



# 2017 PRODUCT AND SYSTEM TECHNICAL TRAINING COURSE CATALOG

**MOTOROLA SOLUTIONS LEARNING  
NORTH AMERICA**

PUBLISHED JANUARY 2017



# WELCOME

Choosing Motorola is only the beginning.

Next: Get trained on Motorola Solutions' latest innovations and improve your proficiency with our expanding training portfolio!

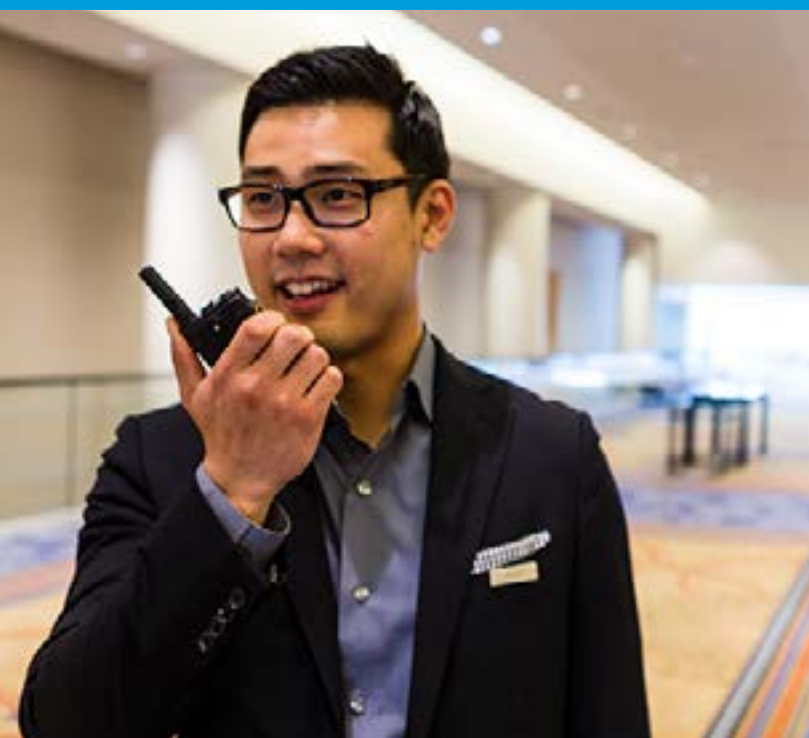
With versatile training solutions and best practices from our expert instructors and designers, you can increase the return on your technology investment throughout the product and system lifecycle.

Motorola Solutions Learning provides your organization a one-stop shop, end-to-end training service: from needs analysis and consultancy to course development, customization, delivery, and logistics.

Let Motorola Solutions Learning work with your team to ensure that your organization configures, operates and maintains your products and systems to effectively and efficiently meet your specific needs.

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# GENERAL INFORMATION



## GENERAL INFORMATION

For information on prerequisites and to register for courses visit the LMS at:  
[LEARNING.MOTOROLASOLUTIONS.COM](https://learning.motorolasolutions.com)

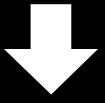
For general information contact the North America Learning Help Desk at:  
(800) 247-2346, option 4 or [training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com)

# HOW TO REGISTER

## THE LEARNING MANAGEMENT SYSTEM (LMS)

The LMS is your valuable resource to see the latest courses, descriptions, requirements, dates and locations.

If you are a Motorola Solutions Customer who already has a Motorola User ID, you can go to the "Enroll in a Course" section for further instructions.



### SET UP A NEW USER ACCOUNT AND PASSWORD

#### CREATE A MOTOROLA USER ID:

- Visit: <https://myaccount.motorolasolutions.com>
- Click the "Register" link at the bottom right of the Log In box
- Complete all the mandatory fields
- Enter your work email address, i.e., name@company.com.

#### **This will be your Motorola User ID**

- Click the "Submit" button.
- You will receive a confirmation of your submission
- When your LMS account setup has been completed, you will receive an email with your login information

## LOOK FOR THIS ICON THROUGHOUT THE CATALOG FOR EASY ACCESS TO THE LMS



### TO ENROLL IN A COURSE (ONCE YOU HAVE AN LMS ACCOUNT)

#### ENROLL IN A COURSE:

- Log in to the LMS: <https://learning.motorolasolutions.com>
- Enter your Motorola User ID/work email address
- Enter your Password (If you need to reset your password or forgot it, [click on the Forgot/Reset Password link](#))
- Click "Log In"
- Navigate to the Training Catalog link
- All Instructor-Led and Online courses are available here
- Select relevant course and click Enroll to begin

## QUESTIONS ABOUT YOUR ACCOUNT OR A COURSE?

Your Help Desk information can be located in the top, right hand corner of the catalog pages. You can also [click here](#) to view the Help Desk contact information in your region.

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# TRAINING OPTIONS, POLICIES AND REQUIREMENTS

## TRAINING OPTIONS

### RESIDENT, INSTRUCTOR-LED TRAINING


Resident training consists of regularly scheduled classes conducted at one of the Motorola Technical Training Centers. The centers are set up so students can immerse themselves in the subject matter, with limited distractions. They receive substantial time for hands on training that enables them to develop creative solutions for unique problems. Resident training includes a diverse customer base; therefore, the classroom equipment is modeled upon a standard configuration. In addition, some courses include media-based activities that are facilitated by the instructor. Advance registration is required.

### ON-SITE TRAINING AT YOUR LOCATION







All course titles can be delivered at your location, taught by our knowledgeable instructor staff. For more information on our on-site delivery options, contact us at: [training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com).

### ONLINE SELF-PACED AND VIRTUAL CLASSROOM

Online Self-Paced learning allows you to gain foundational knowledge on a variety of topics using your own computer, at your own schedule. Virtual Classroom Learning offers scheduled instructor-led courses in an on-line virtual environment. Select courses from the recommendations listed in the Training Roadmaps from each product area of the catalog, or simply based upon your own personal need. Just look for courses with the Online Self-paced or Virtual Classroom icon.



## UNDERSTANDING THE ICONS

 <p><b>INSTRUCTOR-LED</b></p>	 <p><b>ONLINE, SELF-PACED</b></p>	 <p><b>OPTIONAL COURSE</b></p>
 <p><b>VIRTUAL CLASSROOM</b></p>	 <p><b>TEST</b></p>	 <p><b>NEW</b></p>

## POLICIES AND REQUIREMENTS

### CANCELLATION AND RESCHEDULING BY THE STUDENT

Customer cancellation or rescheduling made less than 30 days prior to the class start date will be subject to the full course tuition.

### CANCELLATION AND RESCHEDULING BY MOTOROLA

Motorola reserves the right to change or cancel classes up to 10 business days prior to the class start date. You will be notified at that time of such change or cancellation.

### PROFESSIONALISM

Students are expected to maintain professional conduct and dress at all times. Class dress is casual, but smart. For safety and security reasons, we cannot permit shorts, thong type sandals, or tank tops in the classroom.

### LAPTOP REQUIREMENTS

Some of our classes may require students to bring their laptops to the classroom so that they may utilize an electronic copy of the class material. Please review your enrollment confirmation email for specific requirements for your class.

### TRAINING CONTENT AND STRATEGY DISCLAIMER

All of Motorola training classes are designed to support and align with the Motorola Service strategy for each product. This strategy may include a combination of (but not limited to) processes, procedures, recommendations, and instructor experiential advice which may involve repair, replacement, and or recovery of hardware, software, or firmware of Motorola products. The repair, replacement, or recovery of these products may vary from product to product. Motorola reserves the right to change the structure and content of all courses at any time.

## GENERAL INFORMATION

For information on prerequisites and to register for courses visit the LMS at:  
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For general information contact the North America Learning Help Desk at:  
[\(800\) 247-2346, option 4](tel:800-247-2346) or [training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com)

# PRICING AND HELPFUL INFORMATION

## FOR QUESTIONS AND ASSISTANCE

Call the Learning Help Desk at: **800-247-2346**

Monday – Friday,  
8:00 a.m. – 5:00 p.m. Central Time

or email us at:

[training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com)

## HOW TO MAKE PAYMENTS WHEN ENROLLING IN A COURSE

### HOW TO MAKE PAYMENTS WHEN REGISTERING

For your convenience we accept the following methods of payment:

- Credit Card
- Purchase Order
- Company Check
- Training Banks

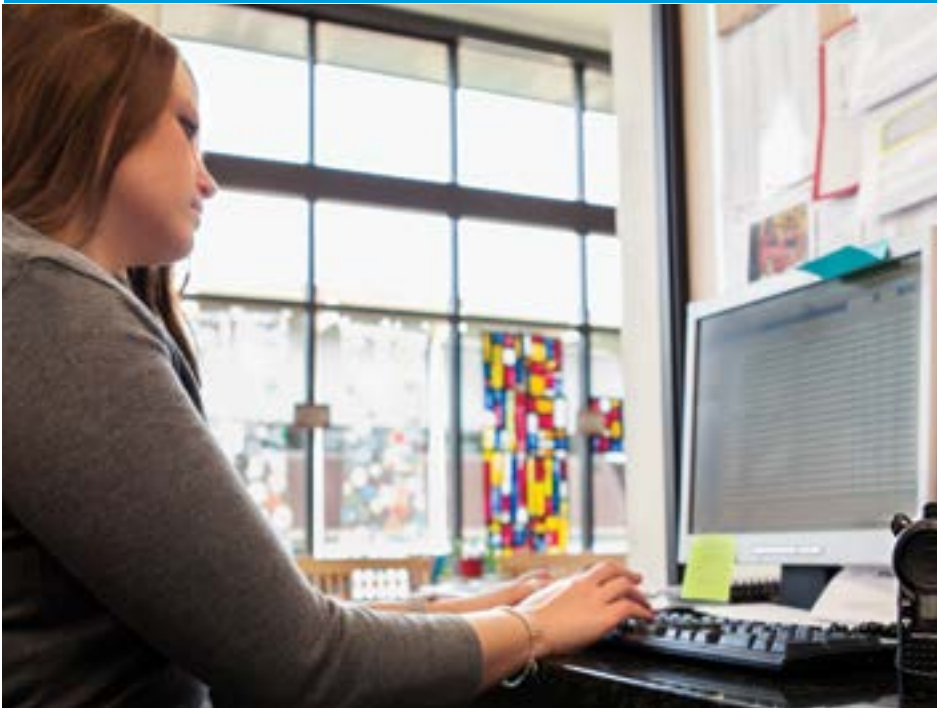
If prepayment is required to secure your registration, it must be received by Motorola 30 days prior to your attendance.

Contact the Help Desk above for assistance with payments and P.O. specifications.

All pricing listed is US dollars.



## DOWNLOAD THE NORTH AMERICA TRAINING SCHEDULE AND PRICE SHEET



## SCHEDULE AND PRICE SHEET

Click on the above download link to access the schedule and pricing file or visit: [www.motorolasolutions.com/nalearnschedule2017](http://www.motorolasolutions.com/nalearnschedule2017)

To view the most current details for any of our courses, please register for an account (see Page 4) and log into the Motorola Solutions Learning Management System (LMS) at: [learning.motorolasolutions.com](http://learning.motorolasolutions.com) or call us at 855.619.9714.

## TRAINING BANKS

Whether you're a technician, system manager or radio user, you rely on Motorola Solutions Training to obtain the necessary knowledge to get the full potential out of your Motorola equipment. The Motorola Solutions Training Bank is a discounted, pre-paid, non-expiring debit account that allows you to budget up front for your training needs. Training Banks can be applied towards all training options including, Instructor-Led Tailored Field Courses.

There are several benefits to Training Banks including:

- Allows you to budget up front for training needs
- Provides cost savings through discounted pricing tiers to maximize your training investment
- Does not require multiple POs, thus reducing internal approval cycle time and paperwork
- Training Banks do not expire

For more information, please visit us on the web at [motorolasolutions.com/amlearn](http://motorolasolutions.com/amlearn) or email us at [training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com).

**Note:** Training Banks are only applicable to non-federal government customers.

# OPERATOR TRAINING



## OPERATOR TRAINING

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### THE SUCCESSFUL IMPLEMENTATION OF YOUR COMMUNICATIONS SYSTEM DEPENDS ON CONFIDENT USERS OF THE SYSTEM.

- Users of your mobile and portable radios require training on their units to understand its basic operation, features and functions
- Dispatchers of your consoles require training to understand basic operation, features and functions
- Management personnel require training on the Motorola applications

## TRAIN THE TRAINER

With this option, Motorola trains people you have identified as qualified instructors so that they in turn can train each individual user in your organization. These classes are typically done on site using your equipment. The interactive End User Tool Kit (iEUTK) and/or tailored end user materials can be utilized.

### AUDIENCE

This course is geared for customers who have an experienced, dedicated training staff in their organization. This course concentrates on specific product features and how it relates to the training process.

### COURSE OVERVIEW

This course provides the customer's identified training personnel knowledge and practice applying training techniques that will enable them to successfully train their students. Trainers will use simulation, facilitation and hands-on activities to facilitate learning events supported by tailored training materials and job aides. Students will become proficient in discussing common tasks associated with the operation of the customer's radios and consoles as identified by the customer's needs analysis.

Note: This course is presented as customer specific and will cover pertinent information on customer equipment.

### REQUISITE KNOWLEDGE

Previous training experience and radio system knowledge is a must.

### TO REQUEST FIELD TRAINING, PLEASE CONTACT YOUR ACCOUNT MANAGER.

**Note: The interactive End User Tool Kit (iEUTK) is not sold as a standalone product but included with our instructor-led, Train-The-Trainer or Operator Training.**

## OPERATOR TRAINING

With this option, the users within your organization are trained by a Motorola instructor. These classes are typically done on site using your equipment. The interactive End User Tool Kit (iEUTK) and/or tailored end user materials support this training option.

### CONSOLES TRAINING

These courses provide operators and supervisors with an introduction to the basic operation, administration and feature functionality of the Console Systems. Through facilitation and hands-on practice, users learn to perform tasks that are associated with their organization's particular system.

- Overview of console configuration
- Console dispatcher and supervisor operation
- Alias Management
- Messaging

### SUBSCRIBER TRAINING

These courses provide radio users with an introduction to their radios, a review of their radio's basic functionality by means of job aides tailored to exactly how they use their radios. Through facilitation and hands-on practice, users learn to perform common tasks associated with their radio configuration.

- Overview of radio configuration
- General radio operations

## COURSES FOR CONSOLE PRODUCTS

- MCC 7000 Series Dispatch Console Administrator Training
- MCC 7000 Series Dispatch Console Operator Training
- MKM 7000 Console Alias Manager
- MOTOBRIDGE IP Interoperable Solution Dispatch Console Operator
- MOTOBRIDGE Administration Control Panel (ACP)
- MCD 5000 Operator


## COURSES FOR MOBILES & PORTABLES

- APX™ Series
- MOTOTRBO™ Series
- XTL™/XTS Series



# COURSES

## USING THE TRAINING ROADMAPS

The test icon  found in the roadmaps indicates that a post test will be administered after the online overview course is completed. The test is intended to determine that participants have the requisite knowledge necessary to continue on with the remainder of the curriculum.





# FOUNDATIONAL COURSES

<b>BASIC RF (RDS0002)</b>	<b>13</b>
<b>BASIC RADIO (RDS0004)</b>	<b>13</b>
<b>BASIC NETWORKING (RDS0003)</b>	<b>13</b>
<b>RADIO COMMUNICATION SYSTEMS (RCS001-E)</b>	<b>14</b>
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**THE LEARNING  
MANAGEMENT  
SYSTEM (LMS)**

To register for a course, go to  
[learning.motorolasolutions.com](http://learning.motorolasolutions.com)

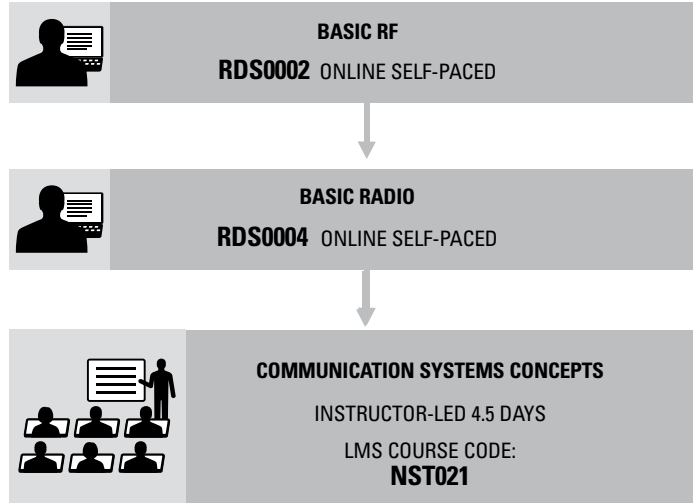
# RADIO SOLUTIONS FOUNDATIONAL

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## RF FUNDAMENTALS

### RF BASICS / RADIO SYSTEM BASICS



## CURRICULUM COMPLETE

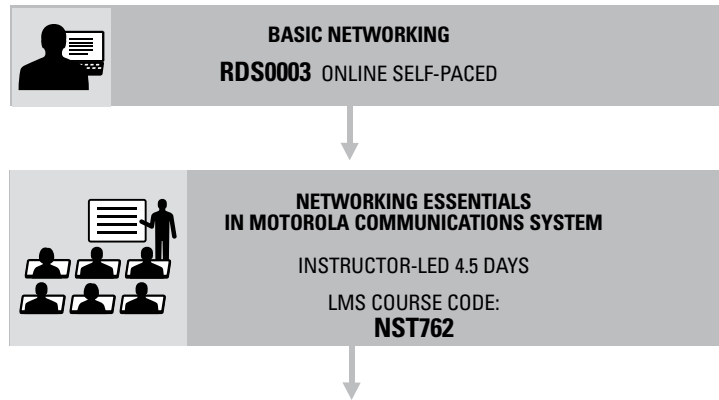
PARTICIPANT HAS RF KNOWLEDGE REQUIRED FOR ADVANCING TO MORE COMPLEX TECHNICAL TRAINING COURSES.

## RADIO SOLUTIONS FOUNDATIONAL

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## IP/NETWORKING FUNDAMENTALS



CHOOSE ONE OF THE FOLLOWING COURSES BELOW ACCORDING TO YOUR SOLUTION SYSTEM

### ASTRO® 25 SOLUTIONS

**ASTRO® 25 SYSTEMS APPLIED NETWORKING**  
INSTRUCTOR-LED 4.5 DAYS  
LMS COURSE CODE:  
**NWT003**

### MOTOTRBO™ SOLUTIONS

OR

**MOTOTRBO™ SYSTEMS APPLIED NETWORKING**  
INSTRUCTOR-LED 3.5 DAYS  
LMS COURSE CODE:  
**PCT2007**

## CURRICULUM COMPLETE

PARTICIPANT HAS IP PROTOCOLS AND NETWORKING SKILLS TO USE MOTOROLA SYSTEMS REQUIRING ADVANCED TECHNICAL TRAINING.

[CLICK HERE TO GO TO PAGE 19 FOR MORE DETAILS ON ASTRO® 25](#)

**ASTRO® 25 Fleetmapping**  
LMS Course Code: **RDS1017**

**ASTRO® 25 Domain Controller Administration**  
LMS Course Code: **AST2015**

[CLICK HERE TO GO TO PAGE 49 FOR MORE DETAILS ON MOTOTRBO™](#)

**MOTOTRBO™ Connect Plus System Academy**  
LMS Course Code: **PCT3003**

**MOTOTRBO™ System Academy**  
LMS Course Code: **PCT3002**

# RADIO SOLUTIONS FOUNDATIONAL

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## BASIC RF

### COURSE OVERVIEW

This course emphasizes the concepts behind RF Systems theory and operation. Topics include basic radio transmitters and receivers, RF propagation, modulation, antenna systems, transmission lines and data-communications.

### AUDIENCE

Technical staff who need to understand Communication Systems Concepts including basic radio, RF propagation, modulation, antenna systems, transmission lines and data-communications.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe electrical principles, including direct and alternating current.
- Describe the basic structure of radio transmitters and receivers.
- Describe the operation of the antenna system.
- Identify different types of transmission media.
- Describe RF propagation and understand system gains in a link budget.

### REQUISITE KNOWLEDGE

None



ONLINE, SELF-PACED  
LENGTH: 1 HOUR  
LMS COURSE CODE:  
RDS0002

## BASIC RADIO

### COURSE OVERVIEW

The purpose of this course is to provide the student with the basic, foundational land mobile two-way radio knowledge required when working with Motorola Solutions. This course is ideal for all people who sell or service land mobile two-way radios and it was especially designed to meet the needs of the MR Channel and Motorola Solutions employees.

### AUDIENCE

Motorola Solutions Partners and Employees

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Define what a two-way radio is.
- Describe two-way radio components.
- Describe communication types.
- List and describe ways of expanding coverage.
- Describe analog and digital solutions.
- Describe how transmit and receive processes work in conventional and trunked two-way radio.
- Define system scalability.
- Identify the considerations to implementing a two-way radio.
- List the characteristics of single-site, single-zone and multi-zone systems.
- Explain the concept of two-way radio security.
- Describe the open standards for the following technologies: APCO P25, TETRA and DMR.

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic RF (RDS0002)



ONLINE, SELF-PACED  
LENGTH: 4 HOURS  
LMS COURSE CODE:  
RDS0004

## BASIC NETWORKING

### COURSE OVERVIEW

This course provides a detailed description of the fundamentals of system networking. Topics include the OSI seven layer model, bridges and switches, IP and routing, applications and security.

### AUDIENCE

Engineers who need to understand the essentials of system networking.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Identify the Elements and Interconnectivity of a basic network
- Define the OSI and TCP/IP Models
- Define the advantages of different Network Layout Options
- List the Physical and Data-Link Layers of the OSI and TCP/IP Models
- Define the Network and Transport Layers of the OSI and TCP/IP Models
- Identify the Service Layers within the OSI and TCP/IP Model
- Define the concept of Network Security.
- Identify standards organizations

### REQUISITE KNOWLEDGE

None



ONLINE, SELF-PACED  
LENGTH: 1 HOUR  
LMS COURSE CODE:  
RDS0003



[CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)

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## RADIO COMMUNICATION SYSTEMS

### COURSE OVERVIEW

This course provides associates in the technology and telecommunications field knowledge on wireless communications systems. How two-way radio works, and the basic components of a communication system are presented and explained. Simplex, duplex, and repeater operational theory is provided in addition to learning targeted on spectrum, frequency, and range considerations. Participants will also learn foundational operational theory on voting systems, trunking systems, and data communication systems in addition to the role transmission line, antenna, and frequency modulation play in the performance of a two-way radio communication system. Interactive testing accompanies each learning module to help the student retain and apply their foundational knowledge.

### AUDIENCE

General

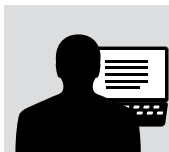
### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Understand the terminology associated with two-way radio communication equipment and systems
- Describe the purpose and characteristics of basic two-way radio systems, dispatcher systems, wide and total coverage systems, trunking systems and digital communication systems
- Understand decibels, transmission line characteristics, antennas and modulation concepts

### REQUISITE KNOWLEDGE

None



**ONLINE, SELF-PACED**  
**LENGTH: 4 HOURS**  
**LMS COURSE CODE:**  
**RCS001-E**

## THEORY OF RADIO OPERATION

### COURSE OVERVIEW

This course will provide associates with foundational technical knowledge on the theory of radio operation...how it works. The learning in this course will include basic radio operation, transmitter and receiver operation, frequency generation, control functions, and digital operation. Each learning module provides instruction on the specific operational characteristics of the system and engages the student with graphic interaction and comprehensive theory pertaining to the targeted learning objectives. After completing this course students will have a better understanding of the core operational characteristics of a wireless communication system and be able to apply their foundational knowledge in their technology related discipline. Interactive testing accompanies each learning module to help the student retain and apply their knowledge.

### AUDIENCE

General

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Explain the basic operation of a two-way radio.
- Understand the basic signal flow of a two-way radio.
- Describe the elements that comprise a two-way radio.
- Explain the how and why of frequency generation circuitry.
- Explain the how and why of receiver circuitry.
- Explain the basic operation of the transmitter circuitry.
- Explain the basic operation of the controller/audio circuitry.
- Describe the digital elements in a digital radio.
- Understand and describe the basic steps involved in the digital radio transmitter and receiver.

### REQUISITE KNOWLEDGE

None



**ONLINE, SELF-PACED**  
**LENGTH: 4 HOURS**  
**LMS COURSE CODE:**  
**RCS003-E**



[CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)

# RADIO SOLUTIONS FOUNDATIONAL

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## BRIDGING THE KNOWLEDGE GAP FOR ASTRO® 25 – TECHNICIAN

### COURSE OVERVIEW

This seven-module course is designed to bring Technicians from different technical backgrounds and experience levels to a common starting point for the ASTRO® 25 curriculum. This course provides seven modules from the basic concepts of radio communication systems and computer networking features, through the evolution that led to the ASTRO® 25 trunking system's architecture.

### AUDIENCE

This course is intended for System Technicians, and other ASTRO® 25 system users who are new to trunked radio systems. Also those with experience in non-IP-based radio systems like SmartNet and SmartZone.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Explain the different radio system concepts as applied to conventional and trunked systems
- Compare analog radio communication signaling to ASTRO® 25 radio communications signaling
- Identify different communication concepts using representative block diagrams of the respective systems
- Compare radio system communication concepts using representative block diagrams of the respective systems
- Compare how voice and data, information flow through different radio communication system types and how the signaling information controls that flow of information
- Describe the features of each radio communication system in terms of advantages and disadvantages

### REQUISITE KNOWLEDGE

None



**ONLINE, SELF-PACED**  
LENGTH: 4 HOURS  
LMS COURSE CODE:  
**ACT100-E**

## BRIDGING THE KNOWLEDGE GAP FOR ASTRO® 25 – SYSTEM ADMINISTRATOR

### COURSE OVERVIEW

This five-module course is designed to bring Administrators from different technical backgrounds and experience levels to a common starting point for the ASTRO® 25 curriculum. This course provides seven modules from the basic concepts of radio communication systems and computer networking features, through the evolution that led to the ASTRO® 25 trunking system's architecture.

### AUDIENCE

System Administrators who are new to trunked radio systems. Also those with experience in non-IP-based radio systems like SmartNet and SmartZone.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Identify different communication concepts using representative block diagrams of the respective systems
- Compare radio system communication concepts using representative block diagrams of the respective systems.
- Compare how voice and data information flows through different radio communication system types, and how the signaling information controls that flow of information
- Describe the features of each radio communication system in terms of advantages and disadvantages
- Explain the Trunked Radio System Concepts

### REQUISITE KNOWLEDGE

None



**ONLINE, SELF-PACED**  
LENGTH: 4 HOURS  
LMS COURSE CODE:  
**ACT101-E**

## SITE INSTALLATION PRACTICES WORKSHOP (R56)

### COURSE OVERVIEW

The Site Installation Practices Workshop (R56) course is designed to present the standards and guidelines for installing a Motorola communication system. Participants will understand how a properly installed system can help to ensure a safe and efficient communications system, reducing system down time.

### AUDIENCE

Technical System Managers and Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- List the purposes of grounding and evaluate their importance in terms of personal safety and effective system installation and protection
- Apply principles of basic electronics to the installation standards found in the R56 manual
- Determine how an effectively installed ground system provides protection for a communication system from a lightning strike or electrical anomalies
- List the minimum requirements and specifications for the external and internal ground system
- List the minimum requirements and specifications for installation equipment, cables and documentation for a reliable communication system installation
- Investigate sources for possible solutions to various installation scenarios

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Graduate of a basic electronics course or equivalent experience.



**INSTRUCTOR-LED**  
LENGTH: 3.5 DAYS  
LMS COURSE CODE:  
**NST925**



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# RADIO SOLUTIONS FOUNDATIONAL

For information on prerequisites and to register for courses visit the LMS at: [LEARNING.MOTOROLASOLUTIONS.COM](http://LEARNING.MOTOROLASOLUTIONS.COM)

For general information contact the North America Learning Help Desk at: (800) 247-2346, option 4 or [training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com)

## COMMUNICATION SYSTEMS CONCEPTS

### COURSE OVERVIEW

The Communication Systems Concepts course emphasizes the concepts behind RF Systems theory and operation. Major topics covered include:

- RF System Operation, including talkaround, repeater operation, and types of signaling used in RF Systems
- A basic walkthrough of building a communication system from 'Simplex', to 'Half Duplex', 'Voting Systems', and 'Simulcast' is done, emphasizing the improvements in communication obtained with each step
- Trunking Operation, including Smartzone operation
- Types of modulation used in RF System operation, including ASTRO
- Radio frequency path including the antenna and transmission line
- Decibels and their uses on the job
- RF Propagation/RF Interference
- Basic Troubleshooting practices from the system perspective

### AUDIENCE

General

### COURSE OBJECTIVES

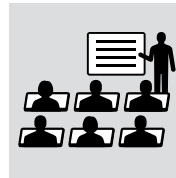
After completing this course, the student will be able to:

- Define terms commonly used in two-way communication systems
- Effectively use two-way radio communication systems knowledge to troubleshoot typical two-way communication radio systems
- Develop requirements for a two-way radio system by establishing programming and protocol requirements as requested
- Improve skills in the interpretation of typical two-way radio checks of the receiver, transmitter and the antenna system to troubleshoot a two-way radio communication system
- Use decibels to interpret the radio frequency path and antenna system to describe expected radio communication system performance and troubleshooting

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Knowledge of basic electronics
- Experience using standard communication test equipment



**INSTRUCTOR-LED**

**LENGTH: 4.5 DAYS**

**LMS COURSE CODE:  
NST021**

## SERVER & VIRTUALIZATION FOUNDATION

### COURSE OVERVIEW

This course prepares students to configure a server hardware platform for virtualization. The course covers managing the hardware using BIOS and iLO, installing the ESXi 5.5 hypervisor, creating and provisioning virtual machines, installing client and server operating systems in the virtual machines, installing VMware Tools in the guest operating systems, and maintaining virtual machines using snapshots and OVF packages. Hands-on lab exercises provide experience with the entire installation and provisioning process.

### AUDIENCE

Technical Personnel, Employees, Partners, Customers

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the relationship between virtualization and hardware resources
- Manage server hardware using BIOS and iLO
- Install ESXi on the server hardware
- Create and provision Virtual Machines using vSphere
- Install a guest operating systems in a Virtual Machine
- Install VMware Tools on the guest OS
- Configure VM startup and shutdown order
- Create and manage snapshots
- Migrate virtual machines using OVF packages

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Comp-TIA Server+ Certification or equivalent



**INSTRUCTOR-LED**

**LENGTH: 3 DAYS**

**LMS COURSE CODE:  
SRV1010**



[CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)



## RADIO SOLUTIONS FOUNDATIONAL

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### NETWORKING ESSENTIALS IN MOTOROLA COMMUNICATIONS EQUIPMENT

#### COURSE OVERVIEW

The Networking Essentials in Motorola Communications Equipment course provides the technician with the essential elements of networking required for the installation and maintenance of most Motorola communications systems. The course includes ample hands-on and basic troubleshooting on network elements.

#### AUDIENCE

System Technicians

#### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Recall basic network terminology
- Compare basic configuration types, both logical and physical
- Describe the basic OSI (Open System Interconnect) model compared with the TCP/IP model
- Construct a basic LAN with a Windows Server Domain Controller and workstations
- Examine the interaction between the routers through their configurations
- Use common network commands to simulate traffic and validate connectivity and routing

#### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- An understanding of the basic Motorola Communications Systems is highly recommended
- Basic familiarization with computer operating systems is required
- A basic knowledge of networking is helpful and recommended



**INSTRUCTOR-LED**

**LENGTH: 4.5 DAYS**

**LMS COURSE CODE:**

**NST762**



[CLICK HERE TO VIEW THE  
SCHEDULE AND PRICE SHEET](#)



# **ASTRO<sup>®</sup> 25 SYSTEMS PORTFOLIO**



# ASTRO® 25 IV&D SYSTEM COURSES

ASTRO® 25 SYSTEMS FLEETMAPPING (RDS1017)	<a href="#">30</a>
INTELLIGENT MIDDLEWARE OPERATION AND ADMINISTRATION (RDS2025)	<a href="#">30</a>
ASTRO25 SECURITY PATCH MANAGEMENT (AST2001)	<a href="#">30</a>
ASTRO® 25 IV&D SYSTEM OVERVIEW (AST1038)	<a href="#">31</a>
DEPLOY FOR ASTRO25 IV&D L CORE (ACS717460)	<a href="#">31</a>
DEPLOY FOR ASTRO25 IV&D CONVENTIONAL WITH K CORE (ACS717470)	<a href="#">31</a>
ASTRO® 25 SYSTEMS APPLIED NETWORKING (NWT003)	<a href="#">32</a>
ASTRO25 IV&D SECURE COMMUNICATIONS WORKSHOP (ACS717207)	<a href="#">32</a>
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ASTRO25 IV&D CONVENTIONAL RF SITE WORKSHOP (ACS717440)	<a href="#">34</a>
ASTRO® 25 DOMAIN CONTROLLER ADMINISTRATION (AST2015)	<a href="#">34</a>
ASTRO25 IV&D RADIO SYSTEM ADMINISTRATOR WORKSHOP (ACS717102)	<a href="#">34</a>
ASTRO25 IV&D IP BASED DIGITAL SIMULCAST WORKSHOP (ACS717217)	<a href="#">35</a>



**THE LEARNING  
MANAGEMENT  
SYSTEM (LMS)**

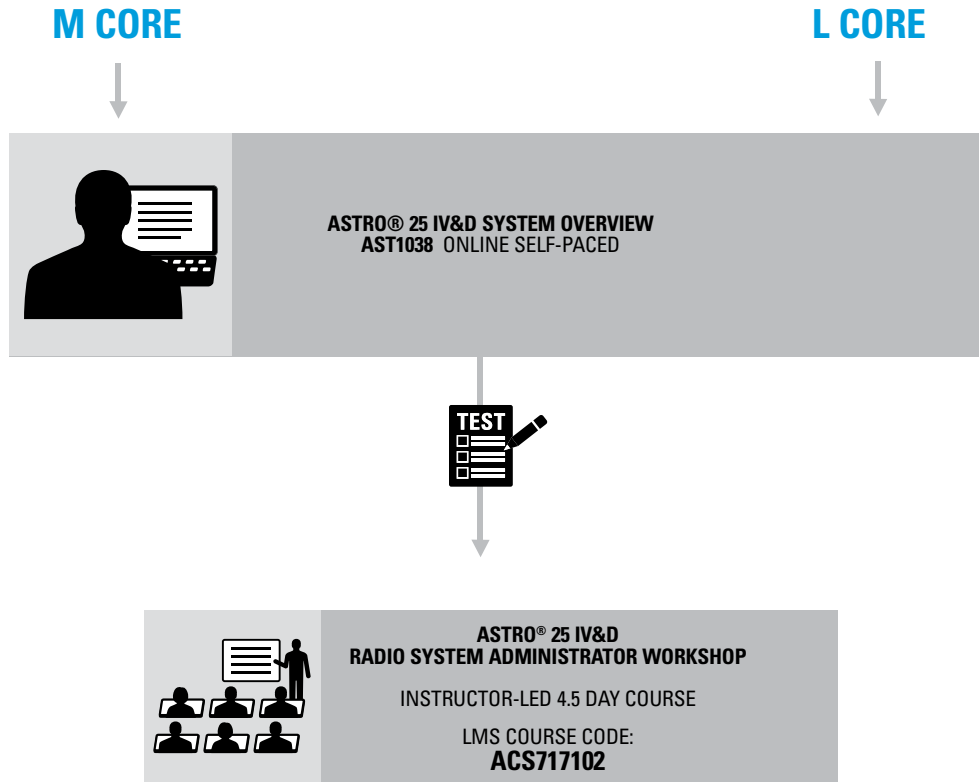
To register for a course, go to  
[learning.motorolasolutions.com](http://learning.motorolasolutions.com)

# ASTRO® 25 IV&D SYSTEM COURSES (CONTINUED)

<b>ASTRO® 25 IV&amp;D GTR 8000 REPEATER SITE WORKSHOP (ACS717208)</b>	<b><a href="#">35</a></b>
<b>STANDALONE GTR 8000 CONVENTIONAL BASE RADIO (AST2006)</b>	<b><a href="#">35</a></b>
<b>ASTRO® 25 ISSI 8000 / CSSI 8000 FEATURE OVERVIEW (AST2005)</b>	<b><a href="#">36</a></b>
<b>OVERVIEW FOR ASTRO25 IV&amp;D DYNAMIC SYSTEM RESILIENCE (ACS717023)</b>	<b><a href="#">36</a></b>
<b>ASTRO® 25 IV&amp;D INTERFACING SMARTZONE 3600 SYSTEMS (ACS717360)</b>	<b><a href="#">36</a></b>
<b>ASTRO® 25 IV&amp;D DIGITAL MUTUAL AID (ACS78210)</b>	<b><a href="#">37</a></b>
<b>ASTRO® 25 IV&amp;D ENHANCED TELEPHONE INTERCONNECT (ACS717480)</b>	<b><a href="#">37</a></b>
<b>ASTRO® 25 IV&amp;D INFORMATION ASSURANCE SYSTEM OVERVIEW (ACS717211)</b>	<b><a href="#">37</a></b>



## ASTRO® 25 IV&D RADIO SYSTEM ADMINISTRATOR



### RECOMMENDED CURRICULUM IS COMPLETE

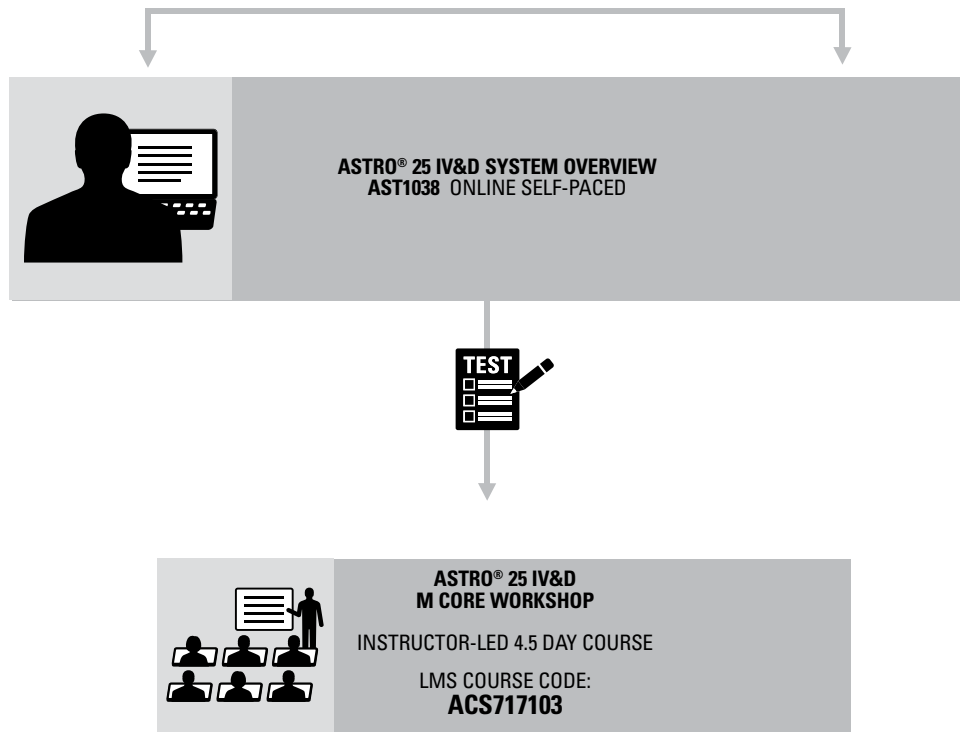
PARTICIPANT SHOULD BE ABLE TO CARRY OUT ADMINISTRATIVE TASKS IN THE ASTRO® 25 IV&D SYSTEM SUCH AS: PROVISIONING SUBSCRIBERS AND TALK GROUPS, GENERATING HISTORICAL REPORTS, CONTROLLING DEPLOYED SUBSCRIBERS AND MANAGING NETWORK ELEMENT CONFIGURATIONS. PARTICIPANT UNDERSTANDS FACTORS OF SYSTEM CONFIGURATION THAT IMPACT ASTRO® 25 SYSTEM MANAGEMENT.



**OPTIONAL TRAINING**  
**ROADMAP AVAILABLE.**  
**[CLICK ON THIS LINK TO](#)**  
**[GO TO PAGE 29 FOR](#)**  
**ADDITIONAL DETAILS.**

## ASTRO® 25 IV&D M CORE TECHNICIAN

### M CORE



### RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT SHOULD UNDERSTAND ASTRO® 25 M CORE COMPONENTS, VIRTUAL SERVERS AND SERVICE STRATEGY. PARTICIPANT CAN INTERPRET SYSTEM ALARMS, PROPOSE SOLUTIONS FOR SYSTEM FAILURES, AND AS WELL AS RESTORING EQUIPMENT TO PROPER FUNCTIONALITY.



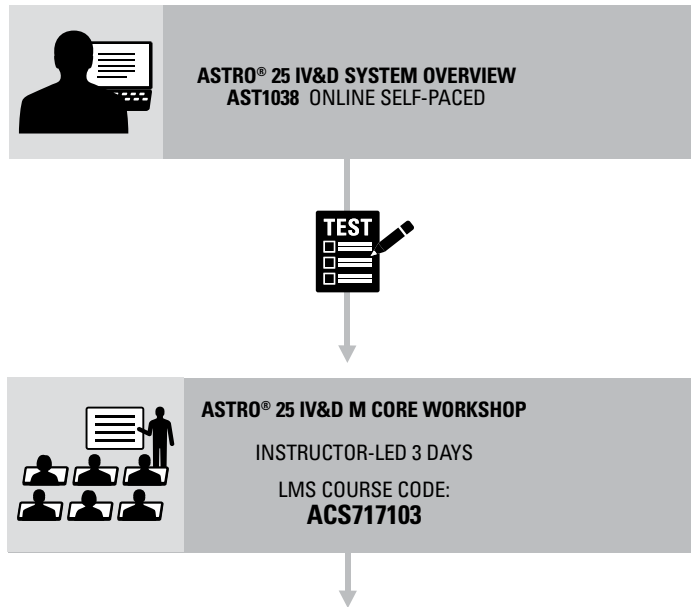
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ROADMAP AVAILABLE.  
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## RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

For information on prerequisites and to register for courses visit the LMS at:  
[LEARNING.MOTOROLASOLUTIONS.COM](http://LEARNING.MOTOROLASOLUTIONS.COM)

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### ASTRO® 25 IV&D L CORE TECHNICIAN



### RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT UNDERSTANDS ASTRO® 25 L CORE COMPONENTS, VIRTUAL SERVERS AND SERVICE STRATEGY. PARTICIPANT CAN INTERPRET SYSTEM ALARMS, PROPOSE SOLUTIONS FOR SYSTEM FAILURES, AND RESTORE EQUIPMENT TO PROPER FUNCTIONALITY.



**OPTIONAL TRAINING  
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### ASTRO® 25 IV&D REPEATER SITE TECHNICIAN (GTR)

M CORE

L CORE



**ASTRO® 25 IV&D SYSTEM OVERVIEW**  
AST1038 ONLINE SELF-PACED



**ASTRO® 25 IV&D  
GTR 8000 REPEATER SITE WORKSHOP**  
INSTRUCTOR-LED 3 DAY COURSE  
LMS COURSE CODE:  
**ACS717208**

### RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT CAN MAINTAIN AN ASTRO® 25 REPEATER SITE INCLUDING: GTR8000 BASE STATION, GCP8000 SITE CONTROLLER AND OTHER SITE EQUIPMENT.  
\*PARTICIPANT PERFORMS ALIGNMENTS TROUBLESHOOTING AND FIELD REPLACEMENT OF SITE DEVICES DURING COURSE.



**OPTIONAL TRAINING  
ROADMAP AVAILABLE.  
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## RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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### ASTRO® 25 IV&D IP SIMULCAST SITE TECHNICIAN

M CORE

L CORE



ASTRO® 25 IV&D SYSTEM OVERVIEW  
AST1038 ONLINE SELF-PACED



ASTRO® 25 IV&D  
IP BASED DIGITAL SIMULCAST WORKSHOP

INSTRUCTOR-LED 3 DAY COURSE

LMS COURSE CODE:  
ACS717217

### RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT SHOULD BE ABLE TO MAINTAIN AN ASTRO® 25 REPEATER SITE INCLUDING THE GTR8000 BASE STATION, GCP8000 SITE CONTROLLER, SITE COMPARATOR AND OTHER SITE EQUIPMENT.



OPTIONAL TRAINING  
ROADMAP AVAILABLE.  
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## RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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### ASTRO® 25 IV&D CONVENTIONAL RF SITE TECHNICIAN

**M CORE**

**K CORE**



**ASTRO® 25 IV&D SYSTEM OVERVIEW**  
AST1038 ONLINE SELF-PACED



**ASTRO® 25 IV&D**  
**CONVENTIONAL RF SITE WORKSHOP**

INSTRUCTOR-LED 3 DAYS

LMS COURSE CODE:  
**ACS717440**

### RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT SHOULD BE ABLE TO MAINTAIN AN ASTRO® 25 REPEATER SITE INCLUDING THE GTR8000 BASE STATION, GCP8000 SITE CONTROLLER, SITE COMPARATOR AND OTHER SITE EQUIPMENT.



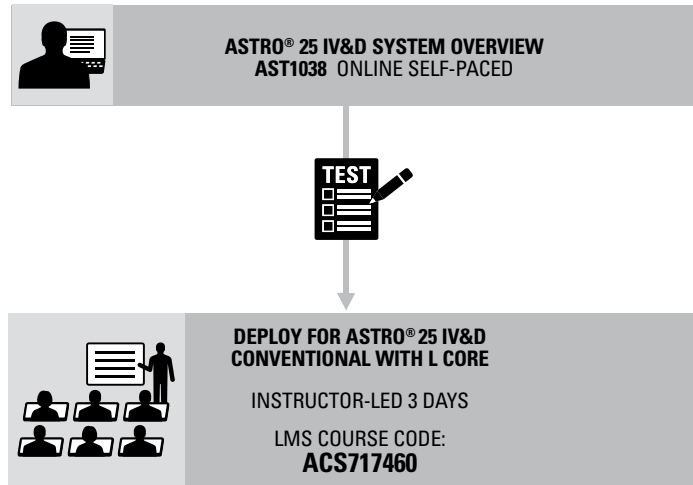
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## RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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# ASTRO® 25 IV&D L CORE DEPLOY TECHNICIAN



## RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT UNDERSTANDS ASTRO® 25 L CORE COMPONENTS, VIRTUAL SERVERS AND SERVICE STRATEGY. PARTICIPANT CAN INTERPRET SYSTEM ALARMS, PROPOSE SOLUTIONS FOR SYSTEM FAILURES, AND RESTORE EQUIPMENT TO PROPER FUNCTIONALITY.



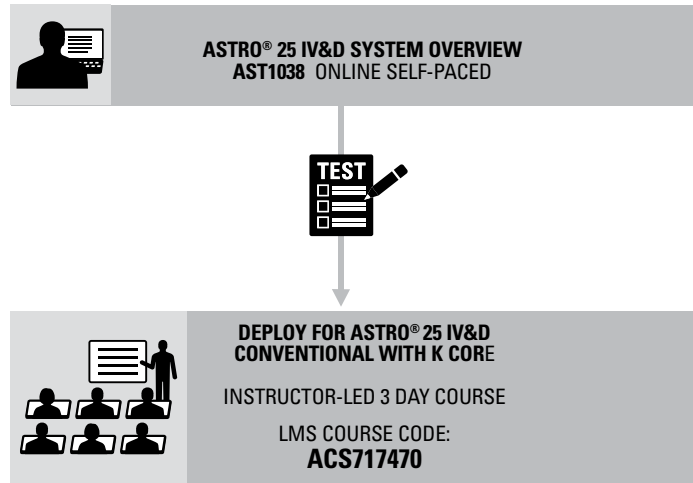
**OPTIONAL TRAINING ROADMAP AVAILABLE. [CLICK ON THIS LINK TO GO TO PAGE 29 FOR ADDITIONAL DETAILS.](#)**

## RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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# ASTRO® 25 IV&D K CORE DEPLOY TECHNICIAN



## RECOMMENDED CURRICULUM IS COMPLETE

PARTICIPANT UNDERSTANDS THE ASTRO® 25 K CORE COMPONENTS AND SERVICE STRATEGY. PARTICIPANT CAN USE THE CONFIGURATION MANAGER TO CONFIGURE SYSTEM COMPONENTS AND SUBSCRIBERS. PARTICIPANT IS ABLE TO INTERPRET SYSTEM ALARMS, PROPOSE SOLUTIONS FOR SYSTEM FAILURES, AND RESTORE EQUIPMENT TO PROPER FUNCTIONALITY.



**OPTIONAL TRAINING  
ROADMAP AVAILABLE.  
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## RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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### ASTRO® IV&D OPTIONAL TRAINING CURRICULUM

Motorola Solutions offers optional training for those participants who have completed their ASTRO® 25 curriculum and want to learn more about their system's infrastructure and/or features.

**Select the training course below applicable to your system.**

#### SPECIALIZED INFRASTRUCTURE TRAINING

##### ISSI GATEWAY TO SUPPORT INTERFACING TO ASTRO® 25

ASTRO® 25  
IV&D ISSI 8000 / CSSI 8000  
FEATURE OVERVIEW  
ONLINE SELF-PACED

AST2005



##### DYNAMIC SYSTEM RESILIENCE

ASTRO® 25  
IV&D DYNAMIC SYSTEM  
RESILIENCE  
ONLINE SELF-PACED

ACS717023



##### SMART X TO SUPPORT CIRCUIT- BASED RF SITES

ASTRO® 25  
IV&D INTERFACING  
SMARTZONE 3600  
SYSTEMS  
ONLINE SELF-PACED

ACS717360



#### SPECIALIZED FEATURE TRAINING

##### OTAR

ASTRO® 25 IV&D SECURE  
COMMUNICATIONS  
WORKSHOP  
INSTRUCTOR- LED  
4.5 DAYS

ACS717207



##### NETWORK SECURITY

ASTRO® 25 IV&D  
INFORMATION  
ASSURANCE  
ONLINE SELF-PACED

ACS717211



##### MUTUAL AID

ASTRO® 25 IV&D  
DIGITAL MUTUAL AID  
ONLINE SELF-PACED

ACS78210



##### TELEPHONE INTERCONNECTION

ASTRO® 25 IV&D  
ENHANCED TELEPHONE  
INTERCONNECT  
ONLINE SELF-PACED

ACS717480



# RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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## ASTRO® 25 SYSTEMS FLEETMAPPING

### COURSE OVERVIEW

This workshop addresses topics necessary for the effective planning and mapping of an ASTRO® 25 IV&D radio system. During this course, the participants will learn about ASTRO® 25 features, capabilities, and restrictions in order to effectively plan and prepare for a new or upgraded ASTRO® 25 system.

### AUDIENCE

Pre-sale customers, new system managers, system planning personnel


### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Discuss what a fleetmap is and why one is needed.
- Discuss the methodologies used to configure radio users and groups with the goal of optimizing the system resources.
- Describe the content to assist with fleetmapping decisions.
- Discuss frequency band plan organization and management.
- Describe basic planning requirements and complete a simple Fleetmap information template.
- Complete worksheets required to create a Fleetmap based on sample operational requirement information.

### REQUISITE KNOWLEDGE

None



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**RDS1017**

## INTELLIGENT MIDDLEWARE OPERATION AND ADMINISTRATION

### COURSE OVERVIEW

The purpose of this course is to provide the steps to operate and maintain a customer's IMW system within their Motorola system (ASTRO, Dimetra, LTE).

### AUDIENCE

Partners/Resellers and customers who would be responsible for the operation and maintenance of a customer's IMW system within their Motorola systems (ASTRO, Dimetra, LTE).


### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe IMW features.
- Perform installation of IMW.
- Configure an IMW system.
- Identify the IMW tools to administer the system.
- Perform routine administration.
- Perform troubleshooting.
- Understand system-specific considerations.

### REQUISITE KNOWLEDGE

None



**INSTRUCTOR-LED**  
LENGTH: 2 DAY  
LMS COURSE CODE:  
**RDS2025**

## ASTRO® 25 SECURITY PATCH MANAGEMENT

### COURSE OVERVIEW

Provide Motorola ASTRO® 25 Land Mobile Radio (LMR) system administrators the information to access and patch their radio system infrastructure, update antivirus definitions, review log files and understand account management.

### AUDIENCE

M Core Master Site Technicians

### COURSE OBJECTIVES


After completing this course, the student will be able to:

- Successfully access servers in the M-Core
- Successfully patch their radio system infrastructure
- Update Anti-virus (A/V) Definitions for their radiosystem infrastructure
- Perform basic review of UNIX logs
- Create user and group accounts
- Assist with basic tasks in Account Management on the LMR system

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ASTRO® 25 IV&D M Core Workshop (ACS717103)



**INSTRUCTOR-LED**  
LENGTH: 4 DAYS  
LMS COURSE CODE:  
**AST2001**

# RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

For information on prerequisites and to register for courses visit the LMS at: [LEARNING.MOTOROLASOLUTIONS.COM](http://LEARNING.MOTOROLASOLUTIONS.COM)

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## ASTRO® 25 IV&D SYSTEM OVERVIEW (AST1038)

### COURSE OVERVIEW

The ASTRO® 25 IV&D System Overview course will provide participants with knowledge and understanding of the ASTRO® 25 IV&D system. This course will address M, L and K Core systems. System architecture, components and features will be explained. In addition, RF and console sites and their architecture, features and components will be discussed. Finally, call processing for voice and mobile data applications will be covered, and an introduction to applications available in the ASTRO® 25 system will be provided.

### AUDIENCE

Core Technicians, Site Technicians, Console Technicians, Core Managers.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Understand the general architecture of an ASTRO® 25 IV&D Radio System
- Understand key features of available in the ASTRO® 25 IV&D Radio System
- Understand the components of the ASTRO® 25 Zone Core
- Understand site components in the ASTRO® 25 system
- Understand the features, capabilities and components of the MCC7000 series dispatch consoles
- Understand concepts of Mobility and Call Processing in the ASTRO25
- Understand the applications for managing the ASTRO® 25 system



**ONLINE, SELF-PACED**  
LENGTH: 4 HOURS  
LMS COURSE CODE:  
**ACT1038**

## DEPLOY FOR ASTRO® 25 IV&D TRUNKING WITH L CORE

### COURSE OVERVIEW

This course provides an overview and implementation plan for deployment of an L1/L2 ASTRO® 25 IV&D 7.13 system, contains information and procedures for bringing Motorola Manufacturing Representatives (MRs) up to speed on how to assemble and install the L1/L2 system for customers, and acts as a resource on how to reference other training materials for troubleshooting and additional L1/L2 system tasks.

### AUDIENCE

Motorola Manufacturing Representatives (MRs) involved in the installation of L1/L2 systems

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Correctly and efficiently install and locally configure an L Core system that has been staged by CCSI
- Perform initial Power On of equipment to verify proper operation
- Commission the L Core System once it has been installed
- Test the L Core System per Acceptance Test Plans (ATP)
- Back up the Infrastructure and System Databases of the L Core System

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Networking Essentials in Communication Equipment (NST762)
- Site Installation Practices Workshop (R56) (NST925)

### Required:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**ACS717460**

## DEPLOY FOR ASTRO® 25 IV&D CONVENTIONAL WITH K CORE

### COURSE OVERVIEW

This course provides an overview and implementation plan for deployment of an K1/K2 ASTRO® 25 IV&D 7.13 system, contains information and procedures for bringing Motorola Manufacturing Representatives (MRs) up to speed on how to install the K1/K2 system for customers, and acts as a resource on how to reference other training materials for troubleshooting and additional K1/K2 system tasks.

### AUDIENCE

Motorola Manufacturing Representatives (MRs) involved in the installation of K1/K2 systems.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Correctly and efficiently install and locally configure a K Core system that has been staged by CCSI
- Perform initial Power On of equipment to verify proper operation
- Commission the K Core System once it has been installed
- Test the K Core System per Acceptance Test Plans (ATP)
- Back up the Infrastructure and System Databases of the K Core System

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Networking Essentials in Communication Equipment (NST762)
- Site Installation Practices Workshop (R56) (NST925)

### Required:

Take one of the following, depending on system supporting:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**ACS717470**



[CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)

# RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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## ASTRO® 25 SYSTEMS APPLIED NETWORKING

### COURSE OVERVIEW

The ASTRO® 25 Systems Applied Networking course provides technicians with the necessary networking information required for understanding the network components installed in modern Motorola communications systems. The course includes familiarization with basic networking concepts, and the networking components deployed in the ASTRO SmartZone System and ASTRO® 25 System.

### AUDIENCE

Technical System Managers and Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Recall basic network concepts
- Identify the various system network components
- Define the LAN topologies for each system
- Define the WAN topologies for each system
- Diagram SNMP deployment throughout the system
- Identify the HP switches and Motorola series routers
- Perform backup, restore, and recovery procedures of routers and LAN switches
- Identify network security components and concepts in an ASTRO® 25 system

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Networking Essentials in Motorola Communications Equipment (NST762)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**NWT003**

## ASTRO® 25 IV&D SECURE COMMUNICATIONS WORKSHOP



### COURSE OVERVIEW

This workshop describes planning, installation, configuration, operations, and troubleshooting of Secure Communications within the ASTRO® 25 IV&D System.

### AUDIENCE

System Technicians, System Administrators, Technical System Managers

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Plan, organize, and implement Secure Communications in an ASTRO® 25 IV&D system
- Install and configure a Key Management Facility (KMF) system and related components
- Demonstrate centralized key management using Over-the-Air-Rekeying (OTAR)
- Perform System Administrator functions using the KMF server and KMF client
- Troubleshoot installation and configuration problems for the KMF server, KMF client, and KMF database
- Implement end-to-end encryption using the MCC 7500 console subsystem

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 (ACT100-E or ACT101-E)
- Networking Essentials in Communication Equipment (NST762)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**ACS717207**

## ASTRO® 25 IV&D M CORE WORKSHOP

### COURSE OVERVIEW

The ASTRO® 25 IV&D with M Core course teaches troubleshooting skills and best practices for the Trunked Large Systems. The course also focuses on gathering and analyzing system information to implement appropriate action(s) that return a system to full operational status.

### AUDIENCE

M Core Master Site Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the ASTRO® 25 IV&D System architecture
- Identify the functional and radio subsystems that comprise the ASTRO® 25 IV&D System
- Explain and discuss call flow and data flow through ASTRO® 25 IV&D M Core devices and their subsystems
- Perform recommended routine maintenance procedures for ASTRO® 25 IV&D M Core
- Utilize the troubleshooting tools to diagnose a fault and restore the ASTRO® 25 IV&D M Core to the level of the Motorola-supported service strategy

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 – Technician (ACT100-E)
- Networking Essentials in Communication Equipment (NST762)
- ASTRO® 25 Systems Applied Networking (NWT003)

### Required:

Take one of the following, depending on system supporting:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**ACS717103**



[CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)



# RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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For general information contact the North America Learning Help Desk at: (800) 247-2346, option 4 or [training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com)

## NEW FEATURE INTRODUCTION FOR ASTRO® 25 IV&D SYSTEMS

### COURSE OVERVIEW

This course describes the new features introduced in the ASTRO® 25 7.17 system release. These features are broadly classified into migration related features, efficiency and safety related features, resilience and reliability related features, network management and design related features, system capacity related features and inter-system communication related features. Optional features are introduced along with standard enhancements in this release.

### AUDIENCE

System Administrators, System Technicians, Field Technicians, Application Users

### COURSE OBJECTIVES


After completing this course, the student will be able to:

- Describe the standard enhancements in the ASTRO® 25 7.17 system release
- Describe optional enhancements in the ASTRO® 25 7.17 system release
- Describe the key optional features available in the ASTRO® 25 7.17 system release

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ASTRO® 25 IV&D Curriculum (Release 7.9 or later) or equivalent knowledge for supported job role



**VIRTUAL CLASSROOM**  
LENGTH: 2 HOUR  
LMS COURSE CODE:  
**AST1051**

## ASTRO® 25 IV&D K CORE WORKSHOP

### COURSE OVERVIEW

The ASTRO® 25 IV&D Conventional with K Core and Configuration Manager course teaches advanced troubleshooting skills and best practices for the ASTRO® 25 IV&D Conventional K Core. It also focuses on administrator functions and how to use the ASTRO® 25 IV&D Configuration Manager applications. A technical **introduction** to the MCC 7000 series consoles as used within the ASTRO® 25 IV&D Conventional K Core, including some administrator functions, is also provided. **(Go to page 43 for detailed instructions on MCC 7000 series consoles in a K-core system.)** Learning activities focus on gathering and analyzing system information to implement the appropriate actions that return a system to full operational status.

### AUDIENCE

Master Site Technicians, System Administrators, Technical System Administrators, System Technicians and other Application Users

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the ASTRO® 25 IV&D Conventional K Core
- Describe the functional and radio subsystems that comprise the ASTRO® 25 IV&D Conventional K Core System
- Configure parameters in the Configuration Manager application
- Identify the advantages and disadvantages of options available for the configuration of system infrastructure and user parameters
- Explain and discuss call flow and data flow through ASTRO® 25 IV&D Conventional K Core
- Perform recommended routine maintenance procedures for the ASTRO® 25 IV&D Conventional K Core
- Utilize the troubleshooting tools to diagnose a fault and restore the ASTRO® 25 IV&D Conventional K Core to the level of the Motorola-supported service strategy


### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 (ACT100-E or ACT101-E)
- Networking Essentials in Communication Equipment (NST762)
- ASTRO® 25 Systems Applied Networking (NWT003)

### Required:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**ACS717410**



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# RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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## ASTRO® 25 IV&D CONVENTIONAL RF SITE WORKSHOP

### COURSE OVERVIEW

The ASTRO® 25 IV&D Conventional RF Site workshop describes the components in the different ASTRO® 25 IV&D Conventional RF Sites topologies. This course also presents how the different ASTRO® 25 IV&D Conventional RF Sites topologies operate and explains the tools and methods available for troubleshooting components within the different ASTRO® 25 IV&D Conventional RF Sites topologies.

### AUDIENCE

Site Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Identify the ASTRO® 25 IV&D Conventional RF site topologies
- Describe the functionality components of the different ASTRO® 25 IV&D Conventional RF Sites topologies
- Configure and troubleshoot components of the different ASTRO® 25 IV&D Conventional RF Sites topologies
- Configure and troubleshoot the Network Transport subsystem of the different ASTRO® 25 IV&D Conventional RF Sites topologies

### REQUISITE KNOWLEDGE


Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 (ACT100-E or ACT101-E)
- Networking Essentials in Communication Equipment (NST762)
- ASTRO® 25 Systems Applied Networking (NWT003)

### Required:

Take one of the following, depending on system supporting:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**ACS717440**

## ASTRO® 25 DOMAIN CONTROLLER ADMINISTRATION

### COURSE OVERVIEW

This workshop covers the administrator and management functions in the ASTRO® 25 Domain Controller and how these functions affect both users and computers in the ASTRO® 25 system. Learning activities in this course focus on how to use the Domain Controllers to authenticate, administer, and authorize users and devices in the ASTRO® 25 System. Group Policies and Organizational Units, RADIUS, and DNS structure will be addressed during this course.

### AUDIENCE

Console Technicians, System Managers

### COURSE OBJECTIVES


After completing this course, the student will be able to:

- Understand the Domain Controller server platform
- Understand the DNS Hierarchy in the ASTRO® 25 system
- Implement RADIUS authentication in applicable devices in an ASTRO® 25 system.
- Use Active Directory to control users in the ASTRO® 25 system.
- Understand Group Policy objects and how they impact users in the ASTRO® 25 Domain.

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**AST2015**

## ASTRO® 25 IV&D RADIO SYSTEM ADMINISTRATOR WORKSHOP

### COURSE OVERVIEW

This workshop covers administrator functions for an ASTRO® 25 IV&D System. Learning activities in this course focus on how to use the different ASTRO® 25 IV&D System Management applications. Participants will be provided with an opportunity to discuss how to structure their organization and personnel for optimal ASTRO® 25 IV&D system use.

### AUDIENCE

System Administrators, Technical System Administrators, System Technicians, and other Application Users

### COURSE OBJECTIVES


After completing this course, the student will be able to:

- Describe the relationship between radio programming, console administration and system management, and the impact of this relationship on system planning
- List the network management tools applicable at each phase of the system life cycle
- Use the report and real-time data to monitor performance and make adjustments necessary to maintain acceptable system performance levels
- Identify the advantages and disadvantages of options available for the configuration of system infrastructure and user parameters

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**ACS717102**

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# RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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## ASTRO® 25 IV&D IP BASED DIGITAL SIMULCAST WORKSHOP

### COURSE OVERVIEW

The ASTRO® 25 IV&D IP Based Digital Simulcast workshop provides an understanding of the components that comprise the ASTRO® 25 IV&D IP Simulcast subsystem, and how they operate in conjunction with each other. The workshop also explains the tools and methods available for troubleshooting components within the IP Based Simulcast subsystem.

### AUDIENCE

Simulcast Site Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Recognize the flow of message and control data within an ASTRO® 25 IV&D IP Digital Simulcast subsystem
- Identify the major components and connections within an ASTRO® 25 IV&D IP Digital Simulcast subsystem prime and remote sites
- Recognize how calls are processed within an ASTRO® 25 IV&D IP Digital Simulcast subsystem
- Perform maintenance and troubleshooting of select components in an ASTRO® 25 IV&D IP Digital Simulcast subsystem

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 – Technician (ACT100-E)
- Networking Essentials in Communication Equipment (NST762)
- ASTRO® 25 Systems Applied Networking (NWT003)

### Required:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**ACS717217**

## ASTRO® 25 IV&D GTR 8000 REPEATER SITE WORKSHOP

### COURSE OVERVIEW

This workshop describes the components in the ASTRO® 25 IV&D System Repeater Site with GTR 8000 expandable site subsystem. This course also presents how the GTR 8000 expandable site subsystem operates and explains the tools and methods available for troubleshooting components within the subsystem.

### AUDIENCE

GTR 8000 Site Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the ASTRO® 25 IV&D Repeater Site with GTR 8000 Expandable Site Subsystem configurations and components
- Identify the GCP 8000 Site Controller functions and configuration requirements
- Describe the connections and interfaces to the GCP 8000
- Diagnose and troubleshoot the GCP 8000
- Describe the functionality of the GTR 8000 Expandable Site Subsystem
- Configure and troubleshoot the ASTRO® 25 Repeater Site with GTR 8000 Expandable Site Subsystem
- Configure and troubleshoot the Network Transport subsystem

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 – Technician (ACT100-E)
- Networking Essentials in Communication Equipment (NST762)
- ASTRO® 25 Systems Applied Networking (NWT003)

### Required:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**ACS717208**

## STANDALONE GTR8000 CONVENTIONAL BASE RADIO

### COURSE OVERVIEW

This course is designed to give the participants the ability to align, troubleshoot and repair the Standalone GTR8000 Base Station/Repeater to Motorola Solutions recommended service levels.

Emphasis is placed on the use of Configuration Service Software (CSS) and its role in configuration, maintenance, diagnostics, alignments, and optimization of the Standalone GTR8000 Base Radio/ Repeater

### AUDIENCE

Maintenance Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Understand basic concepts of the various radio systems supported by the GTR8000 Conventional Base Radio
- Identify the equipment modules of the GTR8000 Conventional Base Radio
- Operate and perform routine maintenance on the GTR8000 Conventional Base Radio
- Understand basic operational theory of GTR8000 Conventional Base Radio components
- Configure the GTR8000 Conventional Base Radio using Configuration Service Software (CSS)
- Identify the different backplane connections on the GTR8000 Conventional Base Radio
- Perform calibration and alignment adjustments for the GTR8000 Conventional Base Radio
- Troubleshoot problems and identify/replace faulty modules in the GTR8000 Conventional Base Radio

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- General RF Knowledge and Skills
- Basic Knowledge of Two-Way Radio systems



**INSTRUCTOR-LED**  
LENGTH: 2 DAYS  
LMS COURSE CODE:  
**AST2006**



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# RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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## ASTRO® 25 ISSI 8000 / CSSI 8000 FEATURE OVERVIEW



### COURSE OVERVIEW

The ISSI 8000 / CSSI 8000 Feature Overview self-paced course describes the optional Inter-RF Subsystem Interface available in an ASTRO® 25 IV&D System. It presents a description of the feature, its benefits and components, call processing scenarios, and an overview of the installation process.

### AUDIENCE

System Managers, Technical System Managers, System Technicians, Application Users

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the ISSI 8000 / CSSI 8000 feature
- Describe the components of the ISSI 8000 / CSSI 8000 feature
- Describe the communication scenarios if this feature is enabled
- Follow the installation and configuration process if this feature is added to an ASTRO system

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 – Technician (ACT100-E)

### Required:

- ASTRO® 25 IV&D System Overview (AST1038)



ONLINE, SELF-PACED  
LENGTH: 4 HOURS  
LMS COURSE CODE:  
**AST2005**

## ASTRO® 25 IV&D DYNAMIC SYSTEM RESILIENCE



### COURSE OVERVIEW

The ASTRO® 25 IV&D Dynamic System Resilience (DSR) Overview is a self-study training course intended to provide a technical overview of DSR. The course describes how DSR adds a geographically separate backup for the Master Site to protect against a catastrophic failure.

### AUDIENCE

System Administrators, System Technicians, Field Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Differentiate between a non-DSR Master Site and a DSR Master Site

Describe the DSR components, operation and functionality of each of the following services:

- Voice
- Data
- Network Management
- Network Transport
- IP Services
- MOSCAD

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ASTRO® 25 IV&D System Overview (AST1038)



ONLINE, SELF-PACED  
LENGTH: 2 HOURS  
LMS COURSE CODE:  
**ACS717023**

## ASTRO® 25 IV&D INTERFACING SMARTZONE 3600 SYSTEMS (SMARTX)

### COURSE OVERVIEW

ASTRO® 25 IV&D Trunked System - Interfacing SmartZone 3600 Systems with SmartX is designed to allow communication between subscriber radios at existing 3600 RF sites and an ASTRO® 25 IV&D system. It is based on the Voice Processor Module hardware platform and enables the continued use of 3600 RF sites and subscriber radios with the release of ASTRO® 25 7.7 or higher. This self-study training course is intended to provide information related to the installation and functionality of, including the hardware and software associated with, the SmartX Site Converter in the ASTRO® 25 IV&D.

### AUDIENCE

System Administrators, System Technicians, Field Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the SmartX Site Converter and its operation within the system
- Identify the major components and functionality.
- Know the requirements and components necessary to install a SmartX Site Converter

### REQUISITE KNOWLEDGE

None



ONLINE, SELF-PACED  
LENGTH: 2 HOURS  
LMS COURSE CODE:  
**ACS717360**



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# RADIO SOLUTIONS ASTRO® 25 IV&D SYSTEMS

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## ASTRO® 25 IV&D DIGITAL MUTUAL AID

### COURSE OVERVIEW

This web based course describes the functionality and the hardware and software associated with using Mutual Aid in the ASTRO® 25 IV&D System.

### AUDIENCE

System Administrators, System Technicians, Field Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Define the Mutual Aid feature
- Determine the configurations available for mutual aid in an ASTRO® 25 IV&D system
- List the components for use with Digital Mutual Aid and Analog Mutual Aid in the ASTRO® 25 IV&D
- Configure Digital Mutual Aid and Analog Mutual Aid in the ASTRO® 25 IV&D system
- Troubleshoot Digital Mutual Aid and Analog Mutual Aid in the ASTRO® 25 IV&D system

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 (ACT100-E or ACT101-E)
- Networking Essentials in Communication Equipment (NST762)

### Required:

- ASTRO® 25 IV&D System Overview (AST1038)



ONLINE, SELF-PACED  
LENGTH: 1 HOUR  
LMS COURSE CODE:  
**ACS78210**

## ASTRO® 25 IV&D ENHANCED TELEPHONE INTERCONNECT



### COURSE OVERVIEW

This web based course describes the functionality and the hardware and software associated with the Enhanced Telephone Interconnect feature in the ASTRO® 25 IV&D System.

### AUDIENCE

System Technicians, System Administrators

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Identify the function and major components for the Enhanced Telephone Interconnect feature
- Define the operation of the Enhanced Telephone Interconnect feature within the system
- Configure the Enhanced Telephone Interconnect equipment
- Troubleshoot the Enhanced Telephone Interconnect equipment

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 (ACT100-E or ACT101-E)
- Networking Essentials in Communication Equipment (NST762)



ONLINE, SELF-PACED  
LENGTH: 2-4 HOURS  
LMS COURSE CODE:  
**ACS717480**

## ASTRO® 25 IV&D INFORMATION ASSURANCE SYSTEM OVERVIEW

### COURSE OVERVIEW

This web based course describes the functionality and the hardware and software associated CNI Network Security in the ASTRO® 25 IV&D System.

### AUDIENCE

System Administrators, System Technicians, Field Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Define network security and its functions
- List the network security components of an ASTRO® 25 IV&D system
- Define the functions, components and operation of the Core Server Management Server (CSMS)
- Identify the functions, components and operation of the Interface Barrier (NIB)
- Identify the functions, components and operation of the border router and the peripheral network router

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap for ASTRO® 25 (ACT100-E or ACT101-E)
- Networking Essentials in Communication Equipment (NST762)
- ASTRO® 25 Systems Applied Networking (NWT003)

### Required:

- ASTRO® 25 IV&D System Overview (AST1038)



ONLINE, SELF-PACED  
LENGTH: 4 HOURS  
LMS COURSE CODE:  
**ACS717211**



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## RADIO SOLUTIONS **ASTRO**® 25 IV&D SYSTEMS

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**HELPING**



**PEOPLE**

**BE THEIR**



**BEST**



**IN THE**



**MOMENTS**

**THAT MATTER**





# DISPATCH CONSOLE PORTFOLIO

OPERATIONAL COMMAND AND CONTROL FROM  
MULTIPLE POINTS, AT MULTIPLE LEVELS

MCC 7100



MCC 7500



MCD 5000







## CONSOLE COURSES

**MCC 7000 SERIES DISPATCH CONSOLES WORKSHOP (CON012)** [43](#)

**MCD 5000 TECHNICAL WORKSHOP (RDS1022)** [43](#)

**ASTRO® 25 NICE LOGGER INTEGRATION (AST1002)** [44](#)

### \* PLEASE NOTE:

**MCC 7000 Series Dispatch Consoles Workshop (CON012)** focuses on the consoles application in an M- or L-Core System.



**THE LEARNING  
MANAGEMENT  
SYSTEM (LMS)**

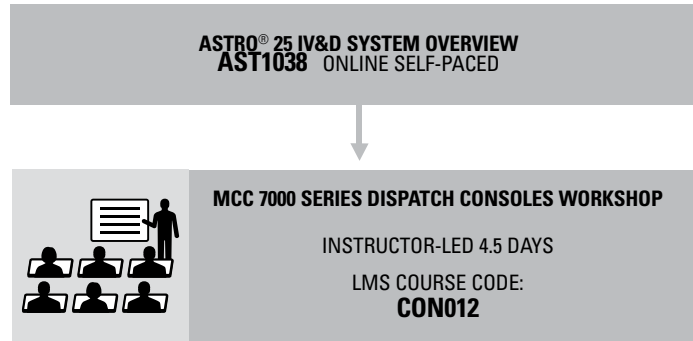
To register for a course, go to [learning.motorolasolutions.com](http://learning.motorolasolutions.com)

## RADIO SOLUTIONS CONSOLES

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## CONSOLES TECHNICAL TRAINING CURRICULUM



### CURRICULUM COMPLETE

PARTICIPANT CAN MAINTAIN A MCC 7000 DISPATCH CONSOLE SITE INCLUDING: CONSOLE PC, VPM, CC GW'S AND AUX I/O SERVERS.  
\*PARTICIPANT PERFORMS TROUBLESHOOTING AND REPLACEMENT OF SITE DEVICES DURING COURSE.

### OPTIONAL CONSOLE TRAINING

<b>MCD 5000 TECHNICAL WORKSHOP</b>	<b>ASTRO® 25 NICE LOGGER INTEGRATION</b>	<b>ASTRO® 25 DOMAIN CONTROLLER ADMINISTRATION</b>
INSTRUCTOR-LED 3 DAYS	INSTRUCTOR-LED 4.5 DAYS	INSTRUCTOR-LED 3 DAYS
<b>RDS1022</b>	<b>AST1002</b>	<b>AST2015</b>
		

# RADIO SOLUTIONS CONSOLES

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## MCC 7000 SERIES DISPATCH CONSOLES WORKSHOP

### COURSE OVERVIEW

This course familiarizes participants with installation, configuration, management and repair of MCC 7000 series dispatch consoles, Archiving Interface Servers, AUX I/O servers, and Conventional Channel Gateways. The focus is on a detailed discussion of console hardware and the installation and configuration of the MCC 7000 series consoles which consist of the MCC 7100 and MCC 7500 dispatch console.

### AUDIENCE

System Administrators, Console Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Install and configure the hardware and software components of the MCC 7000 Series Dispatch Consoles Subsystem
- Perform MCC 7000 Series site connectivity and bandwidth management
- Perform System Administrator functions using the MCC 7000 Series Administrator software
- Troubleshoot installation and configuration problems for the MCC 7000 Series Dispatch Consoles

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Bridging the Knowledge Gap (ACT100-E or ACT101-E)
- Networking Essentials in Communication Equipment (NST762)
- ASTRO® 25 Systems Applied Networking (NWT003)

### Required:

- ASTRO® 25 IV&D System Overview (AST1038)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**CON012**

## MCD 5000 TECHNICAL WORKSHOP



### COURSE OVERVIEW

This workshop supports those that install, configure, or support the MCD 5000 Deskset. This three day training course will cover installation procedures for the MCD5000 Deskset, Radio Gateway Unit (RGU), and connectivity to different station types. Configuration and programming of the MCD5000 and its supporting equipment will be covered through discussion and hands-on lab activities. Troubleshooting and maintenance techniques will be addressed to the Motorola recommended service level.

### AUDIENCE

Console Technicians, System Managers

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Identify the MCD 5000 System Components and functions
- Install MCD 5000 Deskset
- Install Radio Gateway Units
- Configure MCD 5000 subcomponents
- Troubleshoot the MCD 5000 System to Motorola Solutions recommended service levels
- Configure MCD 5000 with the Operations and Management Center (OMC), as applicable.
- Use the Administrator Control Panel (ACP) to configure an MCD 5000 System with OMC.
- Describe the function of the MCD 5000 Deskset
- Describe all tasks on the MCD 5000 Deskset
- Discuss MCD 5000 Deskset Basic Operations

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Communication Systems Concepts (NST021)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**RDS1022**



[CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)

# RADIO SOLUTIONS CONSOLES

For information on prerequisites and to register for courses visit the LMS at: [LEARNING.MOTOROLASOLUTIONS.COM](http://LEARNING.MOTOROLASOLUTIONS.COM)

For general information contact the North America Learning Help Desk at: [\(800\) 247-2346, option 4](tel:800-247-2346) or [training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com)

## ASTRO® 25 NICE LOGGER INTEGRATION



### COURSE OVERVIEW

This workshop covers the tasks and knowledge to implement a NICE logging solution in an ASTRO® 25 system. Learning activities in this course focus on both initial installation and configuration, and operation and troubleshooting the components after installation. Participants will be provided with an opportunity to demonstrate, with available lab equipment, tasks required to install and maintain the related subsystem components.

### AUDIENCE

Console Technicians, System Managers

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the functionality of the different components and applications required for NICE Radio logging
- Install and configure required components into an ASTRO® 25 system
- Perform administrative tasks necessary for operation of the logging solution
- Use system tools and applications to identify potential causes of failure of the logging solution

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- ASTRO® 25 IV&D System Overview (AST1038)
- MCC7000 Series Dispatch Console Workshop (CON012)



**INSTRUCTOR-LED**

**LENGTH: 4.5 DAYS**

**LMS COURSE CODE:**

**AST1002**



**CLICK HERE TO VIEW THE  
SCHEDULE AND PRICE SHEET**



# SUBSCRIBER COURSES

<b>CPS PROGRAMMING AND TEMPLATE BUILDING</b> (ADT001-V)	<a href="#">48</a>
<b>APX CPS PROGRAMMING AND TEMPLATE BUILDING</b> (APX7001-V)	<a href="#">48</a>
<b>APX RADIO MANAGEMENT WORKSHOP</b> (RDS2017)	<a href="#">48</a>
<b>XTS/XTL TECHNICAL SUBSCRIBER ACADEMY</b> (ADST005)	<a href="#">49</a>
<b>APX TECHNICAL SUBSCRIBER ACADEMY</b> (APX010)	<a href="#">50</a>

### THE APX RADIO TECHNICAL ACADEMY AND THE XTS/XTL RADIO TECHNICAL ACADEMY

These “academy” style technical training courses are designed to provide technicians handling install, configuration, maintenance and troubleshooting support on APX or XTS/XTL subscribers, with a broader and deeper view of the APX radio and XTS/XTL radio. In addition to focusing on the capability, function and features of the APX and XTS/XTL radios as well as the detailed theory of operation of those radios, these academies will continue to focus on the correct procedures used to complete radio performance checks, radio alignment, maintenance and troubleshooting. They will also highlight other useful skills. These radio academies will include lecture and lab work on topics such as: Radio Flashing, Encryption (including configuring radios for OTAR), Programming Over P25 (POP 25), Advanced System Key Management, Vacuum and Submersibility testing, Mobile radio installation, Multiple Control Head configuration and many other special setup or configuration modes.

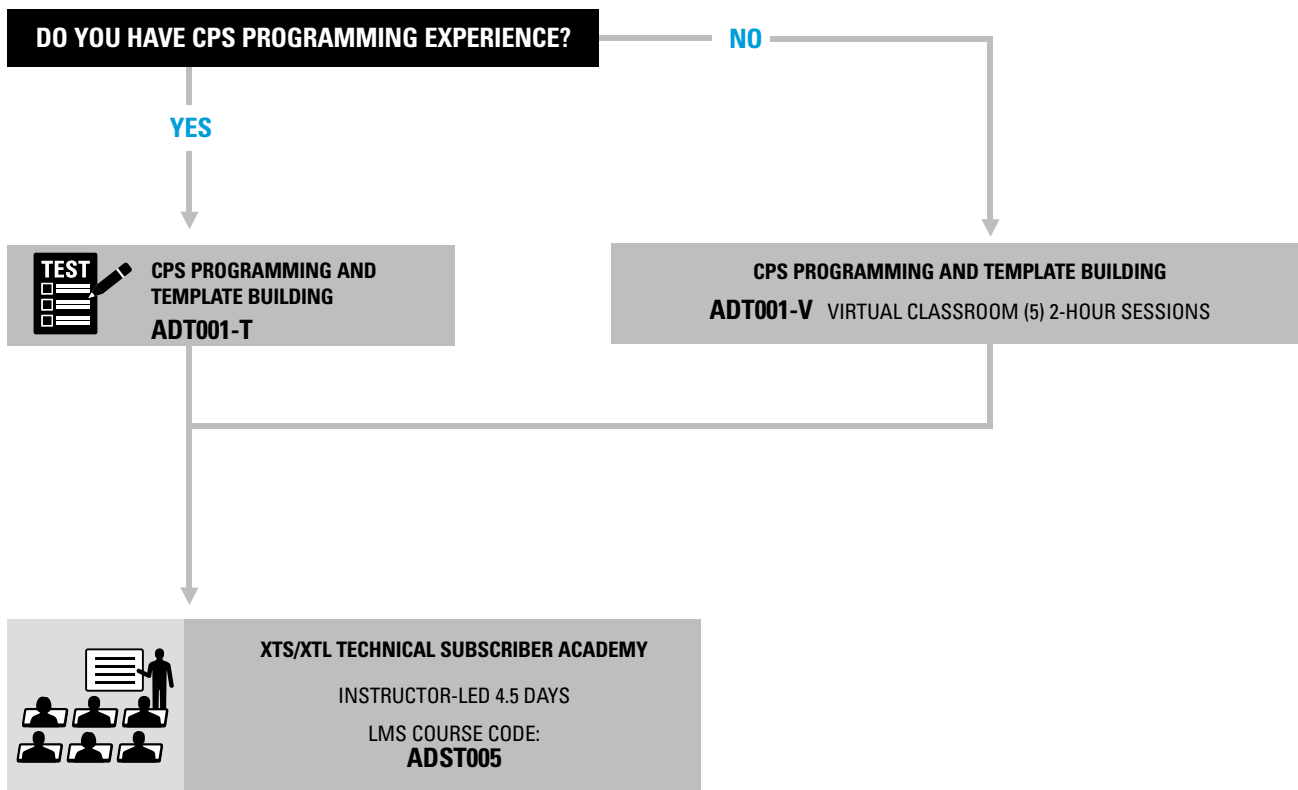
NOTE: As new APX models are released, they will be addressed during the APX Academy training. This approach provides technicians the expertise they need to work on the whole family of radios.

# RADIO SOLUTIONS SUBSCRIBERS

For information on prerequisites and to register for courses visit the LMS at: [LEARNING.MOTOROLASOLUTIONS.COM](http://LEARNING.MOTOROLASOLUTIONS.COM)

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## XTS/XTL SUBSCRIBER FAMILY



### CURRICULUM COMPLETE

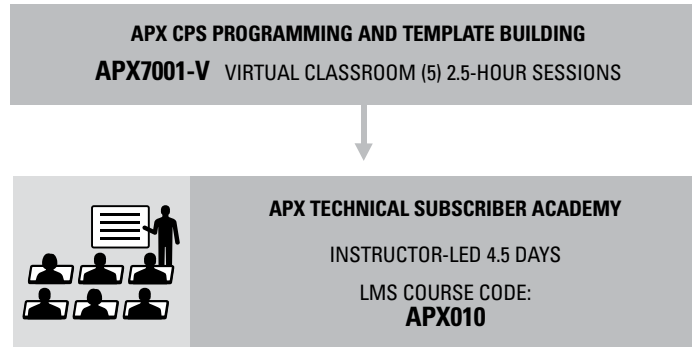
PARTICIPANT WILL BE ABLE TO PROGRAM, DEVELOP FLEET TEMPLATES, AND PERFORM MAINTENANCE ON ALL MEMBERS OF THE APX FAMILY OF RADIOS. MAINTENANCE WILL INCLUDE TESTING, ALIGNMENTS, DISASSEMBLY/RE-ASSEMBLY, SUBMERSIBILITY TEST, MOBILE RADIO INSTALLATION, AND TROUBLESHOOT TO THE BOARD LEVEL.

## RADIO SOLUTIONS **SUBSCRIBERS**

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[\(800\) 247-2346, option 4](tel:8002472346) or [training.na@motorolasolutions.com](mailto:training.na@motorolasolutions.com)

### APX SUBSCRIBER FAMILY



### **CURRICULUM COMPLETE**

PARTICIPANT SHOULD BE ABLE TO PROGRAM, DEVELOP FLEET TEMPLATES, AND PERFORM MAINTENANCE ON ALL MEMBERS OF THE APX FAMILY OF RADIOS. MAINTENANCE WILL INCLUDE TESTING, ALIGNMENTS, DISASSEMBLY/RE-ASSEMBLY, SUBMURGIBILITY TEST, MOBILE RADIO INSTALLATION, AND TROUBLESHOOT TO THE BOARD LEVEL.

## RADIO SOLUTIONS SUBSCRIBERS

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### CPS PROGRAMMING AND TEMPLATE BUILDING

#### COURSE OVERVIEW

This course provides communications management personnel and technicians with the knowledge and tools needed to program the radio units in the most efficient way depending on the system, features and options they require. The parameters and exercises shown in the class apply to a wide number of portable and mobile radios, including XTS 5000, XTS 3000, XTS 2500, XTS 1500, XTL 5000, XTL 2500, XTL 1500, MTS 2000, MCS 2000, the SPECTRA family, and the Professional Series.

#### AUDIENCE

Radio Technicians, System Managers

#### COURSE OBJECTIVES


After completing this course, the student will be able to:

- Program the basic parameters of any radio using the Customer Programming Software (CPS)
- Program the specific parameters of any radio related with the system where the user is going to work: conventional, single site trunking, Simulcast, AMSS, SmartZone or ASTRO® 25
- Demonstrate knowledge of the options and features that can be programmed in a radio
- Create templates for the programming of subscribers in a system

#### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic features and options of two-way radios basic concepts of trunking



**VIRTUAL CLASSROOM**  
LENGTH: (5) 2-HOUR SESSIONS  
LMS COURSE CODE: ADT001-V

### APX™ CPS PROGRAMMING AND TEMPLATE BUILDING

#### COURSE OVERVIEW

The APX CPS Programming and Template Building course provides communications management personnel and technicians with the knowledge and training necessary to build templates and program the APX family of radios in the most efficient way possible.

#### AUDIENCE

Radio Technicians, System Managers

#### COURSE OBJECTIVES


After completing this course, the student will be able to:

- Build the APX family of programming templates using the APX CPS Programming Software
- Program the specific parameters related to the various sytem types in which the subscriber unit will operate: Conventional, Single Site Trunking, Simulcast, SmartZone or ASTRO® 25 IV&D TDMA and ASTRO® 25 IV&D X2
- Demonstrate knowledge of the APX CPS navigation, tools, options and features that make effiecient programming of the radio possible
- Demonstrate a complete understanding of the various APX CPS programming efficiency tools, such as: Cloning, Drag and Drop, Codeplug Comparison Tool, Radio Flashing, Advance System Key Administrator, Codeplug Merging and many others

#### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Experience with the basic features and options of two-way radios and the basic concepts of trunking



**VIRTUAL CLASSROOM**  
LENGTH: (5) 2.5-HOUR SESSIONS  
LMS COURSE CODE: APX7001-V

### APX™ RADIO MANAGEMENT WORKSHOP

#### COURSE OVERVIEW

Participants will learn the capabilities, features, and functions of the APX™ Radio Management Suite. This course will cover an APX CPS overview, APX Radio Management Overview, Basic Networking Primer, ASTRO® 25/CEN Networking and UNS Overview, and APX Radio Management Installation, Configuration, and Operations. In addition, the course will contain labs that will focus on installation, configuration, and operation using both wired and POP25 updates to APX Subscriber radios in both a LAN and WAN environment.

#### AUDIENCE

Radio Technicians, System Managers, Radio Programmers

#### COURSE OBJECTIVES


After completing this course, the student will be able to:

- Describe the APX Radio Management Suite operations and required software and hardware components
- Describe all deployment options for APX Radio Management Suite
- Configure a basic APX Radio Management system using a single PC, multiple PCs on a LAN, and multiple PCs on a WAN.
- Troubleshoot common APX Radio Management Installation, configuration, and operation issues
- Use Best Practices to implement and optimize Radio Management Performance

#### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- APX™ CPS Programming and Template (APX7001-V Building)



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE: RDS2017

 [CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)



## RADIO SOLUTIONS SUBSCRIBERS

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### XTS/XTL TECHNICAL SUBSCRIBER ACADEMY

#### COURSE OVERVIEW

Participants will learn the capabilities, features and functions of the XTS/XTL family of radios as well as how to correctly complete performance checks, radio alignments, disassembly/reassembly, maintenance and troubleshooting. This academy will also focus on the detailed theory of operation. The XTS/XTL Academy will also cover in detail: Radio Flashing, Encryption, Key Loading (Including configuring the XTS/XTL radio for OTAR), Programming over P25 (Over the Air Programming), Advanced System Key Management, Vacuum and Submersibility Testing, Mobile Radio Installation and many other special setup or configuration modes with the radios. In addition to lecture, large amounts of hands-on, scenario based lab work will be used to reinforce knowledge transfer. This academy will cover in detail all models within the XTS/XTL family of radios, including: XTS 5000, XTS 2500 and XTS 1500 and XTL 5000, XTL 2500 and XTL 1500.

#### AUDIENCE

Radio Technicians

#### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Distinguish between the features and specifications of the XTS and XTL 5000 radios
- Verify the correct operations of the XTS and XTL 5000 radios by completing Performance Checks and Alignment procedures
- Maintain and troubleshoot an XTS and XTL 5000 radios
- Disassemble and reassemble the radios using the documented procedures
- Verify the housing integrity of an XTS 5000R portable radio
- Flash upgrade an XTS and an XTL 5000 Radio
- Interpret the circuit theory of operation and use this information to isolate faults found at both the board and the component level

#### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:


- Communication Systems Concepts (NST021)
- Basic Radio (ARDS004)
- Theory of Radio Operations (RCS003-E)

#### AND

- CPS Programming and Template Building Overview (ADT001-V)

#### OR

- Test Out CPS Programming and Template Building (ADT001-T)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**ADST005**



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# RADIO SOLUTIONS SUBSCRIBERS

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## APX™ TECHNICAL SUBSCRIBER ACADEMY

### COURSE OVERVIEW

Participants will learn the capabilities, features and functions of the APX family of radios as well as how to correctly complete performance checks, radio alignments, disassembly/reassembly, maintenance and troubleshooting. This academy will also focus on a detailed theory of operation for the APX family of radios. The APX Academy will also cover in detail: Radio Flashing, Encryption, Key Loading (Including configuring the APX radio for OTAR), Programming over P25 (Over the Air Programming), Advanced System Key Management, Vacuum and Submersibility Testing, APX Mobile Radio Installation and many other special setup or configuration modes with the radios. In addition to lecture, large amounts of hands-on with scenario based lab work will be used to reinforce knowledge transfer. This academy will cover in detail all models within the APX family of radios.

### AUDIENCE

Radio Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Distinguish between the features and specifications of all available radios within the APX family of subscribers
- Verify the correct operation of the various radios within the APX family of subscribers by completing Performance Checks and Alignment procedures
- Maintain and troubleshoot radios within the APX family of subscribers
- Disassemble and reassemble various APX subscriber radios using the documented procedures

- Verify the housing integrity of an APX portable radio
- Flash upgrade the various radios within the APX family of subscribers
- Interpret the circuit theory of operation and use this information to isolate faults found at both the board and the component level


### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Communication Systems Concepts (NST021)
- Basic Radio (ARDS004)
- Theory of Radio Operations (RCS003-E)

### Required:

- APX CPS Programming and Template Building (APX7001-V)



**INSTRUCTOR-LED**  
**LENGTH: 4.5 DAYS**  
**LMS COURSE CODE:**  
**APX010**



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# **MOTOTRBO™ SYSTEMS PORTFOLIO**



# MOTOTRBO™ COURSES

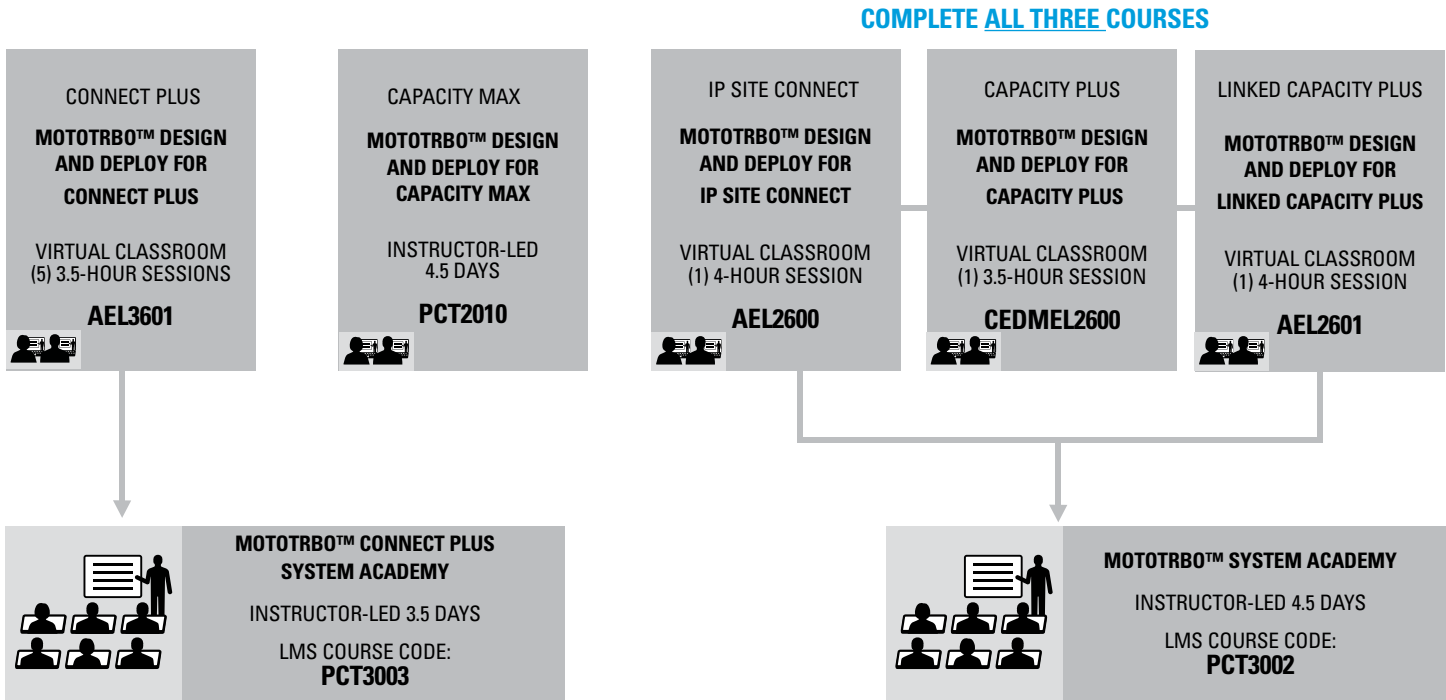
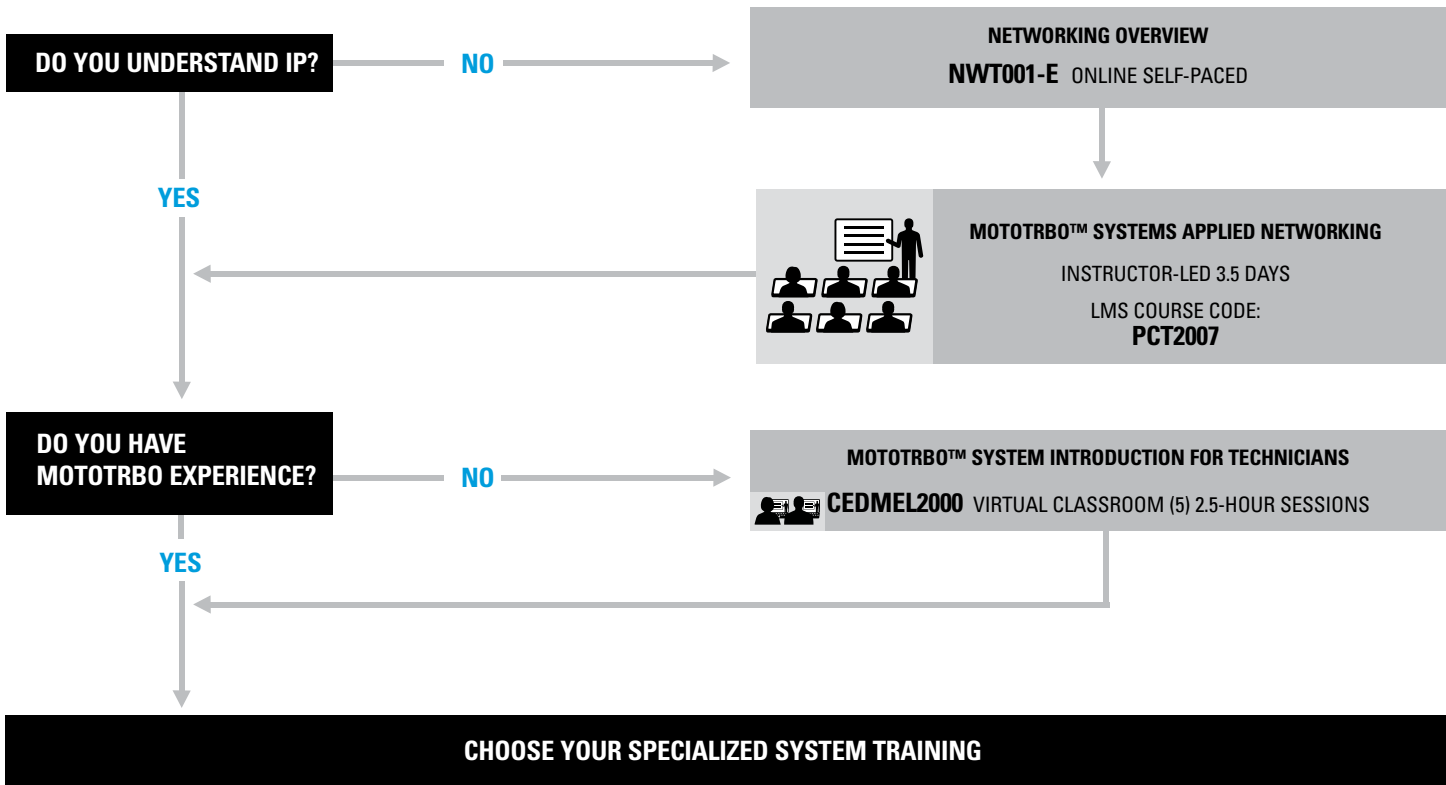
<b>MOTOTRBO™ CONNECT PLUS SYSTEM ACADEMY (PCT3003)</b>	<b><a href="#">55</a></b>
<b>MOTOTRBO™ SYSTEM ACADEMY (PCT3002)</b>	<b><a href="#">55</a></b>
<b>MOTOTRBO™ SUBSCRIBER AND REPEATER TECHNICAL SERVICE ACADEMY (TBO300)</b>	<b><a href="#">56</a></b>
<b>MOTOTRBO™ SYSTEMS APPLIED NETWORKING (PCT2007)</b>	<b><a href="#">56</a></b>
<b>MOTOTRBO™ SYSTEM INTRODUCTION FOR TECHNICIANS (CEDMEL2000)</b>	<b><a href="#">57</a></b>
<b>MOTOTRBO™ DESIGN AND DEPLOY FOR IP SITE CONNECT (AEL2600)</b>	<b><a href="#">58</a></b>
<b>MOTOTRBO™ DESIGN AND DEPLOY FOR CAPACITY PLUS (CEDMEL2600)</b>	<b><a href="#">59</a></b>
<b>MOTOTRBO™ DESIGN AND DEPLOY FOR LINKED CAPACITY PLUS (AEL2601)</b>	<b><a href="#">60</a></b>
<b>MOTOTRBO™ DESIGN AND DEPLOY FOR CONNECT PLUS (AEL3601)</b>	<b><a href="#">61</a></b>
<b>MOTOTRBO™ DESIGN AND DEPLOY FOR CAPACITY MAX (PCT2010)</b>	<b><a href="#">62</a></b>



**THE LEARNING  
MANAGEMENT  
SYSTEM (LMS)**

To register for a course, go to  
[learning.motorolasolutions.com](http://learning.motorolasolutions.com)

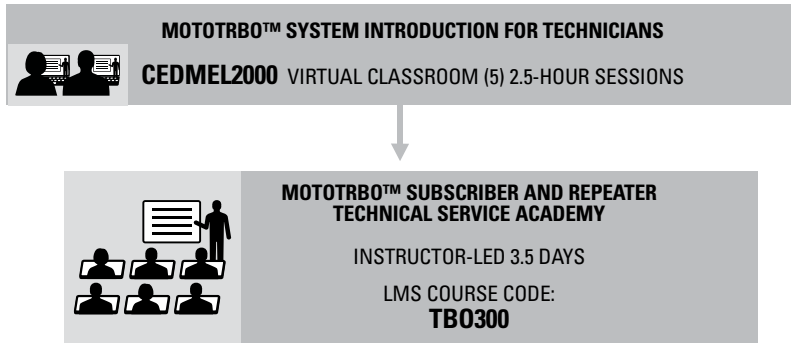
# MOTOTRBO™ TECHNICAL TRAINING CURRICULUM BASED ON YOUR CURRENT IP AND MOTOTRBO EXPERIENCE



**CURRICULUM COMPLETE**

PARTICIPANT SHOULD BE ABLE TO DESCRIBE THE KEY CHARACTERISTICS OF THE SYSTEM, DESCRIBE THE KEY CONFIGURATION ITEMS IN BOTH SUBSCRIBERS AND REPEATERS, PROGRAM EFFECTIVE REPEATER AND SUBSCRIBER CODEPLUG TEMPLATES FOR THE SYSTEM, AND DESCRIBE THE APPLICABLE IP NETWORKING REQUIREMENTS WHEN DESIGNING A SYSTEM.

## MOTOTRBO™ TECHNICAL TRAINING CURRICULUM FOR SUBSCRIBER / REPEATER MAINTENANCE TECHNICIAN



### CURRICULUM COMPLETE

PARTICIPANT WILL LEARN THE COMMON MOTOTRBO FEATURES AND CAPABILITIES TO DESIGN AND DEPLOY MOTOTRBO SYSTEMS. PARTICIPANT SHOULD BE ABLE TO COMPLETE PERFORMANCE CHECKS, RADIO ALIGNMENTS, DISASSEMBLY/REASSEMBLY, MAINTENANCE, AND TROUBLESHOOTING OF VARIOUS MOTOTRBO RADIO TYPES.

# RADIO SOLUTIONS MOTOTRBO™

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## MOTOTRBO™ CONNECT PLUS SYSTEM ACADEMY

### COURSE OVERVIEW

MOTOTRBO Connect Plus System Academy allows the participant to acquire in-depth experience planning, configuring and deploying MOTOTRBO Connect Plus Trunking systems in a hands-on laboratory environment.

This course reinforces and provides tangible context for individuals who have completed the virtual instructor-led MOTOTRBO Design and Deploy course and who wish to master the key elements of the MOTOTRBO Connect Plus Digital Radio system. In addition to lecture and demonstration of Connect Plus operational theory, this course includes a series of hands-on laboratory experiences. Labs address the key aspects of Connect Plus deployment and operation such as radio configuration, network configuration, controller configuration, system backup, user creation and maintenance, user site steering, over the air file transfer and troubleshooting.

### AUDIENCE

System Administrators, System Technicians, Field Technicians, Support Personnel

### COURSE OBJECTIVES

After completing this course, the student will be able to:


- Apply Connect Plus system theory and technical capabilities and features to real-world scenarios.
- Create and implement functional programming templates for Connect Plus subscribers and repeaters.
- Configure Connect Plus XRC site controllers for single and multi-site systems.
- Configure Connect Plus XRT gateways for key applications such as MOTOTRBO Anywhere.
- Configure site controller redundancy.
- Determine bandwidth requirements for inter-site links using the Connect Plus System Planner.
- Configure Auto-Fallback operation in subscribers and the site infrastructure.
- Configure Emergency Calling and Emergency Alert operation.

- Configure option board codeplugs for over the air delivery.
- Perform over the air programming (OTAP) of key subscriber files such as the network frequency file, option board firmware and option board codeplugs.
- Describe and configure Network Address Translation (NAT) in site routers that are representative of typical customer equipment.
- Troubleshoot Connect Plus systems from the network, subscriber, and repeater perspectives.

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- MOTOTRBO™ System Introduction for Technicians (CEDMEL2000)
- MOTOTRBO™ Connect Plus Design and Deploy (AEL3601)



**INSTRUCTOR-LED**  
LENGTH: 3.5 DAYS  
LMS COURSE CODE:  
**PCT3003**

## MOTOTRBO™ SYSTEM ACADEMY

### COURSE OVERVIEW

This course allows the participant to acquire in-depth hands-on experience planning, configuring and deploying the following MOTOTRBO Systems and Solutions: Digital Conventional, IP Site Connect, Capacity Plus and Linked Capacity Plus.

**NOTE:** MOTOTRBO Connect Plus Systems are covered in a separate class, please reference course Design and Deploy for MOTOTRBO Connect Plus (AEL3601) to learn how to plan, configure and deploy MOTOTRBO Connect Plus systems

### AUDIENCE

System Administrators, System Technicians, Field Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Create and implement functional programming templates for example radio sites and systems that include:
- Digital Conventional simplex and repeater-based systems.
- IP Site Connect multisite conventional systems.
- Capacity Plus single-site trunked systems.
- Linked Capacity Plus multisite trunked systems.

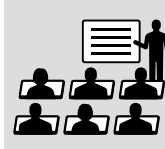
Students will also receive instruction and/or hands-on experience with:

- Receiver voting topologies.
- Integrating MOTOTRBO Anywhere
- Integrating Avtec Scout consoles

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- MOTOTRBO™ System Introduction for Technicians (CEDMEL2000)
- MOTOTRBO™ Design and Deploy for IP Site Connect (AEL2600)
- MOTOTRBO™ Design and Deploy for Capacity Plus (CEDMEL2600)
- MOTOTRBO™ Design and Deploy for Linked Capacity Plus (AEL2601)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**PCT3002**

 [CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)

# RADIO SOLUTIONS MOTOTRBO™

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## MOTOTRBO™ SUBSCRIBER AND REPEATER TECHNICAL SERVICE ACADEMY

### COURSE OVERVIEW

Participants will learn the capabilities, features and functions of the MOTOTRBO family of radios and Repeaters as well as how to correctly complete performance checks, radio alignments, disassembly/reassembly, maintenance, and troubleshooting. This Academy will also focus on the detailed theory of operation. In addition to lecture, large amounts of hands on, scenario based lab work will be used to reinforce knowledge transfer. This Academy will cover in detail all models within the MOTOTRBO family of radios and repeaters, including: XPR6550, XPR4550, XPR8400, XPR6350, and XPR4350

**NOTE:** The MTR 3000 Repeater is not covered in this course

### AUDIENCE

Radio Technicians

### COURSE OBJECTIVES

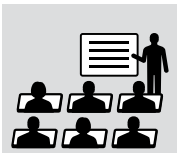
After completing this course, the student will be able to:

- Distinguish between the features and specifications of the MOTOTRBO portable and mobile radios and repeaters
- Verify the correct operations of the MOTOTRBO radios and repeaters by completing Performance Checks and Alignment procedures
- Maintain and troubleshoot MOTOTRBO Radios and Repeaters
- Disassemble and reassemble the radios using the documented procedures
- Interpret the circuit theory of operation and use this information to isolate faults found at the board level

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- MOTOTRBO™ System Introduction for Technicians (CEDMEL2000)



**INSTRUCTOR-LED**  
LENGTH: 3.5 DAYS  
LMS COURSE CODE:  
**TB0300**

## MOTOTRBO™ SYSTEMS APPLIED NETWORKING

### COURSE OVERVIEW

The MOTOTRBO Systems Applied Networking provides technicians with the necessary information required for understanding the typical networking requirements for implementing a variety of MOTOTRBO solutions. The course includes familiarization/review of basic networking concepts and MOTOTRBO-specific networking requirements. This course will focus on specific configurations for IP Site Connect, Linked Capacity Plus, and Connect Plus trunking systems.

### AUDIENCE

Technical System Managers and technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Recall Basic Networking Concepts
- Identify recommended network components for MOTOTRBO systems
- Define LAN/WAN topologies for MOTOTRBO systems
- Perform backup, restore and recovery of recommended network components
- Identify network security concepts for MOTOTRBO systems

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Networking Essentials in Motorola Communication Systems (NST762)



**INSTRUCTOR-LED**  
LENGTH: 3.5 DAYS  
LMS COURSE CODE:  
**PCT2007**



[CLICK HERE TO VIEW THE SCHEDULE AND PRICE SHEET](#)



## MOTOTRBO™ SYSTEM INTRODUCTION FOR TECHNICIANS

### COURSE OVERVIEW

MOTOTRBO System Service Training introduces the theory of operation, key components and architectures of the MOTOTRBO Radio System. This course also considers various MOTOTRBO system applications, and examples of how to configure a MOTOTRBO system. Some of the topics include planning, fleetmapping, system design, programming, and deployment.

The goal of the MOTOTRBO Systems Introduction for Technicians is to give Professional-level Empower Certification seekers all the information they need to know about common MOTOTRBO features and capabilities, along with design and deploy principles common to all MOTOTRBO products. Upon completion of this course, individuals should be ready to take the more advanced Design and Deploy courses for IP Site Connect, Capacity Plus, and/or Connect Plus.

### AUDIENCE

Anyone who will sell, design, configure, deploy, or maintain MOTOTRBO Digital Radio Systems. This would include, but is not limited to: Design Engineers, Communication System Technicians, Technical Support Personnel and Service Technicians.

### COURSE OBJECTIVES

After completing this course, the student will be able to:


- Describe MOTOTRBO system capabilities and system components, radio portfolio features, and data applications capabilities for IP Site Connect, Capacity Plus, Linked Capacity Plus and Connect Plus
- Explain how to decide which system is better suited to customer needs
- Describe MOTOTRBO system topologies
- Describe MOTOTRBO analog to digital migration strategies

- Describe MOTOTRBO system design considerations for capacity planning, coverage planning, and other system functions.
- Plan and develop a MOTOTRBO fleetmap.
- Setup, install, and configure MOTOTRBO's Customer Programming Software
- Operate MOTOTRBO radios with programmed features as planned in fleetmapping
- List the steps of the system design process.
- List common deployment considerations

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic understanding of radio communication fundamentals
- Knowledge of basic two-way FM and digital communications theory

	<b>VIRTUAL CLASSROOM</b>
	<b>LENGTH: (5) 2.5-HOUR SESSIONS</b>
	<b>LMS COURSE CODE: CEDMEL2000</b>

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## MOTOTRBO™ DESIGN AND DEPLOY FOR IP SITE CONNECT

### COURSE OVERVIEW

MOTOTRBO IP Site Connect Design and Deploy training introduces the key components and architectures of the MOTOTRBO IP Site Connect radio systems. Participants will be able to describe the MOTOTRBO IP Site Connect system and its capabilities, system components, and data applications capabilities. Participants will also be able to describe various MOTOTRBO IP Site Connect system topologies. Participants will learn how to design and deploy a MOTOTRBO IP Site Connect radio system. This course will also cover how to configure a MOTOTRBO IP Site Connect System using MOTOTRBO Customer Programming Software. This course was designed for individuals who already have a good understanding of MOTOTRBO systems, but who want to now focus on IP Site Connect.

### AUDIENCE

Anyone who will sell, design, configure, deploy, or maintain a MOTOTRBO IP Site Connect Digital Radio System. This would include, but is not limited to: Design Engineers, Communication System Technicians, Technical Support Personnel and Service Technicians.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the MOTOTRBO IP Site Connect system, its capabilities, system components, and data application capabilities
- Describe the MOTOTRBO IP Site Connect theory of operation
- Identify the available MOTOTRBO IP Site Connect topologies
- Configure an IP Site Connect system using MOTOTRBO CPS to program the subscribers and repeaters
- Design an IP Site Connect system, given a sample case study
- Explain the pre-deployment steps for IP Site Connect
- Explain the deployment steps for IP Site Connect


### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic understanding of radio communication fundamentals
- Knowledge of basic two-way FM and digital communications theory
- Understanding of MOTOTRBO theory of operation
- Knowledge of basic IP networking theory

### Required:

- MOTOTRBO™ System Introduction for Technicians (CEDMEL2000)

	<b>VIRTUAL CLASSROOM</b> LENGTH: (1) 4-HOUR SESSION LMS COURSE CODE: <b>AEL2600</b>
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# RADIO SOLUTIONS MOTOTRBO™

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## MOTOTRBO™ DESIGN AND DEPLOY FOR CAPACITY PLUS

### COURSE OVERVIEW

MOTOTRBO Capacity Plus Design and Deploy training covers the key components and architectures of MOTOTRBO Capacity Plus Radio systems. Participants will be able to describe the MOTOTRBO Capacity Plus system, its capabilities, system components, and data applications capabilities. Participants will also be able to describe various MOTOTRBO Capacity Plus system topologies. Participants will learn how to design and deploy a MOTOTRBO Capacity Plus radio system. This course will also cover how to configure a MOTOTRBO Capacity Plus system using MOTOTRBO Customer Programming Software (CPS).

### AUDIENCE

Anyone who will sell, design, configure, deploy, or maintain a MOTOTRBO Capacity Plus Digital Radio System. This would include, but is not limited to: Design Engineers, Communication System Technicians, Technical Support Personnel and Service Technicians.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the MOTOTRBO Capacity Plus system, its capabilities, system components, and data application capabilities
- Describe the MOTOTRBO Capacity Plus theory of operation
- Identify the available MOTOTRBO Capacity Plus topologies
- Configure a Capacity Plus system using MOTOTRBO CPS to program the subscribers and repeaters
- Design a Capacity Plus system, given a sample case study
- Explain the pre-deployment steps for Capacity Plus
- Explain the deployment steps for Capacity Plus


### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic understanding of radio communication fundamentals
- Knowledge of basic two-way FM and digital communications theory
- Understanding of MOTOTRBO theory of operation
- Knowledge of basic IP networking theory

#### Required:

- MOTOTRBO System Introduction for Technicians (CEDMEL2000)



**VIRTUAL CLASSROOM**  
LENGTH: (1) 3.5-HOUR SESSION  
LMS COURSE CODE: CEDMEL2600



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## MOTOTRBO™ DESIGN AND DEPLOY FOR LINKED CAPACITY PLUS

### COURSE OVERVIEW

MOTOTRBO Linked Capacity Plus Design and Deploy training introduces the key components and architectures of MOTOTRBO Linked Capacity Plus radio systems. Participants will be able to describe the MOTOTRBO Linked Capacity Plus system, its capabilities, system components, and data applications capabilities. Participants will also be able to describe the MOTOTRBO Linked Capacity Plus system topology. Participants will learn what's involved with designing and deploying a MOTOTRBO Linked Capacity Plus radio system. This course will also cover how to configure a MOTOTRBO Linked Capacity Plus system using MOTOTRBO Customer Programming Software. This course was designed for individuals who already have a good understanding of MOTOTRBO Capacity Plus Systems, but who want to now focus on Linked Capacity Plus

### AUDIENCE

Anyone who will sell, design, configure, deploy, or maintain a MOTOTRBO Linked Capacity Plus Multi Site Digital Radio System. This would include, but is not limited to: Design Engineers, Communication System Technicians, Technical Support Personnel and Service Technicians.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the MOTOTRBO Linked Capacity Plus system, its capabilities, system components, and data capabilities
- Describe the MOTOTRBO Linked Capacity Plus theory of operation
- Identify the available MOTOTRBO Linked Capacity Plus networking topology
- Configure a Linked Capacity Plus system using MOTOTRBO CPS to program both MOTOTRBO radios and MOTOTRBO repeaters
- Design a Linked Capacity Plus system, given specific parameters and details
- Deploy a Linked Capacity Plus system based on the system designed earlier


### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic understanding of radio communication fundamentals
- Knowledge of basic two-way FM and digital communications theory
- Understanding of MOTOTRBO theory of operation
- Knowledge of basic IP networking theory

#### Required:

- MOTOTRBO™ System Introduction for Technicians (CEDMEL2000)
- MOTOTRBO™ Design and Deploy for IP Site Connect (AEL2600)
- MOTOTRBO™ Design and Deploy for Capacity Plus (CEDMEL2600)



**VIRTUAL CLASSROOM**  
LENGTH: (1) 4-HOUR SESSION  
LMS COURSE CODE: PCT2010



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## MOTOTRBO™ DESIGN AND DEPLOY FOR CONNECT PLUS

### COURSE OVERVIEW

MOTOTRBO Connect Plus Design and Deploy introduces the key components and architectures of a MOTOTRBO Connect Plus Digital Radio system. Participants will be able to describe the MOTOTRBO Connect Plus system, its capabilities, system components, site and system management, troubleshooting and 3rd Party Data Applications considerations. Participants will also be able to describe various MOTOTRBO Connect Plus system topologies. Participants will learn what is involved with designing and deploying a MOTOTRBO Connect Plus radio system, as well as what is needed to effectively manage the system. This course will also cover how to configure a MOTOTRBO Connect Plus system using MOTOTRBO Customer Programming Software, MOTOTRBO Connect Plus Option Board CPS and the MOTOTRBO Connect Plus Network Manager Application. This course was designed for individuals who already have a good understanding of MOTOTRBO systems, but who want to now focus on MOTOTRBO Connect Plus.

### AUDIENCE

Anyone who will sell, design, configure, deploy, or maintain a MOTOTRBO Connect Plus Digital Radio - Single or Multi-Site System. This would include, but is not limited to: Design Engineers, Communication System Technicians, Technical Support Personnel and Service Technicians.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe the MOTOTRBO Connect Plus system
- Describe in detail MOTOTRBO Connect Plus theory of operation
- Identify the available MOTOTRBO Connect Plus topologies
- Configure a MOTOTRBO Connect Plus system using MOTOTRBO CPS to program both MOTOTRBO radios and MOTOTRBO repeaters
- Configure a MOTOTRBO option board using MOTOTRBO Connect Plus Option Board CPS
- Use the MOTOTRBO Connect Plus Network Management Application to configure, monitor, and make adjustments to MOTOTRBO Connect Plus sites and subscriber units


### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic understanding of radio communication fundamentals
- Knowledge of basic two-way FM and digital communications theory
- Understanding of MOTOTRBO theory of operation
- Knowledge of basic IP networking theory

### Required:

- MOTOTRBO™ System Introduction for Technicians (CEDMEL2000)



**VIRTUAL CLASSROOM**  
LENGTH: (5) 3.5-HOUR SESSIONS  
LMS COURSE CODE: AEL3601



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## MOTOTRBO™ DESIGN AND DEPLOY FOR CAPACITY MAX

### COURSE OVERVIEW

MOTOTRBO™ Capacity Max Design and Deploy begins by covering the design process for a Capacity Max Radio system. Under the Instructor's guidance, participants will have the opportunity to practice designing and deploying a small scale, 2 Site/3 Channel, Capacity Max system in a safe classroom environment. This course will also cover how to configure Capacity Max using Radio Management 2.0 Configuration Mode.

In order to get the most of the hands-on activities, Participants must bring their own laptop to class with the latest RM 2.0 Configuration Mode software loaded. Please download this software from MOL (Motorola Online).

### AUDIENCE

Anyone who will sell, design, configure, deploy, or maintain a MOTOTRBO Capacity Max system. This would include, but is not limited to: Design Engineers, Communication System Technicians, Technical Support Personnel and Service Technicians.

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Design a simple a 1-System 2 Site/3 Channel Capacity Max system
- Calculate Capacity Max capacity and bandwidth using a Case Scenario and System Design tools.
- Using Radio Management Configuration Mode, configure your radios and infrastructure.
- Deploy a 1-System 2 Site/3 Channel Capacity Max system.
- Using System Advisor, learn the fundamentals of troubleshooting and maintaining a Capacity Max system
- Execute Radio Management database backup and restore
- Describe how to optimize a Capacity Max system


### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic understanding of radio communication fundamentals
- Knowledge of basic two-way FM and digital communications theory
- Understanding of MOTOTRBO theory of operation
- Knowledge of basic IP networking theory

### Required:

- MOTOTRBO™ System Introduction for Technicians (CEDMEL2000)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**PCT2010**



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# PUBLIC SAFETY LTE DELIVERS A HIGH DEGREE OF THE 5 C's



## COVERAGE WITHOUT COMPROMISE

Public Safety LTE networks handle peak usage and prioritize system traffic to the end of coverage. Extend network coverage during disaster recovery situations and optimize coverage at the edge with LTE deployable trailers. Because first responders can instantly access video, photos, maps and more, they're better prepared to arrive at a dangerous crime scene or search patient medical records from a moving ambulance.



## CAPACITY FOR IT ALL

Capacity isn't only critical for emergencies, it's essential for day-to-day operations. When thousands of people converge at sports venues, concerts, festivals and rallies, mobile capacity must be sufficient and robust to keep everyone safe.



## CAPABILITIES TO IMPROVE SITUATIONAL AWARENESS

When public safety personnel have a unified picture of what's unfolding, they are better equipped to respond. High-speed data, location information, photos and streaming video can significantly improve collaboration and outcomes.



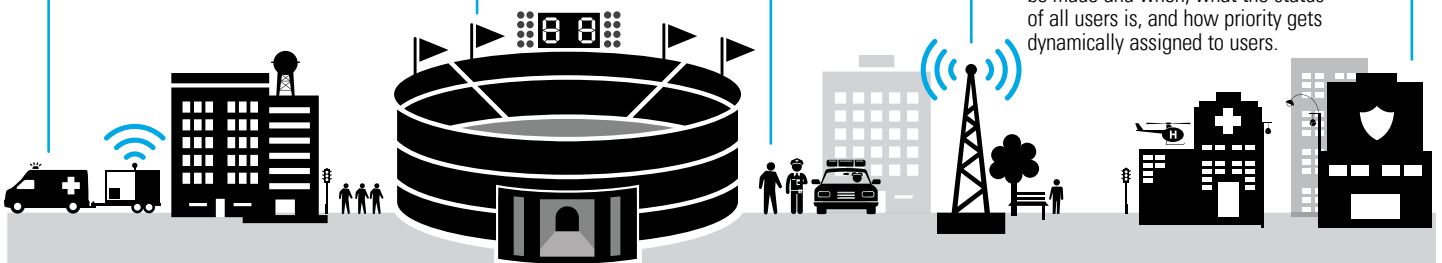
## CONTROL OF YOUR COMMUNICATIONS

An optimized Public Safety LTE network gives you greater control over your system, software and devices. You decide who accesses the system, what changes need to be made and when, what the status of all users is, and how priority gets dynamically assigned to users.



## COST SAVING

**ON A LARGE SCALE**  
An optimized Public Safety LTE network that saves money via economies of scale on devices and infrastructure partnership where needed.





# PUBLIC SAFETY LTE COURSES

<b>PUBLIC SAFETY LTE SYSTEM OVERVIEW</b> (AAE1603)	<a href="#">65</a>
<b>PUBLIC SAFETY LTE ARCHITECTURE AND SIGNALING</b> (LTE2005)	<a href="#">65</a>
<b>PUBLIC SAFETY LTE SYSTEM ADMINISTRATION</b> (LTE2006)	<a href="#">65</a>
<b>PUBLIC SAFETY LTE APPLIED NETWORKING</b> (LTE2007)	<a href="#">66</a>



**THE LEARNING  
MANAGEMENT  
SYSTEM (LMS)**

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## PUBLIC SAFETY LTE SYSTEM OVERVIEW

### COURSE OVERVIEW

The Public Safety LTE System Overview self-paced course presents a high-level description of the Public Safety LTE system and an introduction into the network elements that comprise the system.

### AUDIENCE

System Managers, System Technicians

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe LTE (Long-Term Evolution) technologies
- Describe the networks and their connections in a Public Safety LTE system
- Describe the functionality of the elements in a Public Safety LTE system
- Describe how Prioritization works
- Describe bearers and data paths
- Describe the User Equipment (UE)

### REQUISITE KNOWLEDGE

- None



**ONLINE, SELF-PACED**  
LENGTH: 1 HOUR  
LMS COURSE CODE:  
**AAE1603**

## PUBLIC SAFETY LTE ARCHITECTURE AND SIGNALING

### COURSE OVERVIEW

This lab-based class provides students a practical understanding of 3GPP LTE/EPC signaling as used in a public safety LTE network.

Students use an Aricent EPC core system, Ericsson eNodeB, and Motorola Solutions subscriber units to: manage LTE/EPC network elements and interfaces, determine subscriber and network element status, capture and analyze LTE signaling, and analyze end-to-end service signaling and quality of service.

### AUDIENCE

Customers

### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Describe LTE network elements and function
- Describe LTE/EPC interfaces
- Analyze LTE/EPC signaling flows
- Evaluate network element status based on NE interface and signaling state
- Trace UE state based on signaling
- Validate and troubleshoot end-to-end service signaling
- Describe LTE Quality of Service (QoS) operation
- Describe LTE to ASTRO® 25 inter-working options

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Public Safety LTE System Overview (AAE1603)
- Networking Essentials in Motorola Communications Equipment (NST762)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**LTE2005**

## PUBLIC SAFETY LTE SYSTEM ADMINISTRATION

### COURSE OVERVIEW

The MOTOTRBO Systems Applied Networking provides technicians with the necessary information required for understanding the typical networking requirements for implementing a variety of MOTOTRBO solutions. The course includes familiarization/review of basic networking concepts and MOTOTRBO-specific networking requirements. This course will focus on specific configurations for IP Site Connect, Linked Capacity Plus, and Connect Plus trunking systems.

### AUDIENCE

Technical System Managers and technicians

### COURSE OBJECTIVES

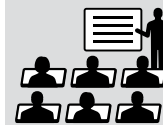
After completing this course, the student will be able to:

- Recall Basic Networking Concepts
- Identify recommended network components for MOTOTRBO systems
- Define LAN/WAN topologies for MOTOTRBO systems
- Perform backup, restore and recovery of recommended network components
- Identify network security concepts for MOTOTRBO systems

### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Networking Essentials in Motorola Communication Systems (NST762)



**INSTRUCTOR-LED**  
LENGTH: 4.5 DAYS  
LMS COURSE CODE:  
**LTE2006**

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### PUBLIC SAFETY LTE APPLIED NETWORKING

#### COURSE OVERVIEW

The Public Safety LTE Applied Networking course covers the operation and maintenance of Motorola supplied network transport equipment used in a PS LTE network. Participants will learn the operation and replacement tasks required to maintain Layer 2 switches, Layer 3 switches, the NTP server, DNS server, firewalls, and other devices which provide backhaul transport and connectivity services in the network.

This lab-based course offers students practice with critical maintenance procedures on standalone equipment without impacting network operation.

#### AUDIENCE

Customer System Managers, Customer Network Transport Technical Staff

#### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Check and manage status of LTE network transport devices
- Upgrade and downgrade device firmware or operating system
- Backup and restore device configuration
- Replace device hardware
- Validate and troubleshoot device operation

#### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Public Safety LTE System Overview (AAE1603)
- Networking Essentials in Motorola Communications Equipment (NST762)



**INSTRUCTOR-LED**

**LENGTH: 4.5 DAYS**

**LMS COURSE CODE:**

**LTE2007**



## OTHER COURSES

**MOSCAD NFM PROGRAMMING, MAINTENANCE AND OPERATOR (FXD010)**

**68**

## RADIO SOLUTIONS OTHER

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### MOSCAD™ NFM PROGRAMMING, MAINTENANCE AND OPERATOR

#### COURSE OVERVIEW

The MOSCAD Network Fault Management (NFM) course covers the programming, maintenance and operation of the:

- Site Device Manager Unit (SDM)3000 Remote Terminal Unit (RTU)
- NFM/NFM XC Remote Terminal Unit (RTU)
- SDM3000 Network Translator (SNT)
- IP Gateway
- Graphic Master Computer (GMC)

The course focuses on a detailed discussion of the different types of Network Fault Management systems, SDM3000 RTU hardware, hands-on activities with programming the RTUs, Attach Site Builder Applications for Tag Generation, Generating Tags and Files, navigating with the web browser features and the Graphic Master Computer.

#### AUDIENCE

System Managers, Service Technicians, Motorola Service Center, End Users

#### COURSE OBJECTIVES

After completing this course, the student will be able to:

- Install NFM SDM3000 builder software on students' laptops
- Install NFM software on students' laptops
- Configure alarm points using SDM3000 builder
- Configure alarm points using Site Builder
- Generate Tags and Files to import alarm tags
- Use SDM Builder to Generate Tags and Files to import alarm tags
- Navigate and acknowledge alarms at the Graphic Master Computer
- Utilize the web browser features to view and configure the system
- Create Custom Tabs
- Create Custom Maps

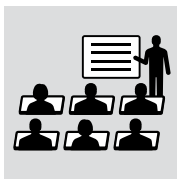
- Describe basic planning requirements and complete a simple Fleetmap information template.
- Complete worksheets required to create a Fleetmap based on sample operational requirement information.
- Utilize the web browser features to view and configure the system
- Create Custom Tabs
- Create Custom Maps
- Describe basic planning requirements and complete a simple Fleetmap information template.

Complete worksheets required to create a Fleetmap based on sample operational requirement information.

#### REQUISITE KNOWLEDGE

Completion of the following course(s) or equivalent experience:

- Basic understanding of Windows navigation
- Laptop computer with Windows XP or newer
- Windows program files must be on the "C" directory



**INSTRUCTOR-LED**  
LENGTH: 3 DAYS  
LMS COURSE CODE:  
**FXD010**



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- **WAVE 5000 ASTRO INTEGRATION**
- **WAVE CERTIFIED INTEGRATION ENGINEERING (AST3001)**
- **WAVE 5000N ADMINISTRATOR**
- **WAVE 5000 END USER**

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- **COMMANDCENTRAL AWARE ADMINISTRATOR**
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- **COMMANDCENTRAL ADMINISTRATOR AWARE END USER**
- **COMMANDCENTRAL STREAMING (RTVI) END USER**

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- **VIDEO BASICS**
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