

RFID (Radio Frequency Identification) on the Web

70 hours

Course Overview/Description

RFID (Radio Frequency Identification) technology is at the very heart of the next stage of the evolution of the Internet. If broadband connectivity represents the last mile of connectivity, then RFID represents the last INCH and will bring to life the much touted “Internet of Things”. RFID is now being rolled out to production environments across a multitude of industries such as CPG (Consumer Product Goods) Supply Chains, Automotive Manufacturing, Aerospace, Health Care, Pharmaceuticals and others. It is a technology perfectly suited to enhance visibility and automation in the supply chain, help improve patient care in hospitals, provide real time visibility of high value assets, etc. The rapidly growing number of uses for RFID technology and the many commercial factors driving the adoption of the technology are creating an ever increasing demand for trained and certified professionals who can evaluate, implement, maintain and troubleshoot RFID systems. RFID on the Web™ is the most comprehensive online course on RFID in the market today. It is comprised of 70 hours of high quality, graphical, interactive training for the online student. Taking the course DEMO will highlight the many interactive features found in RFID on the Web such as links on each screen which provide definitions or additional explanations, the “O-tag” which provides more in-depth explanations of important concepts, a comprehensive Glossary of RFID Terms and the OTA RFID Acronym Finder™. These features, coupled with Knowledge Assessments and Practice Tests, are presented in the framework of a real world RFID implementation and provide the student with the most engaging and information retentive environment possible.

Most importantly, the course will provide the student with the information and practice exams necessary to sit for the CompTIA™ RFID+ certification exam as well as the knowledge and information necessary to evaluate and implement RFID technology in various application scenarios including supply chain logistics, manufacturing process improvement, health care, pharmaceutical authentication and many more.

Course Objectives

Upon successful completion of this program, students should be able to:

- Understand how an RFID system operates
- Understand the different frequency ranges for RFID and how to select which one is appropriate for a particular use case

- Determine what type of tag is required for a particular application
- Perform tag placement testing on various products
- Understand how to install, optimize, and troubleshoot an RFID read zone
- Identify and select the appropriate type of RFID printer and Label Applicators
- Identify what types of feedback systems may be necessary
- Understand issues around data management and integration approaches
- Understand best practices around interrogation zone implementation
- Understand some of the main standards and regulations around RFID.

Course Outline

The course consists of twelve (12) modules, which provide in depth training in all aspects of RFID implementation and include certification testing modules designed to prepare the student to sit for the CompTIA™ RFID+ certification exam. Below is an outline of all the modules with their respective sections.

- A. Systems Approach to RFID Implementation™
 - I. Introduction to RFID
 - a. Introduction
 - b. RFID vs Barcode
 - c. Basic RFID System
 - d. A Few Concepts in Physics
 - e. Summary
 - f. Knowledge Assessment
 - II. Hardware: Tags
 - a. Introduction
 - b. Types of Tags
 - c. Tag Construction
 - d. Tag Frequencies
 - e. Passive Tag Communication
 - f. EPC Tag Classes
 - g. Tag Selection and Placement
 - h. Real Time Location System (RTLS)
 - i. Summary
 - j. Knowledge Assessment
 - III. Hardware: Interrogation Zones
 - a. Introduction
 - b. Interrogators
 - c. Types of Interrogators
 - d. Antennas

- e. Related Terms
 - f. Gen 2 Interrogators
 - g. Managing UHF Gen 2 Tags
 - h. Interrogator Installations
 - i. Antenna Installations
 - j. Summary
 - k. Knowledge Assessment
- IV. Hardware: Peripherals
- a. Introduction
 - b. Printer Functions
 - c. Printer Installations
 - d. Loading, Configuration, Calibration
 - e. Label Applicators
 - f. Feedback Systems
 - g. Summary
 - h. Knowledge Assessment
- V. RFID Data Management
- a. Introduction
 - b. Dealing with Data
 - c. Key Concepts
 - d. Integration Approaches
 - e. EPCglobal Network
 - f. Summary
 - g. Knowledge Assessment
- VI. Standards and Regulations
- a. Introduction
 - b. Overview
 - c. Some Terms
 - d. ISO and EPCglobal
 - e. FCC, ETSI, and the UHF Band
 - f. Safety Regulations
 - g. Summary
 - h. Knowledge Assessment
- VII. RFID Implementation
- a. Introduction
 - b. Site Analysis Phase
 - c. Design Phase
 - d. Installation Phase
 - e. Summary
 - f. Knowledge Assessment

- VIII. Troubleshooting
 - a. Introduction
 - b. Tag Problems
 - c. RFID Setup Issues
 - d. Summary
 - e. Knowledge Assessment
 - IX. RFID Simulation
 - a. Introduction
 - b. Implementation
 - c. Optimization
 - d. Best Practices
 - e. Summary
 - f. Knowledge Assessment
 - X. Final Knowledge Assessment
 - a. Practice Mode
 - b. Certificate Mode
- B. RFID+ Certification Preparation
- I. Exam Cram
 - a. About the Exam
 - b. RFID Tags
 - c. Interrogation Zone Basics
 - d. Peripherals
 - e. Site Analysis
 - f. Design Selection
 - g. Installation
 - h. Troubleshooting
 - i. Standards and Regulations
 - II. Practice Exam
 - a. Practice Mode
 - b. Certification Mode

Prerequisites/Audience

The intended audience for this training course would include any student who is interested in pursuing a career in RFID as well as students who already are or are planning to be involved in the value chain of RFID: i.e. RFID hardware and software vendors, RFID systems integrators, and end user companies who are looking at RFID to either, comply with a customer mandate, or to improve visibility and business process



efficiency within their own operations. Some examples of job roles that would benefit from this training and Certification include students who wish to pursue careers as or already are: IT managers and staff, RFID consultants, RF engineers, operations managers and staff, Supply Chain Managers, and the like.

Below is a list of basic student pre-requisites.

Required

- o Basic understand of computers and how to use them
- o Familiarity with e-mail and how to use
- o Ability to navigate the Internet

PC Requirements/Materials Included

The table below lists all of the minimum PC requirements to run the course:

<u>Item</u>	<u>Minimum Specifications</u>
Processor	Intel Pentium III (or compatible) processor 450Mhz or above
Display	1024x768 pixels - 32 bit Color
RAM	128 MB with minimum 64MB available for this application
Operating System	Microsoft Windows 2000/ME or XP SP1 or SP2
Browser	Microsoft Internet Explorer 5.5 or higher with JavaScript enabled. The browser should be set in the trusted zone.
Plug-in	Flash 6.0.79 or higher
Network	Broadband Internet access or Dialup with minimum of 128 Kbps.
Additional Hardware	Multimedia card installed on the PC
External Hardware	Speakers/ Headphones, keyboard and mouse

Students who sign up for this program will receive a copy of our RFID+ Exam Cram™ text book in order to further help them in preparation for the CompTIA™ RFID+ exam and a RFID Ready Reference™ poster.

Instructor Bio

Richard Harden

Richard Harden has designed, built and managed multiple RFID testing and training labs world wide and was responsible for RFID Product Testing for hundreds of products in those testing centers. He has established RFID training centers in over 5 countries and conducted RFID training courses at all of these locations. He currently holds the RFID+ and RFIDSCM certifications. Richard Harden has held senior engineering leadership positions at several fortune 500 companies including HSBC, American Bottling Co., and Tenneco Corp and has led numerous high profile wireless infrastructure design and implementation projects at those companies. Richard Harden is currently the Vice President of Training and Certification at OTA Training and responsible for the delivery and development of OTA's quality courseware materials world wide.

Jason Brewer

His responsibilities include RFID Program Management for Pharmaceutical, Asset Tracking and Transportation. Previously Jason was Project and Business Development Manager at Precisia, developers and producers of conductive and advanced inks. These were used for printed electronics applications such as RFID-related products and printable thin batteries. In this position, Jason was responsible for business development including strategic partnerships to advance the business goals of the company. Additionally he was leading development projects in a wide range of industries, which include tag and inlay design, supply chain and logistics, pharmaceutical, gaming, personnel tracking, waste management and others utilizing RFID.

Jeffrey Polly

Jeff Polly obtained his technical expertise through 20 years of working in various engineering, technical services and management positions prior to joining Lowry Computer Products in 2002. As V.P. of Technical Services for Lowry, Jeff leads a highly trained Professional Services group as well as a nationwide network of technical repair specialists. Jeff was instrumental in the design and development of Lowry's new RFID Center and Testing Lab, and teaches the RFID Certification Training courses that are offered at the Center.

Brad Pendleton

Brad Pendleton has worked in software technology for 15 years, focusing primarily on systems integration and software implementation. He has experience implementing numerous large scale ERP systems for a large consulting organization. Brad has spent the last 7 years designing and implementing factory systems utilizing barcode data collection and RFID. Currently, Brad is the RFID Program Manager for Enterprise Information Systems, A Domino Group Company. At EIS, he is responsible for designing RFID solutions to meet supplier mandates as well as closed loop systems.



Jeffrey Tazelaar

Jeffrey Tazelaar is a seasoned RFID professional with real world RFID experience. He recently was a Programmer Analyst at Wal-Mart, the world's largest retailer, where he was responsible for installing and deploying RFID solutions at the Wal-Mart retail stores, Wal-Mart distribution centers, and Sam's Clubs across the country. As a leader of Wal-Mart's RFID Strategy Team, he identified, developed and specified new RFID retail applications such as the Fork Truck Mount and the RFID-enabled Bailer. Jeff has a Master of Science in Packaging from Michigan State University, is a member of several EPCglobal working groups and author of various RFID articles including: Four Steps to Making RFID Work for You, Harvard Business Review, Supply Chain Strategy Newsletter, February, 2006.