Course ID
IoT-OVIEW

Course Title
Internet of Things (IoT): IoT Overview

Course Duration
1 day

Aimed At

Executives, managers, business strategists, policy makers, marketing/sales, and other professionals who need an understanding of the technology and impact of the Internet of Things (IoT).

Prerequisites

General familiarity with Information Technology and the Internet. (Engineering background not necessary.)

Course in a Nutshell

Internet of Things (IoT): IoT Overview, a fast-paced 1-day course, will help you understand the key concepts of IoT and how the various pieces of this technology work together to enable new end-user and infrastructure applications in the near-term and the future.

We will explain what IoT is, what it means at its basic, mid, and advanced levels, what's motivating its rapid growth, the enabling technologies, and examples/case studies. We will discuss the standards, architecture, design principles, and security issues. We will talk about the business of IoT and what you need to know to become an 'IoT entrepreneur', with some sample projects. We will also examine the long-range impact of this technology on the business landscape, everyday life, and the society as a whole.

Customize It!

We can customize this course to your training objectives by making it more or less technical, shortening or extending the course, and by adding or omitting topics as needed.

Course Outline

IoT Overview: What and Why

- What is the Internet of Things (IoT)?
  - Defining 'Things': Hardware, software, data, and services
  - Core ideas
  - IoT objectives
  - Major players
  - Why IoT is important
  - Important IoT terms and trends
  - IoT is a marathon of projects, not just one
- What's motivating IoT?
  - What needs does IoT fill?
  - The 4th Industrial Revolution

Origins of IoT

- The ARPANet, Internet, and WWW
- Machine-to-Machine (M2M) communications
- IPv6 and other protocols
- Growth in hardware/software capabilities

Key Concept: Make Everything Smarter

- Things
- Services
- Processes

IoT Enabling Technologies

- Cheap and ubiquitous telecommunications
- Smart software
- Smart devices
- Cheap memory
- Cheap and extremely powerful microprocessors
- Cloud Computing
- Big Data, Event Stream Processing, Real-Time Analytics
- Machine Learning
- Wireless Sensor Networks
- Low power short-range and wide area wireless networks
- Embedded systems
- Automation and control systems
- Existing and emerging telecom technologies: Li-Fi, LPWAN (LoRaWAN, Sigfox, LTE-M), BLE, ZigBee, Z-Wave, Thread, HaLow, …

IoT Architecture and Implementation

- Where IoT fits in
- Standards and ecosystem
- Basic architecture concepts
- Implementation platforms
- Types of networks used by IoT
- Security issues

Understanding the Vision of IoT

- IoT at the lowest level
    - Connect simple devices over the Internet

    - Examples: Home thermostat, security system
- IoT at the mid-level
    - IoT as enabler of new business and technology models, not just incremental improvement of existing models
    - Example: Autonomous vehicles
- IoT at the highest level
    - New vision of technology capabilities leading to reorganization of society, new ways of living
    - Example: "Smart City" with new relationship among people, vehicles/transportation, and cities

IoT Examples and Case Studies

- Retail
- Healthcare
- Wearables
- Smart Home
- Smart Cities
- Intelligent Transportation
- Smart Grid
- Smart Agriculture
- Smart Industry
- Energy Management

The Business of IoT

- Business models
- Become an 'IoT entrepreneur'
    - IoT software development platforms and operating systems
    - IoT hardware
    - Typical projects
- Challenges and opportunities

IoT's Business and Societal Impact

- Business impact
- The way we live
- Organization of society

IoT Overview Wrap-up: Recap, Discussion, Course Evaluation

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