



AI ROBOTICS

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► What is AI Robotics

- AI Robotics combines Artificial Intelligence and Robotics to create smart machines that can think, learn, and act independently.
- It's used in healthcare, defense, space, industry, and home automation.
- **Example:** Self-driving cars, drones, humanoid robots, warehouse automation.

ROADMAP

1. CLASS 12 (PCM) – FOCUS ON PHYSICS, MATHS, AND COMPUTER.
2. B.TECH IN CSE, AI/ML, OR ROBOTICS ENGINEERING.
3. LEARN PROGRAMMING (PYTHON, C++, ROS) AND MACHINE LEARNING BASICS.
4. WORK ON SMALL ROBOTICS PROJECTS (LIKE ARDUINO, RASPBERRY PI).
5. DO ONLINE COURSES (COURSERA, GOOGLE AI, UDEMY).
6. GET INTERNSHIPS AND BUILD YOUR PORTFOLIO ON GITHUB.

► KEY SKILLS NEEDED

- Programming: **Python, C++, MATLAB, ROS**
- AI/ML Concepts: **Neural Networks, Deep Learning, Computer Vision**
- Robotics: **Sensors, Control Systems, Embedded Systems**
- Soft Skills: **Problem Solving, Logical Thinking, Innovation**

Planning :-

- Learn Python + Math for ML (Linear Algebra, Probability).
- Explore AI + Robotics YouTube tutorials (OpenCV, TensorFlow).
- Start a mini project: Line following bot / voice-controlled robot.
- Join online communities (GitHub, Kaggle, Reddit Robotics).
- Build a LinkedIn profile showing your learning and projects.

► Why AI Robotics?

1. It's the future of technology and automation.
2. Combines mechanical, electrical, and computer skills.
3. Offers global career opportunities and excellent salaries.
4. You'll be part of innovations like robotic surgery, AI drones, and smart factories.



Challenges in AI Robotics :-

- High cost of development and hardware.
- Data privacy and cybersecurity risks.
- Need for ethical programming.
- Limited human-level reasoning.
- Maintenance and technical skill gap

► Future Scope :-

- AI Robotics will dominate industries, healthcare, military, and space.
- India, Japan, USA, and Europe are investing heavily in robotics research.
- Opportunities as Robotics Engineer, AI Researcher, Automation Developer .
- The future is about robots working alongside humans.