

## Comprehensive Bluetooth Wireless Product Development Training

### Let MindShare Bring “Bluetooth Wireless Product Development” to Life for You

Bluetooth wireless technology has shipped in over 1.5 Billion products worldwide yet is one of the most complex wireless standards to ever be developed. Those who develop the technology know just how complex it is. That’s why if you are actively developing or plan to develop Bluetooth wireless technology products, you can’t miss this course!

MindShare’s Comprehensive Bluetooth Product Development class and the optional 1-day Agency Certification Class is designed to take the newcomer to Bluetooth wireless technology and to make them effective at developing Bluetooth wireless products in just 4 to 5 days.

The class starts with an overview of the available development resources and then quickly dives into how to create a Bluetooth wireless device from scratch. By the end of the class, you will know where to find information, Bluetooth wireless components that can be integrated into products, you’ll learn about the protocols and profiles, and how to qualify your product(s).

The money that you could save with the information from the class will easily pay for the class itself!

### You Will Learn:

- About the resources available to you including tools, equipment, designs, etc.
- How the Bluetooth protocol stacks and profiles work.
- Little known facts about Bluetooth wireless technology.
- How to integrate a Bluetooth wireless electrical design.
- How to integrate Bluetooth Firmware and Software.
- How to qualify a Bluetooth wireless product.
- How to obtain regulatory (agency) certifications for your Bluetooth wireless product.
- Usability tips and tricks to differentiate your design from the competition.

**Course Length:** 4 days with optional 5<sup>th</sup> day Agency Certification class

### Who Should Attend?

Bluetooth product development teams consisting of program managers, development (electrical, firmware, mechanical) engineers, test engineers and production integration engineers.

### Course Outline:

#### Day #1: Maximizing Available Resources

- Bluetooth SIG Resources
  - Specifications
  - Test Specifications
  - New (upcoming) Specifications
  - Working Groups
  - Training and Events
  - On-line resources

- 3rd Party Bluetooth Tools and Utilities
  - RF Tools (Anritsu, Agilent, R&S etc.)
  - Protocol Tools (Frontline Test Equipment, LeCroy, etc.)
  - Stress Testing Tools (Codenomicon, etc.)
- Pre-Qualified Bluetooth Designs (Chips, Modules, Firmware, and Firmware Stacks). We help you avoid full retesting later by choosing the right stack now!
  - Silicon options (CSR, ST, Broadcom, etc.)
  - Module options (selecting the right module)
  - Stack and application options (selecting the right protocol and profile stack)
- Development kits (selecting the right development kit for you)
- Pre-written applications (modifying existing applications vs. creating a new application from scratch)

## **Day #2: Integrating Bluetooth Electrical Designs**

NOTE: This section contains a demonstration of equipment used for RF testing.

- RF integration strategies (detailed strategies on how to best integrate pre-qualified RF designs to minimize effort and cost)
- Electrical considerations (detailed strategies on how to best integrate the other # electrical portions of the design to minimize effort and cost)
- RF control parameters and optimizing your design
- RF test equipment and testing techniques that reduce cost
- Test Modes and Testing issues (Reducing the testing issues through careful selection of components, use of reference notes, preparation of samples, etc.)
- Manufacturing considerations (building RF testing plans for high volume and low volume manufacturing including test equipment selection)
- Introduction to the Bluetooth lower layer stack architecture

## **Day #3: Integrating Bluetooth Firmware/SW Designs**

NOTE: This section contains a demonstration of equipment used for protocol testing.

- Core Stack and Features
- GAP and Connectivity
- Profiles
- Applications
- User Experience

## **Day #4: Bluetooth Qualification**

- Documentation introduction:
- Qualification Tool introduction
- Qualification Interface
- Deprecation
- PTS
- Listing process
- PRD 1.0 Conversion
- QEP
- Recognized Bodies

**Optional Day #5: Regulatory Certifications (worldwide)**

- China – SRRC, CCC approval
- TWN - NCC, BSMI approval
- Korea – KCC
- Japan – Telec
- FCC/IC
- CE (R&TTE)
- Mexico – NOM
- Brazil – ANATEL
- Australia/New Zealand

**Recommended Prerequisites:** Basic understanding of computer architecture. Background in Electrical Engineering/Computer Science and RF theory

**Course Material:**

MindShare Presentation: Hardcopy and Softcopy of Comprehensive Bluetooth Wireless Product Development course materials.





## MindShare Classroom



In-House Training



Public Training

### Classroom Training

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### Virtual Classroom Training

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Comprehensive eLearning Modules

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- **Intro to IO Virtualization**
- **Intro to PCI Express 2.0 Updates**
- **PCI Express 2.0**
- **USB 2.0**
- **AMD Opteron Processor Architecture**
- **Virtualization Technology**
- **...and more**

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eBooks

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