(21st September – 02nd October 2026)

Organised by

Electronics & ICT Academy, NIT Warangal

in association with

National Institute of Technology Raipur

Sponsored by

Ministry of Electronics and Information Technology (MeitY), GoI

The transition to electric mobility is driving ever-tighter performance requirements for vehicle propulsion systems, demanding greater efficiency and responsiveness than ever before. Electric drive trains need to maximize energy utilization to extend battery range, while delivering instant torque for smooth, rapid acceleration. Seamless switching between motoring and regenerative braking modes is critical for harvesting energy under deceleration without compromising driver comfort. Highly reliable motor drives are necessary to ensure consistent operation under varied environmental and load conditions, from urban stop-and-go traffic to high-speed highway cruising. To meet these complex challenges, modern EV powertrains rely on advanced control methodologies such as field-oriented (vector) control, which decouples torque and flux dynamics for precise regulation. Predictive algorithms leverage real-time optimization to anticipate system behavior and minimize losses, enhancing overall drivetrain efficiency. Adaptive control schemes automatically tune parameters in response to changing motor characteristics and external disturbances, maintaining optimal performance. This Faculty Development Program will blend rigorous theoretical lectures on control theory with practical lab sessions.

Major Course Content:

- EV Electric Propulsion System Overview
- Mathematical Modeling of EV Motors
- Field-Oriented Control (FOC) for EV Traction Drives.
- Direct Torque Control (DTC) and Model Predictive Control (MPC) in EVs.
- Sensorless Control Methods.
- Adaptive Control Techniques.
- Regenerative Braking Control
- Thermal Management and Control
- Artificial Intelligence and Machine Learning in EV Control

Faculty conducting this programme:

The program will be conducted by the faculty members from 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 Partculars:

Participants need to pay the Registration Fee (Including GST) Online using the following details

Faculty	**Rs.500/-**
Industry Participants	**Rs. 2250/-**

Online Transfer Details

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

How to apply:

Participants are required to fill the online registration form by clicking on the following link:
https://docs.google.com/forms/d/e/1FAIpQLSeL9J6DmE-lqel2pA7SZlyzDVCAbgwJydBgr1HPY8Pqje5i9Q/viewform?usp=dialog

Selection Criteria:

Selection will be done based on first-come-first-serve basis to a preferable maximum number of 40 (fifty). Candidates will be issued satisfactory certificates on successful completion of the course.

Important Dates:

Last date (Application)	**13.09.2026**
Selection List by E- mail	**17.09.2026**
Duration	**21.09.2026 to 02.10.2026**

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 (NIT) Raipur, formerly known as Government Engineering College (GEC) Raipur was established in1956. The institute has established its unique identity for the development of high-quality human and knowledge resources. It was declared as 'National Institute of Technology' by the Government of India on 1st December 2005 and then an' Institute of National Importance' in May 2007 vide the National Institute of Technology Act 2007. NIT Raipur now offers 12 UG and 16 PG programs. In addition to the UG and PG programs, NIT Raipur also offers Ph.D.in 18 disciplines of science and technology. For details about the institute please visit us at www.nitrr.ac.in

About other institution (if any)

Coordinators

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