

Course ID  
**BLUETOOTH**  
Course Duration  
**3 days**

Course Title  
**Bluetooth: A Comprehensive Technology Overview**

**Aimed At** Those who need to know more about Bluetooth technology and its applications

**Group Size** 5-25

**Prerequisites** None

**Course in a Nutshell** Bluetooth is a technology for connecting devices using wireless connections rather than cables. It uses radio frequencies in the 2.45 GHz range to transmit information over short distances. Products that support Bluetooth have hardware and software embedded within them to facilitate communication using Bluetooth protocols.

The course begins with an introduction to Bluetooth, its applications, networking implementations, and hardware. This is followed by a more detailed study of the Bluetooth protocol architecture and the component Bluetooth protocols, which will help provide a solid understanding of the structure of the protocols, their functionality, and the associated procedures. Reference will be made to the Bluetooth standards throughout the course. Bluetooth software functionality and requirements will also be addressed.

**Customize It!** Let us know your reason for studying Bluetooth so we can customize the course to your specific needs. The course can be tailored for audiences such as equipment or application developers, networking specialists, and less technical audiences such as management, marketing/sales, and others.

**Learn How To**

- Understand Bluetooth technology
- Describe how Bluetooth applications operate
- Describe the Bluetooth core and data transmission architecture
- Understand Bluetooth protocols and profiles and communication between them
- Understand the Bluetooth software environment

## Course Outline

- Introduction
  - What is Bluetooth
  - The role of Bluetooth
  - Competing technologies
  - Applications for Bluetooth
  - Bluetooth networks (Piconets, Scatternets)
  - Hardware
- How Bluetooth Works
  - Bluetooth protocol architecture
  - Frequency band and RF channels
  - Frequency hopping
  - Master/slave transmission
  - Data rates
  - Device addressing
  - Access procedures
  - Using Bluetooth
- Bluetooth Security
  - Authentication
  - Encryption
  - Key management
  - Trust
  - Security modes
- Bluetooth Data Transport Architecture
  - L2CAP channels
  - Logical links
  - Logical transports
  - Physical links
  - Physical channels
- Bluetooth Core Architecture
  - Channel manager
  - L2CAP resource manager
  - Host to controller interface
  - Device manager
  - Link manager
  - Baseband resource manager
  - Link controller
- Bluetooth Protocol Architecture
  - L2CAP
  - HCI
  - LMP
  - LC
  - Other protocols and profiles

- Bluetooth Standards
  - The Bluetooth Special Interest Group (SIG)
  - Conformance and compatibility testing
  - Product qualification
- Bluetooth Software Environment
  - Microsoft Windows support for Bluetooth
  - The Microsoft Windows Bluetooth stack
  - Bluetooth device drivers
  - The Bluetooth API
- Wrap-up
  - Course recap and Q/A
  - Evaluations

### **How You Will Learn**

- A seasoned presenter well versed with Bluetooth and other wireless technologies will present this course in participative lecture format.
- Along with lecture, we will use exercises to enrich the instruction and clarify the important points.
- If you already know something about Bluetooth, we will build on that knowledge base. We'll compare and contrast what you know with what's new, making the new ideas easier to learn.
- If your background is less technical, we will use examples and analogies to simplify the complex subject matter.
- You will receive a printed Participant Handbook which will help you remember and retain what you learned in class and apply it on your job.

*Revised*

*Feb. 20, 2008*