



Internet of Things



Our Vision & Mission

Learnify, MSME and Startup India verified, teaches millions technical skills with expert-led, hands-on courses for career growth.



VISION



The vision of Learnify is to revolutionize education through the seamless integration of technology, creating a direct path from skill acquisition to job readiness.



MISSION



Our mission is to provide personalized and engaging learning experiences for students of all ages by leveraging digital tools, virtual platforms, and data-driven insights to ensure effective skill mastery and career readiness.



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COURSE CURRICULUM

1. INTRODUCTION TO IOT

- What is IoT? Architecture and Ecosystem
- IoT Applications in Industry 4.0
- Embedded Systems vs IoT Systems
- IoT Components: Sensors, Actuators, Controllers



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2.

ELECTRONICS & HARDWARE BASICS

- Introduction to Arduino and Raspberry Pi
- GPIO Pins, Breadboard Setup, and Circuit Design
- Analog vs Digital Sensors
- Hands-on: LED Control and Sensor Data Reading





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3.

NETWORKING & COMMUNICATION PROTOCOLS

- IoT Communication Models
- Wi-Fi, Bluetooth, Zigbee, MQTT, HTTP, CoAP
- Cloud Connectivity Concepts
- Hands-on: Device-to-Cloud Communication Simulation



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4.

PYTHON & EMBEDDED PROGRAMMING FOR IOT

- Python for Microcontrollers
- Serial Communication & Data Parsing
- Basic Scripting for Sensor Data Collection
- Hands-on: Temperature & Humidity Monitoring Project

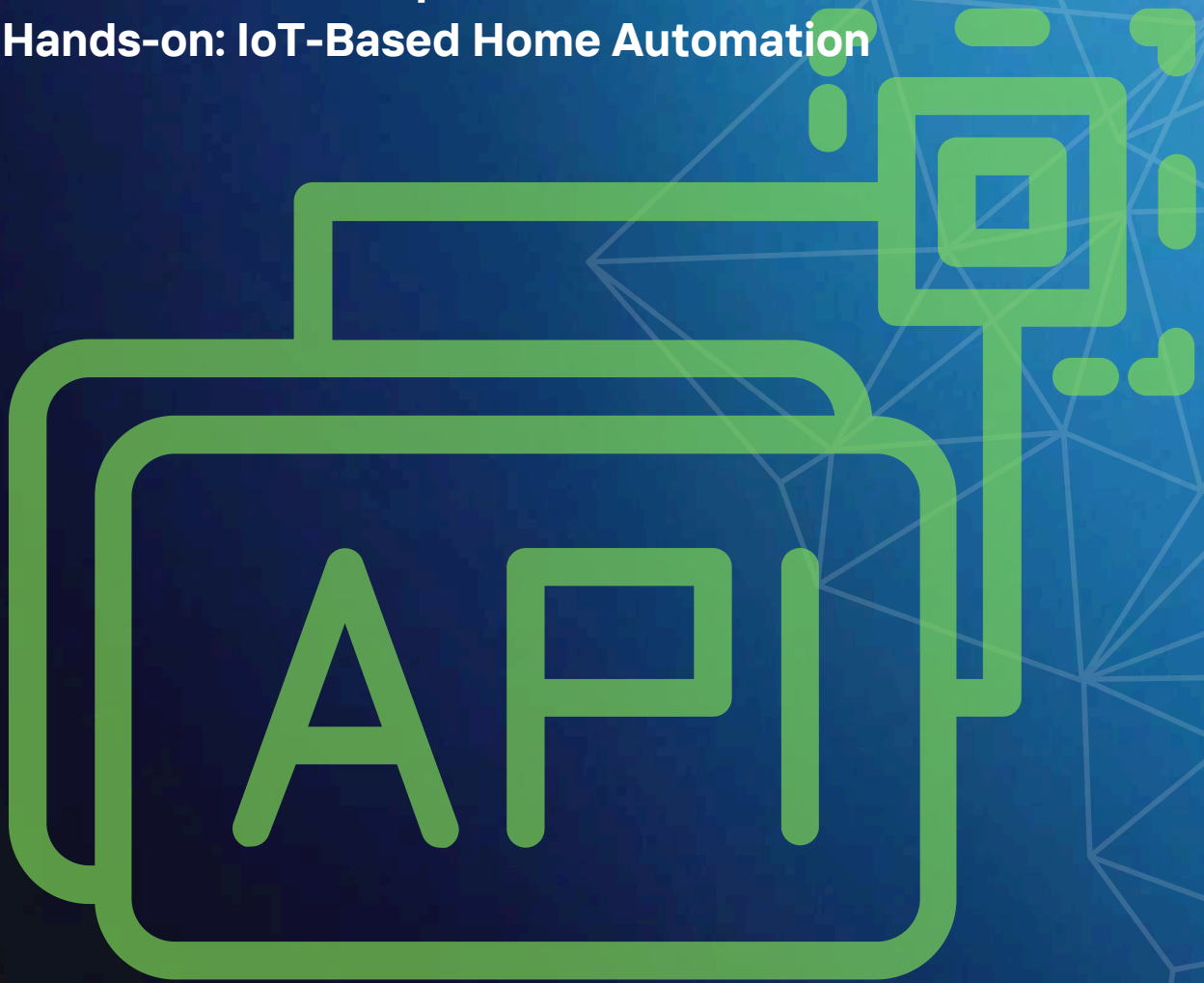


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5.

MICROCONTROLLERS & IOT BOARDS

- **Arduino Uno, ESP8266, ESP32, Raspberry Pi**
- **Circuit Design and Power Management**
- **Real-time Data Acquisition**
- **Hands-on: IoT-Based Home Automation**



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6. IOT CLOUD PLATFORMS

- AWS IoT, ThingSpeak, Google Cloud IoT, and Blynk
- MQTT Broker Setup and Data Streaming
- Cloud Dashboards and Remote Monitoring
- Hands-on: Live Sensor Data Visualization using ThingSpeak



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7.

DATA HANDLING & ANALYTICS FOR IOT

- Data Storage & Cleaning Techniques
- Real-Time Data Processing using Python
- IoT Data Visualization with Matplotlib & Power BI
- Hands-on: Smart Energy Meter Dashboard



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8.

IIOT SECURITY & PRIVACY

- IoT Threats & Vulnerabilities
- Secure Authentication, Data Encryption, and Firmware Security
- Best Practices for Secure IoT Design
- Hands-on: Implementing Basic IoT Encryption Protocols



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9.

EDGE COMPUTING & REAL-TIME ANALYTICS

- Introduction to Edge Devices
- Cloud vs Edge Processing
- Real-Time Decision Systems
- Hands-on: Edge-Based Data Analysis with Raspberry Pi



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10. AI & MACHINE LEARNING IN IOT

- ML Models for IoT Predictions
- TensorFlow Lite for Edge Devices
- Predictive Maintenance & Anomaly Detection
- Hands-on: Smart Weather Forecasting using IoT Sensors



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11.

IOT INTEGRATION WITH MOBILE & WEB APPS

- **REST API Integration with IoT Devices**
- **Android App for IoT Monitoring**
- **Web Dashboard Development using Flask/Django**
- **Hands-on: Build an IoT Dashboard with Alerts**



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12.

INDUSTRIAL IOT (IIOT) & AUTOMATION

- Smart Manufacturing & Industry 4.0 Overview
- SCADA Systems, PLCs & Robotics Basics
- Real-Time Monitoring & Control Applications
- Hands-on: Industrial Sensor Network Simulation

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13.

EACH RESEARCH PROJECT INCLUDES

- **Comparative Study on IoT Communication Protocols (MQTT vs HTTP)**
- **AI-Driven Predictive Maintenance in Industrial IoT Systems**
- **Blockchain for Secure IoT Communication**
- **Energy Efficiency Optimization in IoT Networks**
- **Smart City Infrastructure using IoT and Edge Computing**

14.

RESUME BUILDING & PROFILE OPTIMIZATION

- **Crafting an ATS-friendly resume tailored to tech roles**
- **Optimizing LinkedIn & GitHub profiles**
- **Writing impactful career objectives and summaries**



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15.

APTITUDE & LOGICAL REASONING

- Quantitative Aptitude: Speed, Accuracy & Problem Solving
- Logical Reasoning: Puzzles, Patterns & Data Interpretation
- Mock Tests and Time Management Strategies

16.

COMMUNICATION & SOFT SKILLS

- Verbal Communication: Public Speaking & Presentation Skills
- Email Etiquette and Business Communication
- Teamwork, Leadership, and Professional Behavior



17.

TECHNICAL INTERVIEW TRAINING

- Core DS Interview Concepts & Q&A Practice
- Hands-on Coding Interview Sessions (Python & Data Structures)
- Whiteboard Problem Solving & Project Discussion Tips



18.

HR & BEHAVIORAL INTERVIEW PREPARATION

- Understanding HR Questions & Framing STAR-Method
- Answers Mock HR Interviews with Personalized Feedback
- Building Confidence and Positive Body Language



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19.

INTERNSHIP & JOB ASSISTANCE

- Access to Learnify's Hiring Partner Network
- Internship Opportunities with EdTech & AI Startups
- Job Alerts, Career Counseling & Placement Support



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20.

CERTIFICATION & CAREER SUPPORT

- Learnify Certificate of Completion
- MSME & Startup India Certification
- Resume Building & LinkedIn Optimization



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+91 74396 78587



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