



EFJohnson
a JVCKENWOOD Company



COURSE CATALOG OUTLINE

- about the program
- how you fit in
- how you will learn
- what you will learn
- where you will learn
- how certification works
- performance support and future learning



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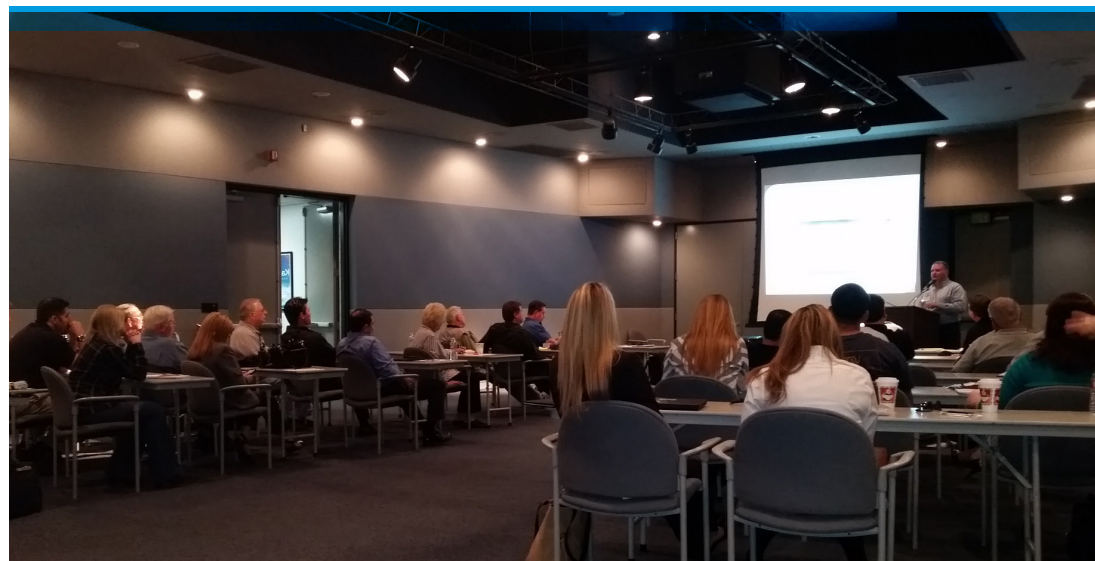
EFJohnson is a leader in first responder, public safety communications systems. When you use or maintain our critical radio infrastructure, it's your duty to do it right. Lives count on your ability to keep the system working. Without tools, knowledge and support, you can't do your job and people might get hurt. The EFJohnson Performance+ System Care Program includes a knowledge and support partnership to get you the learning experiences and answers you need, whenever you need them.

1.0 ABOUT THE EFJOHNSON PERFORMANCE+ SYSTEM CARE PROGRAM

At EFJohnson, we work hard to ensure your system always performs its best. The same drive every EFJohnson associate applies to product quality and safety in our factories extends to the skills and abilities of the people who use and maintain our systems everyday. Our Performance+ System Care program takes the worry out of staying on the air. It's more than hardware and software maintenance; for the people that make it work, technical learning and knowledge support is a key component.

EFJohnson Performance+ technical learning and knowledge support makes sure you're on track the first time. It's not enough to read a manual, watch a video, then hope for the best when lightning takes out a site in the middle of the night. Our classes teach and validate real world skills. Half your class will be spent in lab, on real systems, fixing real problems. If you're a level 3 tech, we'll teach you to identify and fix any single failure, no matter where, in any of our infrastructure in 45 minutes or less. If you are a system user or administrator, we'll make sure you can use and configure your system as fast as possible, no mistakes. When we're sure you know your stuff, we'll certify you. Certification recognizes your value to EFJohnson and our customers. Certification is also required to perform work on EFJohnson products under warranty.

No one remembers everything - after class, tough problems mean even the best learners need access to deep answers. Performance+ support gives you access to just-in-time solutions you can trust. We've got your back, with libraries of short videos, learning modules, documents, procedures, even online seminars with our experts – the fast answers you need, just when you need them.



2.0 LEARNING TRACKS – HOW YOU LEARN

EFJohnson Performance+ learning is tuned to your job. Learning is arranged in tracks, by job category, with prerequisites leading to learning experiences that produce outcomes. Learning experiences may be classroom sessions, online modules, labwork, field events, online seminars, etc. Most experiences are relatively short and stand-alone, even if part of a classroom day. Some learning fundamentals are shared by all tracks, from users to Level 3 technicians. Others are unique to your role. In cases where you come to your job experienced, with broad knowledge, EFJohnson Performance+ has methods to assess your existing skills, then guide you to quickly fill the gaps. You only work on what you don't know.

We're certain you'll value being a part of EFJohnson Performance+ support community. Learning is a lifelong process. EFJohnson is committed to being with you every step of the way.

3.0 WHICH LEARNER ARE YOU?



Radio User

You use our radios to talk. Since EFJohnson radios are customizable, yours probably has unique features that are programmed, either in the shop or over the air (OTAP). You need to have all those features under your fingertips so you don't miss a call while fighting fires or chasing bad guys. This learning track teaches you system basics and common radio features as well as unique operation on your system.



Console Operator

You work in dispatch. You take phone calls and communicate with individual radios or groups. You probably create temporary talk groups, depending on the situation. Maybe you talk outside your system, to another city or department. EFJohnson radios are interoperable on APCO P25 networks; radios from outside your system may have to talk to your people. You push a lot of buttons to make it happen. You control the communications experience for everyone. The Console User learning track builds on the Radio User track and teaches console operations so you'll always know how to do what is needed. . . fast.



Supervisor/System Administrator

You are responsible for communications operations. As a leader, you are responsible for system configuration and operator effectiveness. You probably administer radio encryption, keys, handsets, OTAP, physical security, programming templates etc. Where console configuration is user-customizable, you might be the one who programs the change. You need to know what your options are. You probably don't care how the system works. That's for a tech. You just need to know everything it can do and how to make it do it. This learning track supports your ability to extract maximum value from your EFJohnson system. You'll learn advanced configuration, network performance monitoring, best operational practices, high-level fault isolation and more.



Mobile Installer

You understand how mobile installations can go wrong. Holes in the wrong place, damage to paint, electrical systems, carpet, a dashboard. Your installations don't have ground loops or alternator whine. Antennas you put in look like they came from the factory. VSWR is optimized. Cable routing is invisible or neat, if you can see it at all. Best of all your work holds up, under vibration, dust, temperature. We recognize that installation of land mobile radios in vehicles is an art form. If you know the basics, EFJohnson will teach you the fine points to get you in and out, fast and clean. Customers will trust you with their cars. Your learning track is a subset of Portable/Mobile Technician Level 2.



Portable/Mobile Technician Level 2

You are very good with tools and can perform any kind of mechanical repair that doesn't require soldering. You can perform radio self-tests and make sure EFJohnson radios talk on the network. You know how to program mobile and portable radios and understand system basics. Best of all, you are careful and don't break delicate assemblies when taking them apart or putting them together. This learning track will teach you to identify and repair a number of failures caused by physical damage or incorrect programming. You'll learn the most effective way to perform high-volume, production line repair procedures. You'll also learn how to program radios without mistakes. If you are a Fleet Manager, this is your track.



Fleet Manager

You coordinate and manage radio programming and configuration across your entire system. New radios come to your desk first. All the portables and mobiles in the system are your responsibility. You rollout software updates and system changes. Fleet managers are essentially Portable/Mobile Level 2 technicians with fleet administrative skills. Use the Portable/Mobile Technician Level 2 learning track.



Portable/Mobile Technician Level 3

You have a service monitor, test equipment, a rework station and an inspection scope. You have fine manual dexterity and can complete any physical repair, including BGA replacement, without fail. You become quickly familiar with common radio failures. You are good at isolating radio faults from system problems. A disciplined approach to divide-and-conquer failure analysis helps you save parts costs. EFJohnson radios are complex software-driven devices, with flexible hardware transceivers in any band. Your learning track will make sure you know how our portable and mobile products are supposed to work in particular systems, then teach you the service competencies to get them back on the air fast.



System Technician Level 2

You're the human who puts the system together, gets it to play, then takes calls in the middle of the night when it stops working. You went to tech school or were an ET or AT in the military. You are good at using internal system diagnostics to isolate major faults and swap boards. You write things down. You understand everything about how EFJohnson system components interact. Network connectivity problems are easy for you. You use a system monitor to evaluate RF performance. EFJohnson technical support relies on you to be their hands in the field. The Level 2 System Technician learning track teaches a basic technician how to install and configure systems, and solve problems to the Field Replaceable Unit (FRU) level.

L3 System Technician Level 3

You are a seasoned RF tech with years of field experience on complex RF networks. You are capable of using any test equipment, including communications analyzers, power meters, network analyzers, TDR sets, spectrum analyzers, signal strength meters, meggers, etc. You can install and troubleshoot, to component level, any system, from console to transmitter, to radios. You have all the tools to put connectors on big Heliac and maintain antenna systems. Satellite links are not a problem. You know the language of network carriers, how to get the right telephone company engineer on the phone. Your site grounding works perfectly. You have advanced microelectronic repair training, probably from the military. You can perform any physical repair, including sub-layer PC board defects, desoldering, BGA replacement, flex re-bonding, through-hole reconstruction, switch dome arrays, PA reflow and everything else. You logically figure out what's wrong the first time. You never shotgun parts. The Level 3 Technician learning track is for the most advanced practitioners of in-field and shop repair. When there is only you, you'll know what to do.

System Engineer

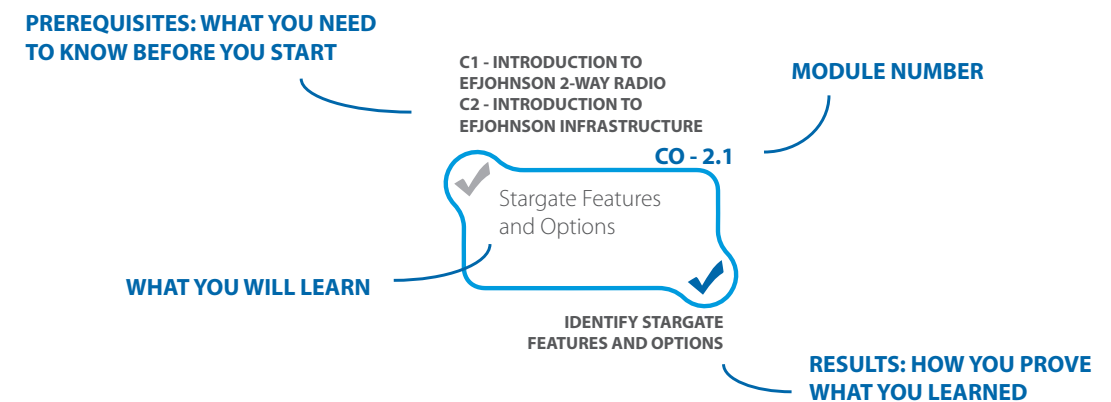
You are an EE, with hardware and software experience. Your toolbox is full, with RF propagation, antenna design, simulcast systems, site development, FCC filings and network design. Your learning track takes you to the hardware/software system design layer of an EFJohnson network. You will be able to aid purchasing decisions. Connecting to legacy systems? You'll learn how. You will master configuration management, system expansion, maintenance strategies, fault protection and more. What you design on paper will work in the field. Your designs will be a blueprint of efficiency.

4.0 - HOW YOUR PERFORMANCE+ LEARNING TRACK WORKS

Before you begin a Performance+ learning track, we'll explore what you already know. Prerequisite knowledge is key to a successful EFJohnson learning experience. Early in the process we'll walk you through a self-assessment in various bodies of knowledge we know are important. Don't worry, it's not a test. For every area you feel you could be stronger, we'll point you at resources to help. We all forget things we learned ten years ago. Our technical experts have been around awhile. They know the easiest path to the best answers.

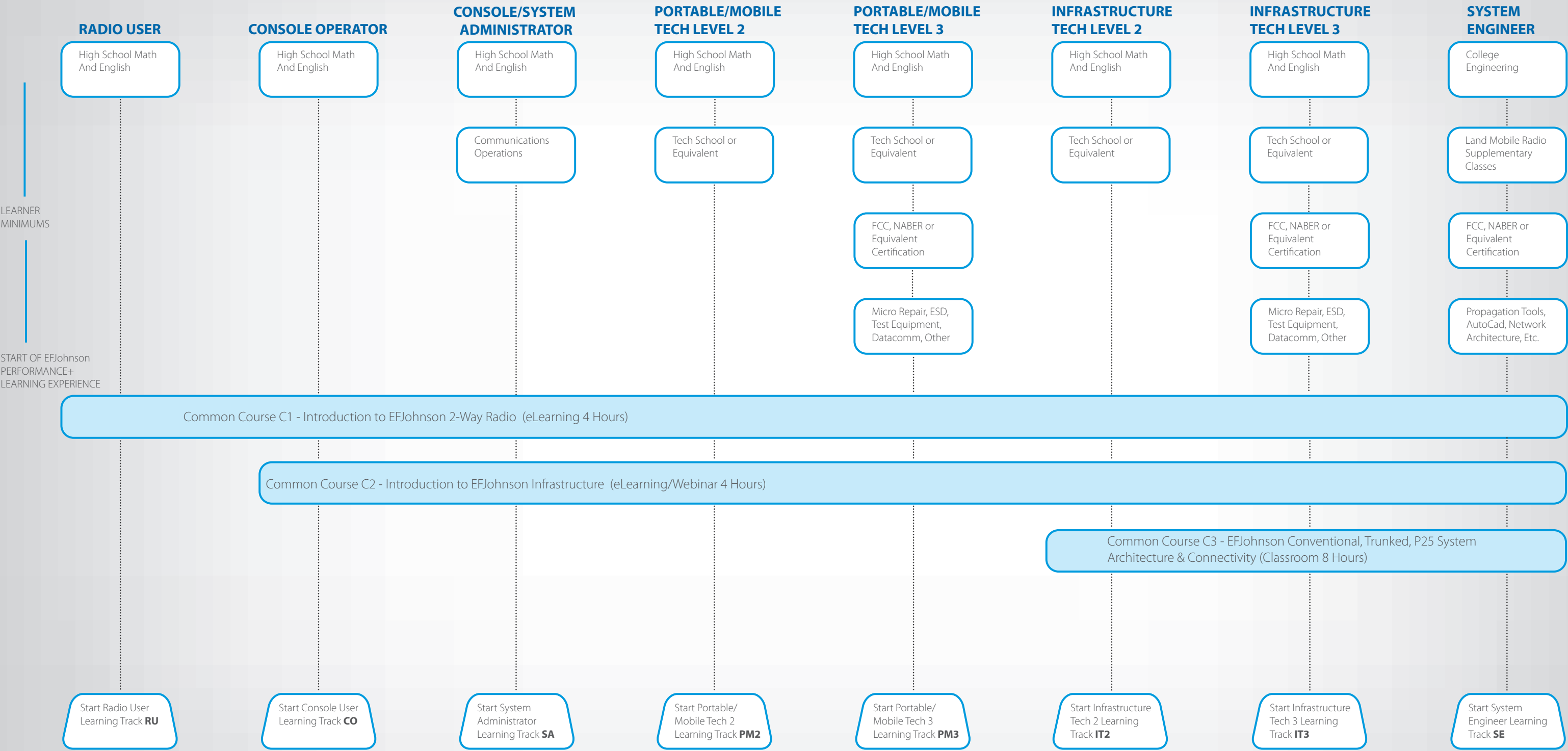
Once you're ready to gate yourself onto a learning track, EFJohnson Performance+ walks you along, with online sessions, short videos, self-learning modules, simulations, classes and lab exercises on active systems. You'll be coached by the best. Experiences are real-world. At the end, you'll be certified on those products and become a part of the greater support community, with personal access to updates, bulletins, product forums, new releases. Your EFJohnson Performance+ certification means you're competent and confident.

ANATOMY OF A LEARNING MODULE

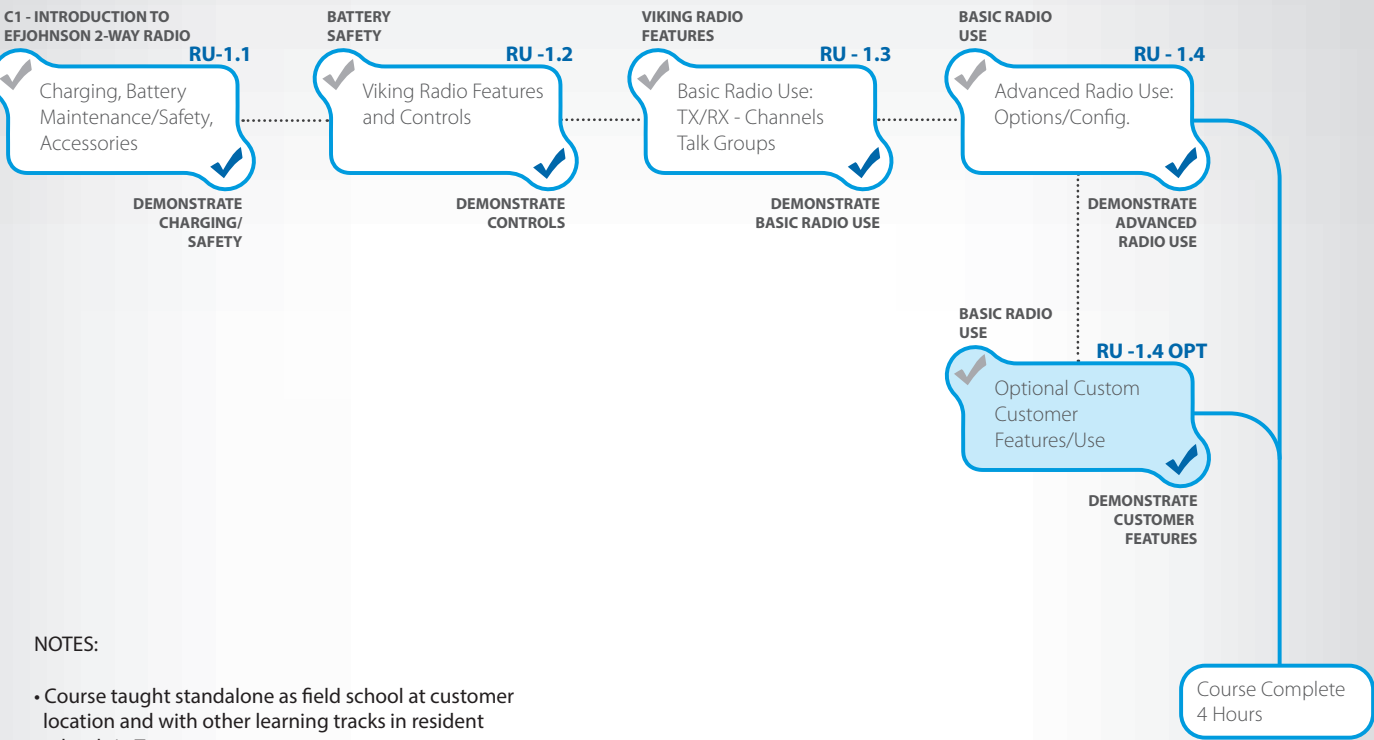


Let's find your learning track...

PERFORMANCE+ PREREQUISITES AND LEARNING TRACKS

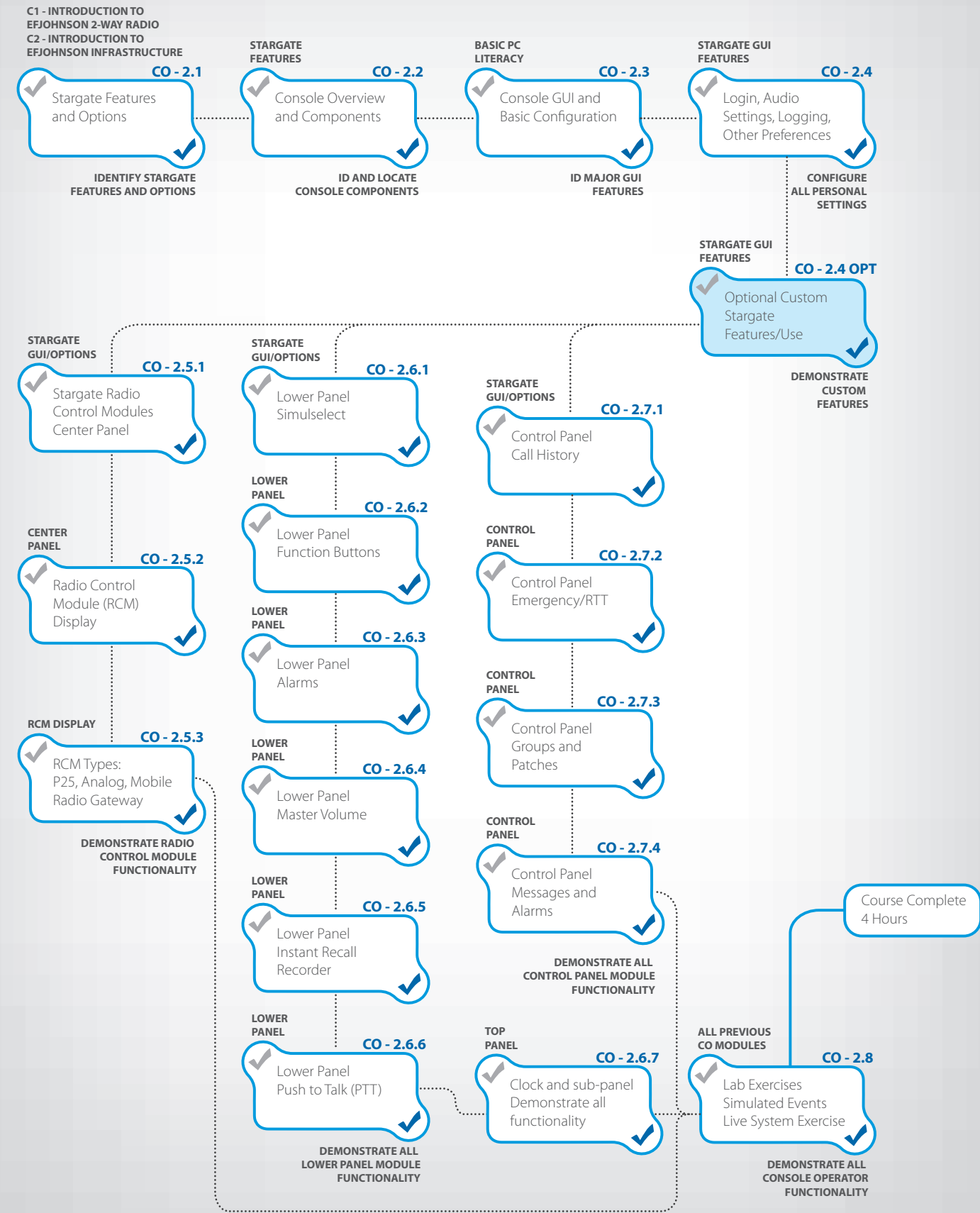


VIKING® RADIO USER – RU LEARNING TRACK



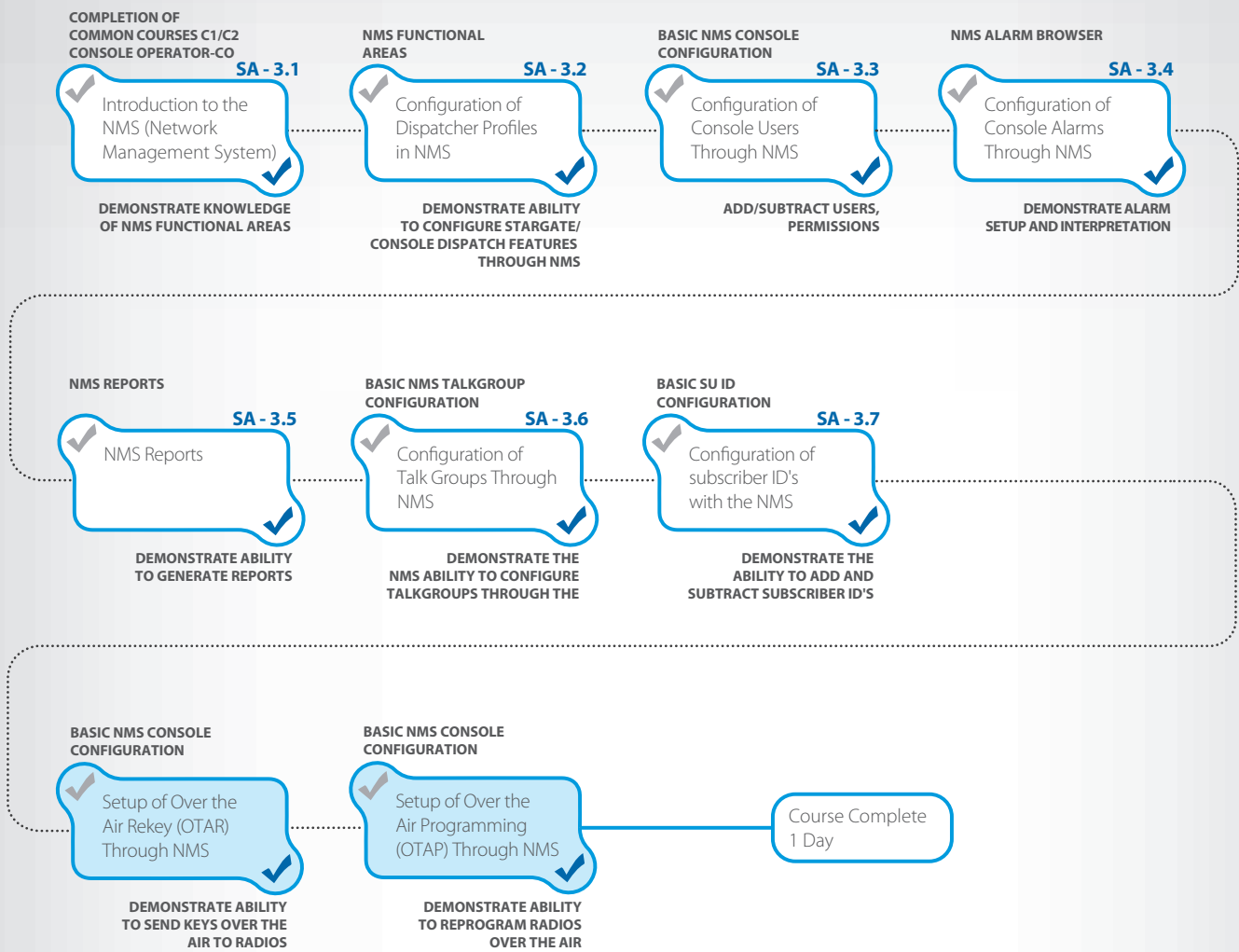
- NOTES:
- Course taught standalone as field school at customer location and with other learning tracks in resident schools in Texas.
 - Optional customization (RU - 1.4 OPT) available at extra charge. Contact our training coordinator for a quote today.

CONSOLE OPERATOR – CO LEARNING TRACK



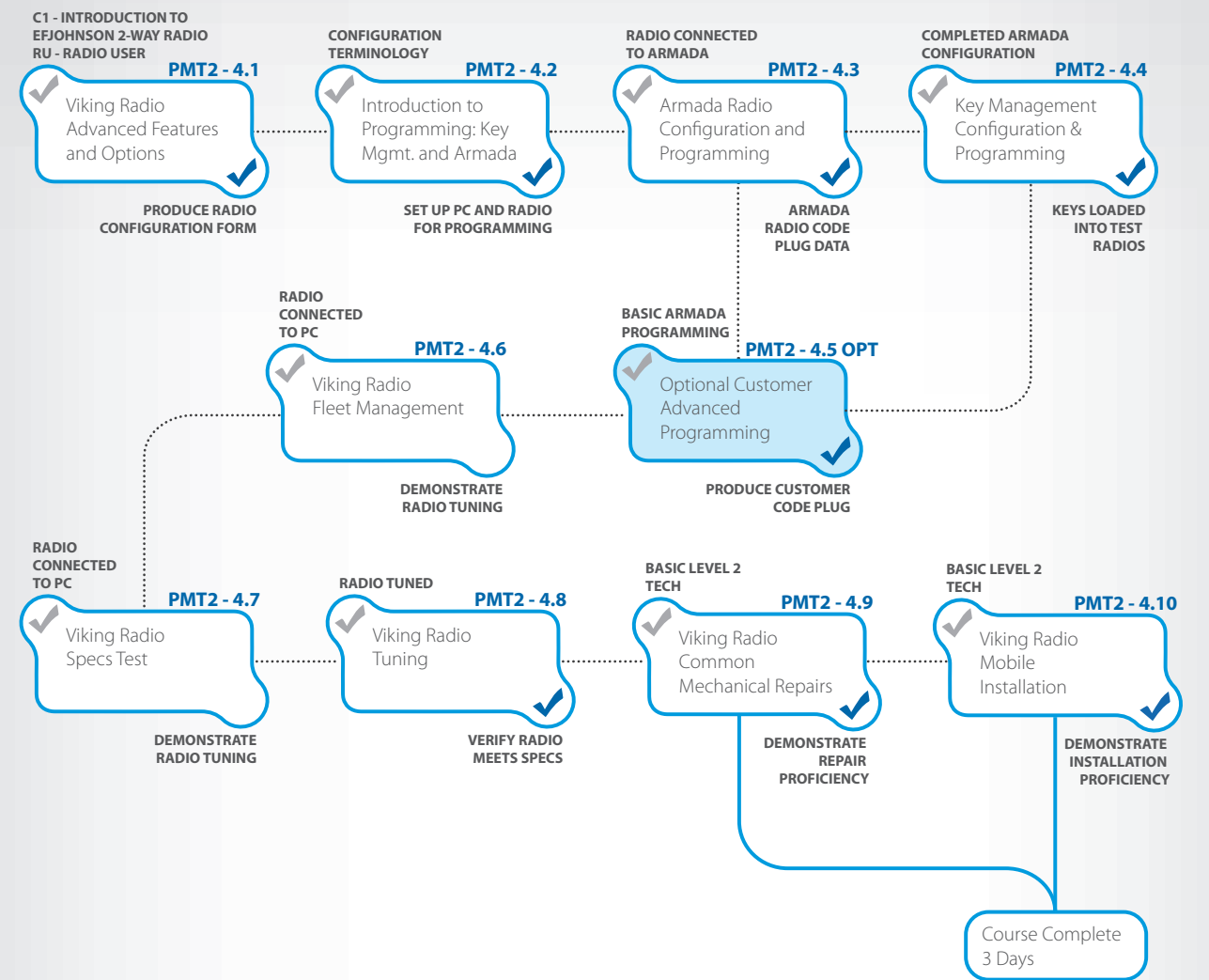
SYSTEM ADMINSTRATOR – SA LEARNING TRACK

SA



PORTABLE/MOBILE TECH 2 – PMT2 LEARNING TRACK

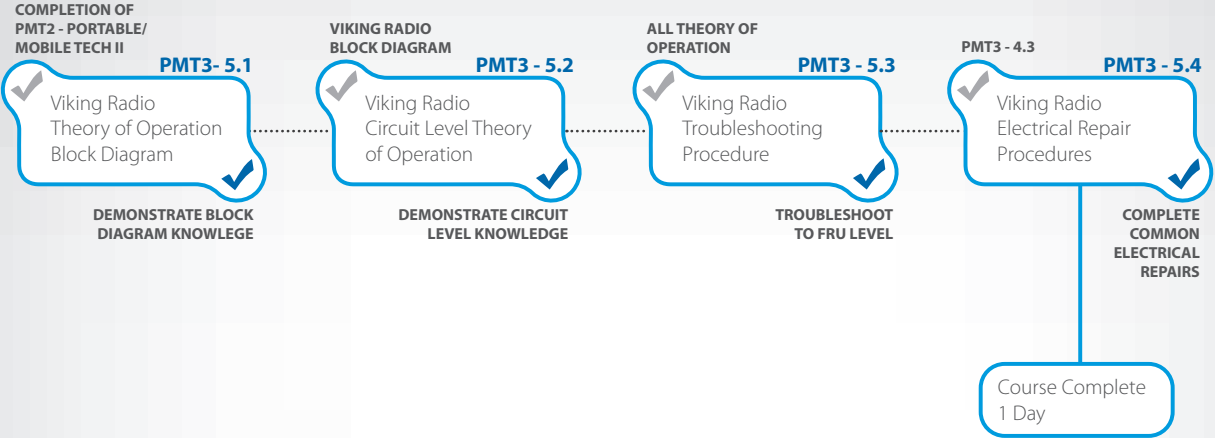
PM2



NOTES:

- Course taught standalone as resident class and field school at customer location, and also with other learning tracks in resident schools in Texas.
- Optional customization (PMT2 - 4.5 OPT) available at extra charge. Contact our training coordinator for a quote today.
- Fleet Management (PMT2 - 4.6) is the last required module for technicians whose primary function is using Armada to maintain radio software and keys in large populations of portables/mobiles.

PORTABLE/MOBILE TECH 3 – PMT3 LEARNING TRACK



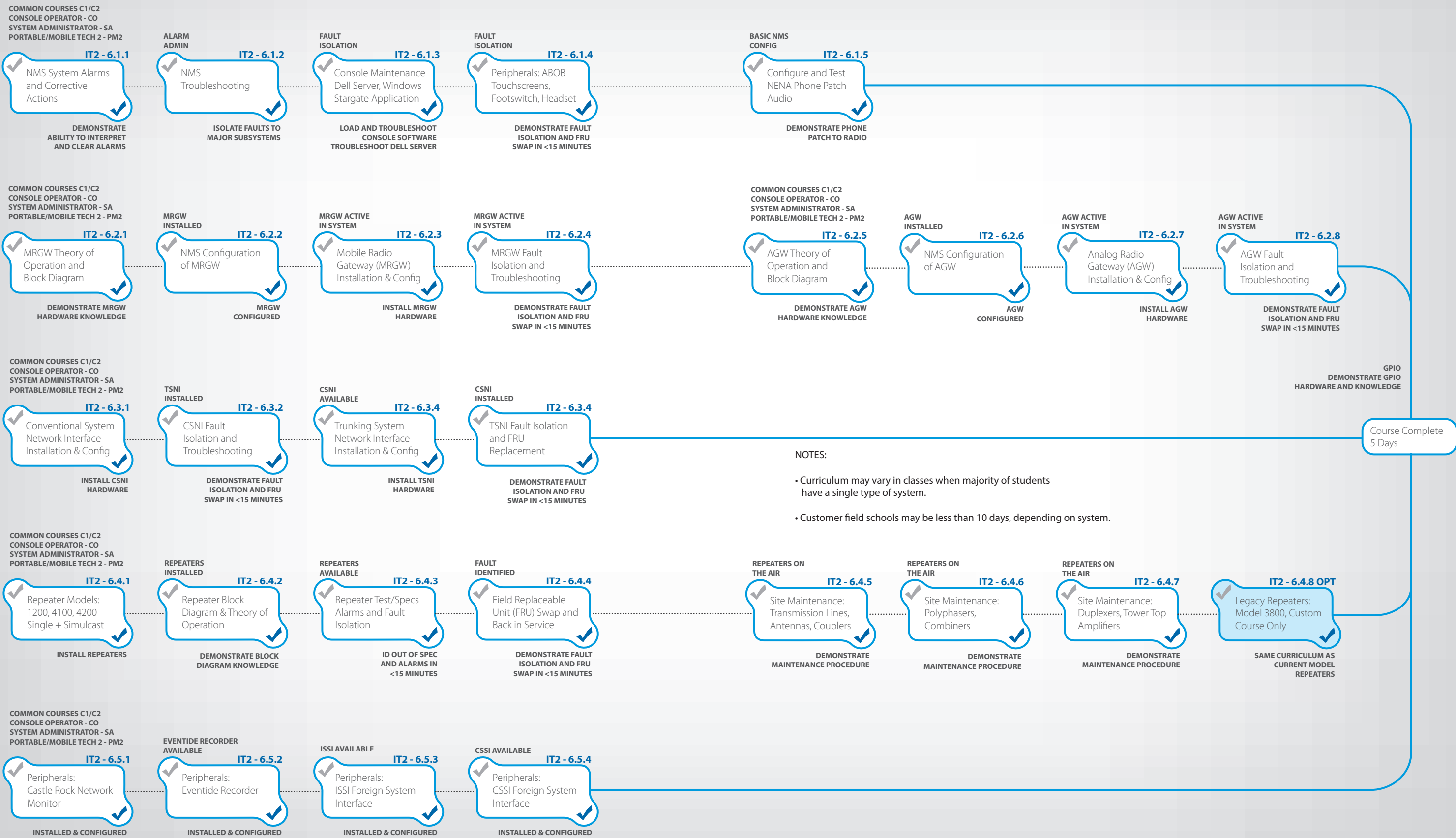
NOTES:

- Course generally taught following PM2, Portable/Mobile Tech 2, or as standalone class in field for experienced Level 2 Viking RadioTechs



INFRASTRUCTURE TECH LEVEL 2 – IT2

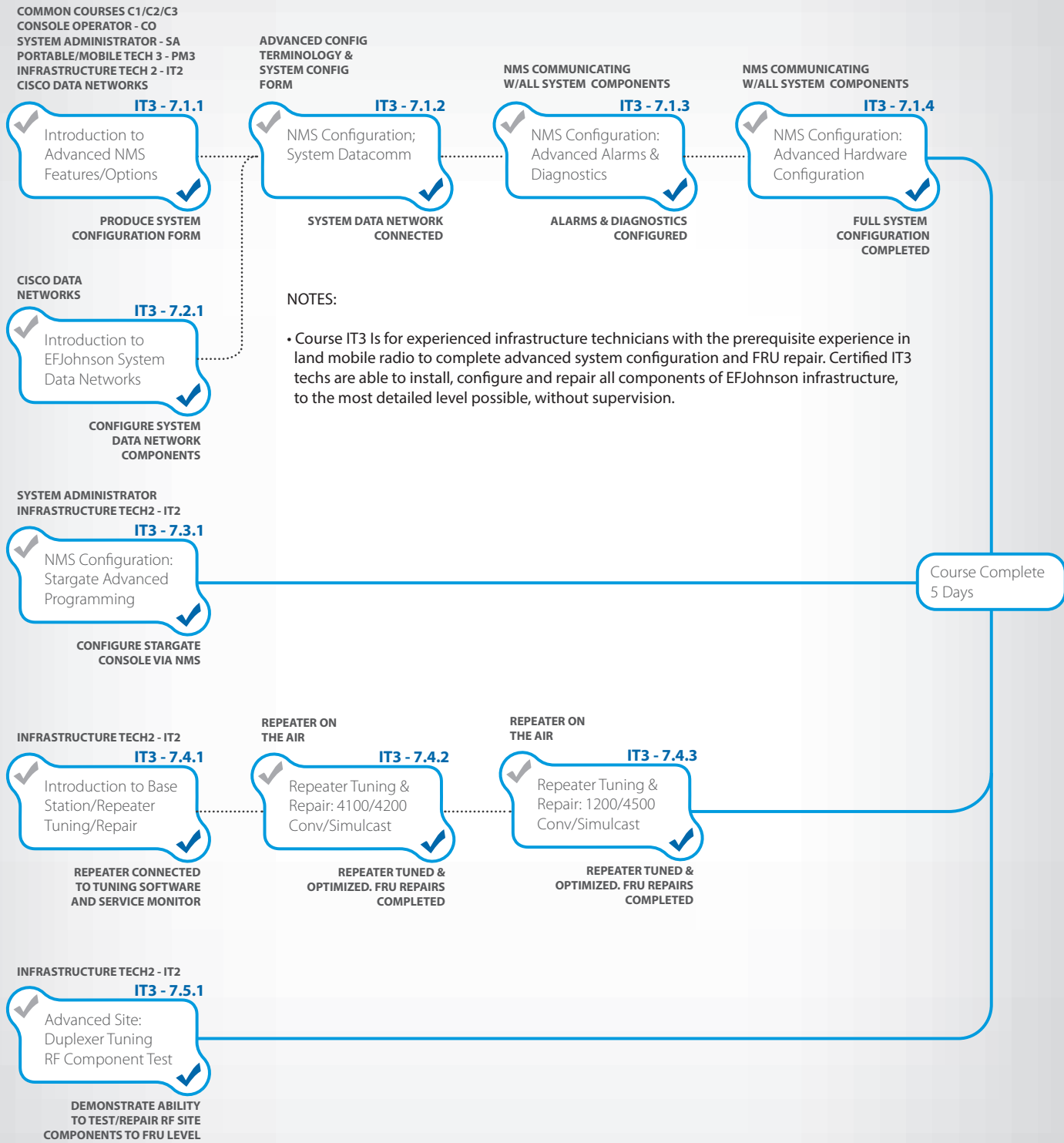
LEARNING TRACK



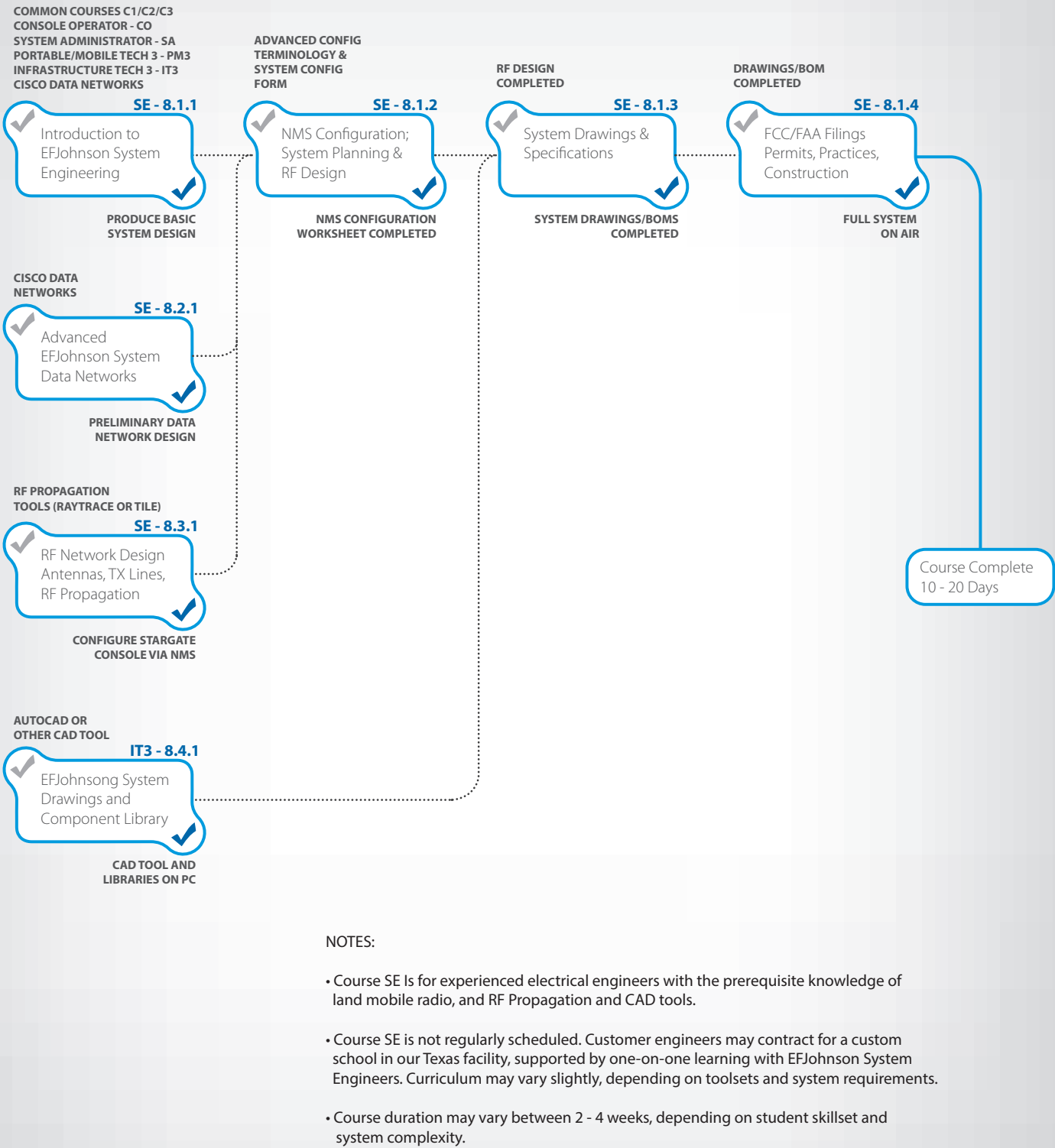
IT2

IT2

INFRASTRUCTURE TECH 3 – IT3 LEARNING TRACK



SYSTEM ENGINEER – SE LEARNING TRACK



5.0 – BASICS OF PERFORMANCE+ SYSTEM CARE CERTIFICATION

Now you’re certified. What’s next? The EFJohnson Performance+ System Care Program includes shop certification; Certified shops are safe and well-equipped with everything you need to do your job. The combination of certified techs in certified shops means knowledge and tools are in the same place. Test equipment is expensive, but you have to have it. The investment in your training is also expensive. Likewise with parts. It goes without saying that you have to work in a safe environment and have expensive tools, too. EFJohnson appreciates that investment and will use your shop for customer projects. It’s a partnership all around. When you perform work for EFJohnson, completion means signoff from techs and the shop manager. You’ll be proud of a job well done.

Like many professions, keeping current means continuous learning. As part of your Performance+ certification, you’ll be kept up to date on product changes. Field service bulletins will be emailed fast. You’ll attend new Webinars, watch videos and experience eLearning. If field schools are nearby, you’ll be invited. Keeping on top of new stuff means you won’t be caught by surprise. We’ll track your progress and keep your certification up to date.

<http://www.efjohnson.com/training>

6.0 – EFJOHNSON PERFORMANCE+ COURSES

Common Course C1 – Introduction to EFJohnson 2-Way Radio
Prerequisites: None

4 Hours
Delivery: Online

Common Course C1 is for general audiences. You don’t have to know anything about radio to begin. Fundamentals of how 2-way radios talk to each other through a radio system provide a starting point for all other EFJohnson Performance+ courses. Course C1 may be taught by a live instructor at the beginning of Radio User (Course RU1) field schools.

Common Course C2 – Introduction to EFJohnson Infrastructure
Prerequisites: Course C1

4 Hours
Delivery: Online

Common Course C2 targets users who will interact with EFJohnson infrastructure. Knowing system terminology and key infrastructure elements helps stakeholders make smart decisions about system capabilities and expansion. Technicians gain a frame of reference for troubleshooting.

Common Course C3 – EFJohnson Conventional, Trunked, P25 System Architecture and Connectivity
Prerequisites: Common Courses C1 & C2

8 Hours
Delivery: Classroom or Webinar

Common Course C3 is a high level view of EFJohnson system design and connectivity needed by any student who will be configuring system elements, or connecting them through a data network. Course C3 may be taught at the Instructor’s discretion as the first day of custom infrastructure field schools.

Course RU1 – EFJohnson Viking Radio User Training
Prerequisites: Common Course C1

4 Hours
Delivery: Online or Field School

All modules in Learning Track RU are taught in this sequence, designed for public safety professionals who use EFJohnson radios in their daily routine. Course RU1 also provides an important foundation for technicians. Because Viking portables and mobiles have so many optional configurations, this course is usually conducted as a custom field school.

Course CO1 – Console Operator Training
Prerequisites: Common Courses C1/C2

16 Hours
Delivery: Instructor

Operator training on a StarGate console system prepares dispatch personnel for the real world. Peripheral hardware like headsets, audio interfaces, footswitches and inter-console functions are also covered. Course CO1 is also important for system administrators and infrastructure technicians who will be configuring StarGate systems. All modules in Learning Track CO are covered.

Course SA1 – StarGate System Administrator
Prerequisites: Courses C1/C2 + Console Operator CO1

3 Days
Delivery: Classroom

System administrators and technicians who change StarGate Console configuration, administer console users, and who track alarms/logs will learn how to configure the StarGate Console through the EFJohnson Network Management System (NMS). All modules in Learning Track SA with the exception of SA - 2.9 OPT and SA - 2.10 OPT, which cover OTAR and OTAP, will be covered. Over The Air Rekeying (OTAR) and Over The Air Programming (OTAP) are optional for field schools, and are otherwise covered during the NMS programming portion of Course IT2, Infrastructure Technician 2.

Course PMT2 – Viking Radio Technician Level 2 Training **4 Days**
Prerequisites: Courses C1/C2 + Radio User **Delivery: Classroom**
Level 2 technicians perform a wide variety of installation, programming and repair functions that don't include board repair or advanced testing/tuning. Course PMT2 teaches Armada programming and troubleshooting for all current EFJohnson portable and mobile radios. All modules in Learning Track Portable/Mobile Tech 2 - PMT2 are covered. Additional customer advanced programming features may be added to field schools.

Course FM1 – Viking Radio Fleet Manager **4 Days**
Prerequisites: Courses C1/C2 + Radio User **Delivery: Classroom**
Course FM1 is similar to PMT2 in that fleet managers learn Viking radio features and options, and how to perform basic tests. However fleet managers learn detailed Armada programming and Key Management tools to keep every radio in their system up to date.

Course PMT3 – Viking Radio Technician Level 3 Training **1 Day**
Prerequisites: Courses C1/C2 + Radio User + Course PMT2 **Delivery: Classroom**
Course PMT3 is typically taught following PMT2, and teaches radio tuning, specification testing and FRU level electrical repair to techs who have test equipment, service monitors and basic RF measurement/test skills. All modules in Learning Track Portable/Mobile Tech 3 - PMT3 are covered.

Course IT2 – Infrastructure Technician Level 2 Training **10 Days**
Prerequisites: Courses C1/C2/C3 + Course PMT2 **Delivery: Classroom**
Course IT2 is for system techs who install and maintain EFJohnson infrastructure. Products in the current EFJohnson portfolio will be covered, including conventional, trunked and P25 components. Troubleshooting and repair to system component level is practiced in lab. All modules in Learning Track Infrastructure Tech 2 - IT2 will be taught. Limited curriculum customization in resident classes may be possible, depending on the mix of students. Essential NMS programming and system monitoring are featured.

Course IT3 - Infrastructure Technician Level 3 Training **10 Days**
Prerequisites: Courses C1/C2/C3 + Radio User+ Course IT2 **Delivery: Classroom**
The best techs become certified as EFJohnson System Technicians. Completing IT3 is an essential part. Course IT3 is for skilled RF techs at the top of their game. Every aspect of configuring EFJohnson systems, including advanced NMS programming, will be covered. Full level 3 product servicing to FRU level includes theory of operation, troubleshooting and repair. Advanced site maintenance teaches testing and tuning of passive RF devices like transmission lines, duplexers, filters and combiners. All modules in Learning Track IT3 are taught.

Course SE1 - EFJohnson System Engineer **10 Days**
Prerequisites: Courses C1/C2/C3/SA1/PMT2/IT2 **Delivery: Classroom**
Course SE1 is taught by EFJohnson Instructors and System Engineers as a custom field school at our location in Irving, Texas. It is for customer engineers who design and expand radio networks. Most of the class is a series of practical design exercises that include RF studies, data networks for EFJohnson systems, configuration specifications and regulatory filings.

7.0 FIELD SCHOOLS

Having a class at your place can save expense. Break-even is about four students, depending on subject matter. Maximum is twelve students for even better savings. Our instructors usually bring demo equipment, depending on configuration, and we only need a classroom and projector.

Almost any resident class can be taught in the field. Content may be customized at additional expense. Just like our resident classes, students get the full complement of course materials to keep. Certification is possible.

Cost is \$1250/Day for an instructor, plus travel/shipping/expenses/material cost, and course customization where applicable. Contact our training coordinator for a quote today.
800-328-3911 ext. 3

8.0 POLICIES AND LOGISTICS

Making classes affordable means keeping them full. EFJohnson always makes a best-faith effort to to stick to our published training schedule. All we ask is that once you commit to attending, you make your best effort to be here. All resident seats are booked first-come/first-serve.

CANCELLATIONS
If you cancel your seat in a resident class within ten business days of class start, you will be billed for the full amount of the class. If you cancel your seat more than thirty days from the start of class, you will not be charged.

AUTHORIZED SERVICE CENTER STUDENTS
If you are an employee of an EFJohnson or Kenwood authorized service center, you will not be charged to attend resident classes in Texas, provided you meet course prerequisites. If, however, once you reserve a seat and you do not show up, or if you cancel within thirty days of class start, your shop will be billed the full customer price unless another student from your service center attends in your place.

Whenever possible, qualified Technicians from authorized shops will be invited to audit local field schools at customer locations at no charge, providing seats are available and the customer agrees.

TRAVEL/WEATHER RISK

All resident students should purchase travel insurance or refundable tickets! EFJohnson makes a best-faith effort to hold classes as scheduled. If, however, a facility-related emergency or weather related closure makes it impossible to start a resident class on the advertised day, we will reschedule as soon as practical, including shifting class one or two days and possibly bridging a weekend. Our training coordinator will communicate as often as necessary to ease the change. When travel to Texas is impossible due to weather at your end, every effort is made to accommodate your late entry into class, or to reschedule at no charge.

COURSE MATERIALS

Please allow enough space in your luggage for course materials, which are yours to keep. Should you wish to ship your the training materials to your home office, our training coordinator can arrange for pickup at the EFJohnson facility.

TRAVEL EXPENSES

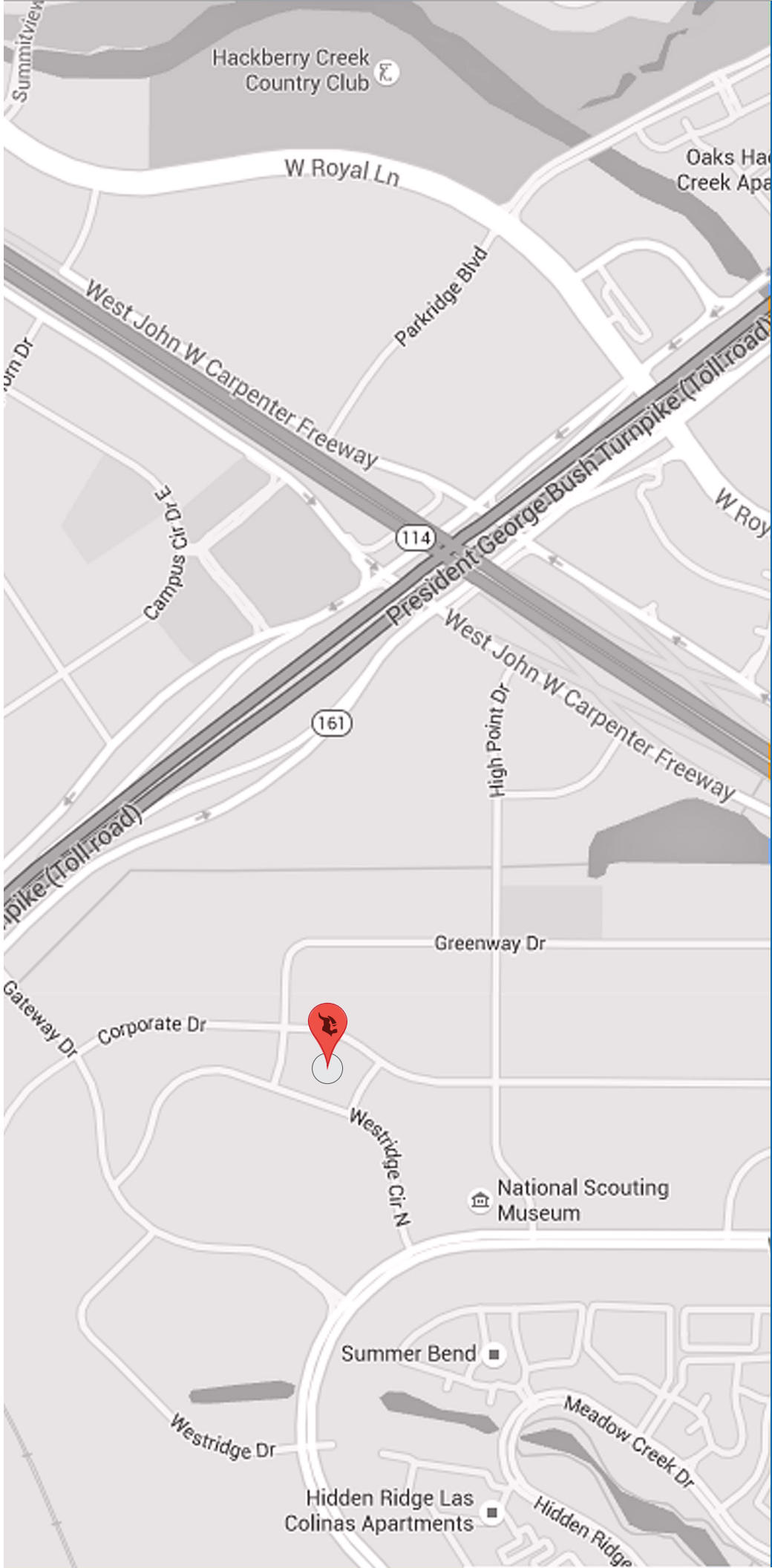
Students are responsible for the cost of travel and lodging. EFJohnson is not liable for the cost of student airfare, car rental, other travel expenses or meals and incidentals, unless specifically included in a purchase order for services or other legally binding agreement.

RIGHT OF REMEDIATION

Presuming you meet course prerequisites, once you begin a learning track, you are entitled access to all related course and support materials. If you do not master skills in the first pass, you are welcome to repeat any related learning modules, including eLearning and webinars, at no tuition cost.

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