Internet Of Things Foundations Training

Duration: **2 Day**

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Internet of Things (IoT) Foundations is a comprehensive introductory course designed for professionals who want to understand the business, technical, and strategic aspects of the Internet of Things. As billions of connected devices continue to transform industries worldwide, IoT has become one of the most significant technologies driving digital innovation, operational efficiency, and new business models.

This course provides a thorough introduction to IoT concepts, architecture, technologies, business opportunities, and implementation challenges. Participants will learn how connected devices communicate, how IoT ecosystems operate, and how technologies such as **Cloud Computing**, **Big Data**, and analytics enable modern IoT solutions.

Supported by real-world case studies, group discussions, hands-on lab activities, and practical scenarios, this training also helps participants prepare for the **Cloud Credential Council (CCC) Internet of Things Certification Exam**.

Prerequisites

Participants are recommended to have basic knowledge of:

- Internet technologies (HTTP, HTTPS, DNS, URLs)
- Networking concepts (LAN, WAN, routers, protocols, topologies)
- Cloud computing fundamentals
- Big Data concepts
- General technology and digital transformation awareness

Who Should Attend

This course is ideal for:

- **Business Analysts**
- **Enterprise Architects**
- **Solution Architects**
- **Project Managers**
- **Program Managers**
- **System Administrators**
- **Technology Consultants**
- **Developers**
- **Application Consultants**
- Digital transformation professionals
- Business and technology leaders exploring IoT initiatives

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What You Will Learn

By the end of this course, learners will be able to:

- Define core **IoT concepts and terminology**.
- Understand the business impact of IoT technologies.
- Evaluate IoT opportunities and monetization strategies.
- Identify key IoT architectural components.
- Understand IoT networking protocols and connectivity options.
- Explain the role of cloud computing, mobility, and Big Data in IoT.
- Assess IoT security and governance challenges.
- Analyze future IoT trends and growth opportunities.

Training Outline

IoT Concepts and Terminology

Internet, Things, and IoT

- What is the **Internet of Things (IoT)**?
- Internet versus Web concepts
- Connected devices and ecosystems
- Introduction to IoT environments

History and Evolution of IoT

- Origins of IoT
- Technology evolution
- IoT's role in digital transformation

Types of IoT

- Industrial IoT (IIoT)
- Consumer IoT
- Commercial IoT solutions
- Smart city applications

IoE, M2M, and IoT

- **Internet of Everything (IoE)**
- **Machine-to-Machine (M2M)**
- Key differences and relationships
- Cyber-Physical Systems

Business Perspectives of IoT

Business Value of IoT

- Digital transformation initiatives

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- Operational efficiency
- Process optimization
- Data-driven decision-making

Benefits of a Connected World

- Real-time data visibility
- Automation opportunities
- Intelligent services
- New business models

IoT Opportunities and Challenges

- Business opportunities
- Technology barriers
- Operational challenges
- Return on investment considerations

IoT Monetization Strategies

- **IoT Monetization Models**
- Subscription-based services
- Data-driven business models
- Service-oriented offerings

IoT Architecture and Core Components

IoT Architecture

- **IoT Architecture**
- Sensors and connected devices
- Networking layer
- Data processing layer
- Application layer

IoT Components

- Smart devices
- Gateways
- Data collection platforms
- Management systems

Network Protocols

- IoT communication protocols
- MQTT
- CoAP
- HTTP and REST APIs
- Wireless connectivity technologies

Enabling Technologies for IoT

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Mobility and Social Media

- Mobile integration
- Social data sources
- User interaction models

SMACT Framework

- **SMACT (Social, Mobile, Analytics, Cloud, Things)**
- Digital transformation technologies
- Integrated innovation strategies

Big Data and Analytics

- **Big Data**
- Data collection and processing
- Real-time analytics
- Predictive insights

Cloud Computing

- **Cloud Computing**
- Cloud-enabled IoT platforms
- Scalable infrastructure
- Data management strategies

IoT Security and Governance

IoT Security Challenges

- **IoT Security**
- Device vulnerabilities
- Data protection concerns
- Authentication challenges

Causes of Security Breaches

- Weak device security
- Poor patch management
- Network-based attacks

IoT Risk Management

- Risk assessment
- Security policies
- Threat mitigation strategies

Governance and Compliance

- Data privacy requirements
- Regulatory compliance
- Governance frameworks

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IoT Use Cases and Applications

Smart Cities

- Traffic optimization
- Smart energy systems
- Connected infrastructure

Industrial IoT

- Manufacturing automation
- Asset tracking
- Predictive maintenance

Healthcare Applications

- Remote patient monitoring
- Smart medical devices
- Healthcare data management

Retail and Logistics

- Intelligent inventory management
- Supply chain visibility
- Enhanced customer experiences

The Future of IoT

IoT Growth Trends

- Global IoT market expansion
- Emerging technologies
- Industry transformation

Future Predictions

- AI-powered IoT
- Edge Computing
- Autonomous systems
- Next-generation connectivity

Labs and Practical Exercises

IoT Technology Labs

- Hands-on IoT experiences
- Practical IoT scenarios
- Connected application demonstrations

Case Studies

- Enterprise IoT projects

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- Success stories
- Problem-solving workshops