



**NITTTR
BHOPAL**

COE-2/2025-2026

Robotics in Industry 4.0: Transforming Manufacturing

16-06-2025 to 20-06-2025

NITTTR Bhopal



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Rationale

The scope of Robotics and automation is increasing & growing in the industries. With the transformation of sectors toward Industry 4.0 and the rise of robotics engineering, the foundational knowledge of robotics and the use of mechanisms and manipulators is essential.

This programme aims to cover the fundamentals of robotics and various types of robots. This programme is essential for building the skills and knowledge needed to excel in the modern engineering landscape. It introduces key concepts, including programming basics, embedded systems, and the Robot Operating System (ROS), while providing practical training in tools like RobotStudio and RAPID programming. This programme purpose is to equip learners with the knowledge and skills required for real-world robotic applications, preparing them for industrial automation, robotics integration, and advanced manufacturing.

Programme Outcomes

After completion of the programme, the participants will be able to:

- ?Identify the different types of robots based on mechanics, manipulators and degree of freedom.
- ?Apply feedback mechanisms through sensors to enable robots to interact with their environment.
- ?Design algorithms for robotics tasks and innovative automation solutions.
- ?Execute by writing programs within RobotStudio & Robot RAPID in the virtual environment for real-world application.

Programme Content

- Basics of Robotics and its types
- Robot Communication
- Robot Coordinate System
- Robot programming logic and algorithms
- RobotStudio and RAPID programming
- Design using Graphical User Interface (GUI)

Target Group

Faculty of Electrical & Mechanical Engineering and allied disciplines

Coordinator & Co-Faculty

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