



Course Catalog

The Telecommunication Education Center [TEC] is a dynamic learning program devoted to improving education, quality of work, and safety within the telecommunications industry.





Telecommunications Education Center [TEC]

As the industry's advocate for the responsible deployment of wireless infrastructure across the United States, WIA offers courses through The Telecommunications Education Center [TEC].

TEC drives job training and practical know-how, fosters industry expertise and information sharing, and certifies and qualifies individuals. Setting a new and world-class standard within the industry, this certification program, with associated course work and curriculum, creates a consistent knowledge base that ensures skill-sets meet a uniform definition set by the wireless industry and recognized by employers.

These credentials are valuable to employers, allowing them to strengthen their existing workforce and

to determine the skill level of applicants without encountering the expense of an assessment for each applicant.

TEC Curriculum was developed with input from SME's, industry partners, WIA members, and academia/higher education, providing coursework that meets employer and industry demands.

All course training and certification programs may be customized to meet the demands of your workforce development initiatives. TEC experts work to partner with businesses to offer a unique blended learning environment with courses taught through various delivery methods that best meet the needs of your workforce - Instructor Led Classroom, Instructor Led Virtual, and eLearning.

Fundamentals



Fundamentals



FND101: Wireless 101

Wireless 101 is designed to familiarize participants with the practical aspects of wireless communication systems and their industrial applications. This course provides a review of current industry practices around macro cell sites, how cell sites are designed, the hardware components at a typical cell site, and the RF measurements necessary to maintain the integrity of a cellular network.

4 Hours

Delivery Method:

*Instructor Led Classroom,
Instructor Led Virtual,
eLearning*

** Prerequisite for all courses
(excluding 5G Outlook)*



FND102: DAS & Small Cell Basics

The cellular industry is facing the challenge of managing the increasing number of mobile broadband data users with limited radio resources. This course provides an overview of small cell architecture and how it improves network performance and service quality by offloading the burden from large macro-cells. Designed for all audiences, as a prerequisite for advanced DAS & Small Cell and In-Building courses, this curriculum examines the fundamentals of both tools and the appropriate application of each.

4 Hours

Delivery Method:

*Instructor Led Classroom,
Instructor Led Virtual*



FND103: Wi-Fi Integration

From basic RF theory and regulatory requirements to implementation of WLAN devices, this course will deliver the latest in 802.11 technologies and their practical application. Learn basic 802.11 wireless networking terminology and functionality as well as engineering and business practices.

6 Hours

Delivery Method:

*Instructor Led Classroom,
Instructor Led Virtual*



FND105: Macro Site Fundamentals

Macro Site Fundamentals introduces the central theories related to Macro tower design, planning, troubleshooting, and maintenance. The course teaches students how to read and interpret engineering data-sheets for various hardware components. Key topics include troubleshooting concepts, types of equipment and hardware components, line sweeping, Passive Inter Modulation (PIM), and Distance-to-Fault (DTF) concepts.

5 Hours

Delivery Method:

*Instructor Led Classroom,
Instructor Led Virtual*

Fundamentals



FND106: Fundamentals of Wireless Site Safety

Wireless Site Safety is the first combined training program in the Wireless Industry that provides an industry overview, antenna and site-specific training, driver safety, and includes an OSHA 10-hour construction card. This course addresses the basic practices of identifying, eliminating, and reporting hazards associated with working on a wireless site.

1 ½ days

Delivery Method:

Instructor Led Classroom

**Training contact hours can be applied against TIRAP related instruction outlines for TTT-1 and TTT-2 (Telecommunication Tower Technician) and Wireless Technician.*



FND201: Line Sweeping and PIM Testing

Coverage and capacity are extremely important for mobile communication and they are tightly coupled with quality installation of hardware components at cell sites. This course provides a technical understanding of various line sweeping measurements including Return Loss, VSWR, Distance-to-Fault (DTF), Insertion Loss, and PIM. The course covers fundamentals, step-by-step procedures for efficient cell site troubleshooting and introduction of measurement units and required hardware for cell site technician and tower climbers.

4 Hours

Delivery Method:

Instructor Led Classroom



FND202: RF Awareness & Safety

Personal safety is extremely important when working in an RF environment. OSHA requires business owners to maintain a comprehensive RF program which includes training for all workers who work on or near wireless and broadcast communication sites. Failure to comply can result in personal injury, fines, and lawsuits.

2 Hours

Delivery Method:

*eLearning,
Instructor Led*

Workers who perform tasks on rooftops, towers, and other structures where cellular antennas and other RF generating devices are present may be at risk of exposure to hazardous levels of RF radiation. Understanding these risks and how to properly mitigate them is crucial to the safety of all wireless personnel. The RF Awareness & Safety training course is specifically designed to assist wireless personnel in developing a comprehensive RF Safety Plan that protects themselves as well as the general public who may be unaware of the risks associated with RF exposure.

5G



5G Courses



FND104: 5G Outlook

This course provides an overview of 5G capabilities and use cases based on the current field trials. 5G is reviewed from the perspective of cellular operators, regulators, and academia. The course evaluates driving forces behind 5G efforts, timeline, key requirements of 5G, and pre-5G activities in cellular infrastructure domain. Key topics include future road-maps for key operators, guidelines on spectrum and regulator initiatives, and academic research on millimeter waves, massive MIMO, and IoT.

3 Hours

Delivery Method:

*Instructor Led Classroom,
Instructor Led Virtual*

** Successful completion of this course is considered a prerequisite for 5G Technologies.*



FND200: 5G Outlook and Technology

This course provides an overview of 5G capabilities and evaluates the driving forces behind 5G efforts, timeline, key requirements, and pre-5G activities in the cellular infrastructure domain.

3 Hours

Delivery Method:

*Instructor Led Classroom,
Instructor Led Virtual*

The course addresses the challenges inherent with tackling issues such as new frequency spectrum, wide bandwidth, MIMO, and Beam Steering. 5G NR non-standalone mode (NSA) and standalone mode (SA) will be reviewed to understand the future role of the 5G base station (gNB).



FND204: 5G Technologies

5G New Radio (NR) specifications introduce new ways to use spectrum in sub-6 GHz and mmWave frequencies. This course reviews 5G NR coexistence with other wireless communication systems. Three primary use cases of 5G will also be reviewed with greater detail – enhanced mobile broadband (eMBB), ultra-reliable and low latency communications (URLLC), and massive machine-type communication (mMTC).

3 Hours

Delivery Method:

*Instructor Led Classroom,
Instructor Led Virtual*

** Students must successfully complete 5G Outlook prior to registration.*

DAS & Small Cell

DAS & Small Cell Courses



DSC101: In-building Wireless Ecosystem Overview

3 Hours

Delivery Method:

Instructor Led Classroom

Designed for those who work in Cellular, Wi-Fi, DAS and Small Cells; this course provides a basic understanding of the technological, business, indoor environmental, and management ecosystem issues and challenges that are part of every initiative. This is a prerequisite course for the General, Project Management and Technical In-building certification tracks. This module explains why In-Building wireless initiatives are necessary, how In-Building solutions are expected to deliver communications capabilities to the indoor subscribers and provide an understanding of both the history and future of the In-Building wireless solution space.

** Successful completion of this course is considered a prerequisite for all In-building courses.*



DSC102: In-building RF Sources and Distribution

3 Hours

Delivery Method:

Instructor Led Classroom

To achieve adequate In-building cellular service, RF sources must be capable of handling and processing call traffic. This module examines the need for indoor service, the challenges of indoor deployments, the RF sources, and the distribution mechanisms available to venues today that facilitate cellular wireless deployment initiatives. Students will understand that among four service providers and three generations of technology, there are many radio systems that need to be studied for compatibility and incompatibility with one another.



DSC201: In-building Project Management

3 Hours

Delivery Method:

Instructor Led Classroom

This two-part course provides an overview of the In-building ecosystem as it applies to program and project management. With the ever-changing landscape of technologies, systems, equipment, and network integration, it is vital for project managers to understand the challenges and complexities that are unique to the deployment of indoor DAS and Small Cell systems. Students will explore the governing bodies and organizations involved in the development and implementation of In-building projects, while focusing on the phases, responsibilities, events, and sequences of deploying in-building systems. Completion of this course results in certification that demonstrates an understanding of in-building program management, equipment, activities, roles, responsibilities, and sequence of milestones.

DAS & Small Cell

DAS & Small Cell Courses



DSC202: Outdoor DAS & Small Cell Implementation

This course streamlines the implementation process, illustrates key considerations for each step of the process, and highlights external factors with material impact. Topics will include access rights and easements for street furniture and pole attachments, relevant standards and codes for compliant implementation and implementation of all system components. With over 75% of small cells expected to be placed on utility poles, special considerations need to be addressed when installing cellular equipment above the power lines.

5 Hours

Delivery Method:

*Instructor Led Classroom,
Instructor Led Virtual*



DSC302: In-building RF Concepts

Designed for technical personnel, this course further explores basic technical RF fundamentals including PIM, RF propagation, losses and gains, modulation, and link budget. This module will provide a review of the physics, mathematical, and communications systems principals that are fundamental to implementing In-building wireless initiatives. Understand how cellular radio signals propagate indoors and to determine the density of antenna sources and levels of power necessary to achieve the service objectives for the community. This course will provide participants with a comprehensive introduction to the many concepts that drive design and performance of the system.

3 Hours

Delivery Method:

Instructor Led Classroom



DSC303: In-building RF DAS Components and Subsystems

This course identifies the properties of key devices and equipment, and explores characterization concepts, definitions, and solutions. This module provides a comprehensive overview of the components that technical persons working in the IB industry will encounter on a day-by-day basis.

3 Hours

Delivery Method:

Instructor Led Classroom



DSC304: In-building Site Survey

This course will illustrate the RF environment from both the perspective of macro noise leaking in, as well as propagation behaviors throughout the areas of interest. From these data sets, proposed systems design objectives can be baselined and the behavior of the environment captured. The efforts to provide a detailed inventory of the physical site helps planners obtain accurate estimates for bills of material that the models generate and quality assessments at every phase. This course will cover the process of planning, execution and reporting needed to complete a successful site survey.

3 Hours

Delivery Method:

Instructor Led Classroom

Site Development



Site Development



SD300: Site Development

This course provides an overview of Telecommunications Site Development and the role of the Site Acquisition Specialist. This will prepare the novice specialist to become an immediate vital team member in securing progress on a telecommunications site.

This course will also provide a refresher for the seasoned specialist with updates and reviewing current trends. With new technology and ever changing jurisdictional and federal laws governing the site development, Site Acquisition specialists must be prepared to work efficiently and aggressively in order to meet carrier deadlines.

This course addresses the challenges involved in six site development areas from Search Ring assignment through NTP to Construction handoff. Students will participate in hands on activities to learn key strategies in analytical research and discovery for the best site outcomes.

3 Days, 8 hours per day

Delivery Method:

Instructor Led Classroom

** FND 101: Wireless 101 is the recommended prerequisite course*

Wireless Site Safety



Wireless Site Safety



SAF101: OSHA 10 Construction

10 Hours

Delivery Method:

Instructor Led Classroom

Specific to construction personnel, this course teaches recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces, while also providing information regarding workers' rights, employer responsibilities, and how to file a complaint.

Designed to help workers stay up-to-date with their OSHA safety requirements, this traditional OSHA outreach training course results in a valid DOL/OSHA 10-Hour Card (Construction).



SAF102: OSHA 10 General Industry

10 Hours

Delivery Method:

Instructor Led Classroom

As applied to general industry personnel, this course teaches recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces, while also providing information regarding workers' rights, employer responsibilities, and how to file a complaint.

Designed to help workers stay up-to-date with their OSHA safety requirements, this traditional OSHA outreach training course results in a valid DOL/OSHA 10-Hour Card.



SAF103: Standard First Aid & Adult CPR

4 Hours

Delivery Method:

Instructor Led Classroom

This hands-on, interactive course will give you the confidence to react to emergency situations and provides best practices recommendations for remote sites.

Upon successful completion, participants receive a course certificate and wallet card. The curriculum meets 2015 American Heart Association Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiovascular Care (ECC). First Aid certification is valid for three years and the adult CPR certification is valid for two years.

Wireless Site Safety



SAF302: OSHA 30 General Industry

30 Hours

Delivery Method:

Instructor Led Classroom

As applied to general industry personnel, this course teaches recognition, avoidance, abatement, and prevention of safety and health hazards in workplaces, while also providing information regarding workers' rights, employer responsibilities, and how to file a complaint.

Designed to help workers stay up-to-date with their OSHA safety requirements, this traditional OSHA outreach training course results in a valid DOL/OSHA 30-Hour Card.



SAF201: Hazard Assessment for the Telecommunications Industry (coming soon)

3 Hours

Delivery Method:

Instructor Led Classroom

This course highlights the hazards most commonly encountered on a Telecommunications site. The instruction is configured around three main hazard categories Structural, Environmental and Non-Standard structures; designed to provide students with the tools to identify common hazards and understand how the hazard affect those on site.

Certificate of completion will be issued upon successful completion of training and written exam.



SAF204: DOT Driver Rodeo

1½ Days

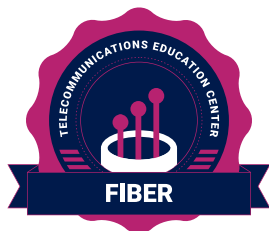
Delivery Method:

Instructor Led Classroom

This course teaches students the requirements set by the Federal Motor Carrier Safety Regulations (FMSCR), as well as the best practice policies applicable to the operation of Company vehicles. Students will be able to demonstrate proficiency about safely operating and inspecting a CMV, and properly fill out the required daily documents as they pertain to vehicle being operated.

Training consist of 1-day classroom and ½ day practical. The practical also covers employer specific vehicle policies.

NEW COURSES IN DEVELOPMENT



Contact Information:

Kelsey Trundle

Director, TEC Development
Kelsey.Trundle@WIA.org
443-875-7142

Emily Swain

Manager, TEC Operations
Emily.Swain@WIA.org
703-472-2305

www.tec-online.org