NITTTR BHOPAL

COE-4/2025-2026
Electric Drives
21-07-2025 to 25-07-2025
NITTTR Bhopal

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Rationale

This training program on Electric Drives is designed to impart both theoretical knowledge and practical insights into the selection, design, and control of electric drive systems. It will cover fundamental concepts of electrical machines, dynamic modeling, control techniques (scalar and vector control), drive topologies, and digital implementation using embedded systems and microcontrollers.

Furthermore, participants will explore applications in EVs, industrial automation, renewable energy integration, and robotics, supported by real-time simulations and case studies. The program will also emphasize the role of power electronic converters (DC-DC, DC-AC, AC-DC), motor control algorithms, and emerging technologies such as AI-assisted drive control and condition monitoring.

With a strong focus on hands-on learning and industry practices, the training program is aligned with the needs of academia, R&D, and industry. It aims to bridge the skill gap and promote interdisciplinary learning by blending the

Programme Outcomes

•Analyze the principles and concepts underlying electric drives.
•Evaluate the significance and functionality of key components in electric drive systems.
•Interpret the role of power electronics in different drives.
•Evaluate the design and performance of AC-DC and DC-DC converters in Electric Drives.
•Develop the use of power electronics converters in electric drive systems.
•Evaluate emerging trends and technologies in electric drives.
•Formulate innovative applications of electric drives in various industries

Programme Content

Overview of Electric Drives, understanding the importance and applications of electric drives, Power Electronics for Electric Drives, practical applications in electric drives, control of Electric Drives, DC Drives, Induction Motor Drives, Advanced Topics and Emerging Trends, and Current research areas.

Target Group

Faculty of Electrical Engineering discipline

Coordinator & Co-Faculty

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