Why It's Time to Focus on Broadband Workforce Development August 18, 2022

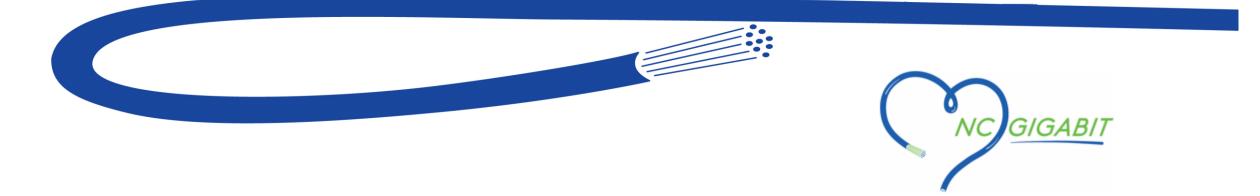
Moderator: DOUG Dawson, President, CCG Consulting

Speakers:

Alan Fitzpatrick, Co-Founder, Open Broadband (NCBM Board Member)
 Mark Boxer, Technical Manager, OFS (NCBM and FBA Board Member)
 Jimmi Hendricks, Supervisor of OSP Splicing, Wilson Greenlight Community Broadband
 Deborah Kish, VP of Research & Workforce Development, Fiber Broadband Association (FBA)



A Furukawa Company



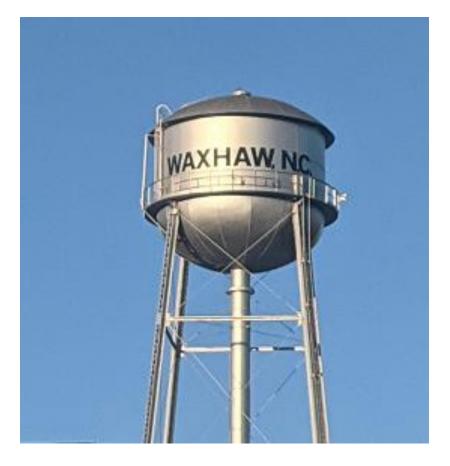
ISP Technician Training Programs

openbroadband

Alan Fitzpatrick https://openbb.net 980-246-8989

Who is Open Broadband LLC?

- NC owned and operated ISP (Waxhaw)
- We provide broadband in underserved areas in SC, NC, and VA
- Additional support of Public Wi-Fi Zones and Analytics
- We love to support and expand entrepreneurship!
- Workforce development (Technician Training Programs)



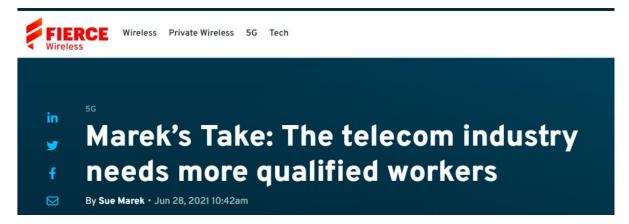
Why ISP Technician Training?



"2020-2030...about 21,500 openings for telecommunications equipment installers and repairers are projected each year, on average, over the decade"

\$45 Billion "Internet for All" Initiative to Bring Affordable, Reliable High-Speed Internet to Everyone in America

- U.S. Department of Commerce.



1. Public-Private Partnership with Library Free public Wi-Fi in West Charlotte Neighborhoods

A COMMUNITY-DRIVEN HOME INTERNET SOLUTION rlotte Mecklenburg Library is teaming up with Open Broadband to pilot a new home net service in the West Boulevard Corridor to help reduce the digital divide. Our goal provide affordable, fast and reliable broadband service, source talent from the local munity, and offer a strong customer experience to support individuals at all levels of mecktech al literacy LEARN MORE

Hired 5 local residents. Topics covered during training

- 1) What is the internet
 - a) Components
 - b) Hardware
 - c) Software
 - d) Types of networks
 - e) Delivery mediums
 - f) What is an IP address? And how to change the one on your computer
- 2) How our equipment works
 - a) Frequencies used (pluses and minuses)
 - b) Environmental requirements
 - c) What is POE
- 3) Troubleshooting
 - a) How to use Google like a pro
- 4) Terminating ethernet cable
- 5) Configuring a radio
- 6) Configuring a switch
- 7) Conducting a site survey
- 8) How to aim a radio



Networking 101 Module 1

- 1. Network Components and Types
- 2. Explain components and types of computer networks.
- 3. Describe the types of networks.
- 4. Describe internet connection types.

Networking 101 Module 2

- 1. Network Devices
- 2. Explain the purpose of devices on a network.
- 3. Explain basic network devices.
- 4. Explain security devices.
- 5. Explain other network devices.

Networking 101 Module 3

- 1. Network Cables
- 2. Explain the characteristics of network cables.
- 3. Describe networking tools and their purpose.
- 4. Explain the purpose and characteristics of common types of copper network cables and connectors.
- 5. Explain the purpose and characteristics of common types of fiber network cables and connectors.

Networking 201 Module 1

- 1. Device to Network Connection
- 2. Configure devices for wired and wireless networks.
- 3. Explain MAC and IP addressing for computer networks.
- 4. Network Addressing
- 5. Static and DHCP IP addressing
- 6. How to set your computer to a static IP address.

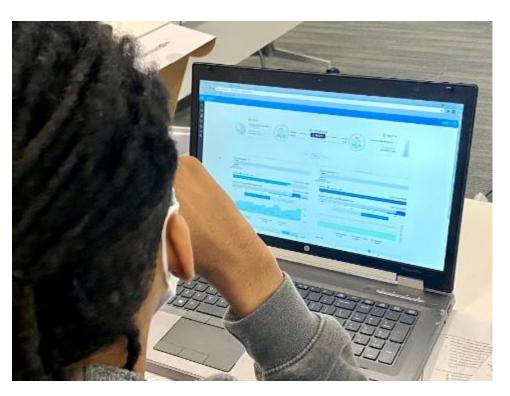
Networking 201 Module 2

- 1. Network Troubleshooting
- 2. Troubleshoot problems and solutions related to networks.
- 3. Explain the six steps of the troubleshooting process for networks.
- 4. Troubleshoot common and advanced problems related to networks.

Terminating ethernet cable on day 1



Configuring equipment





Outside of the classroom





Configuration and aiming equipment



Charlotte Mecklenburg Library Project Wi-Fi Techs

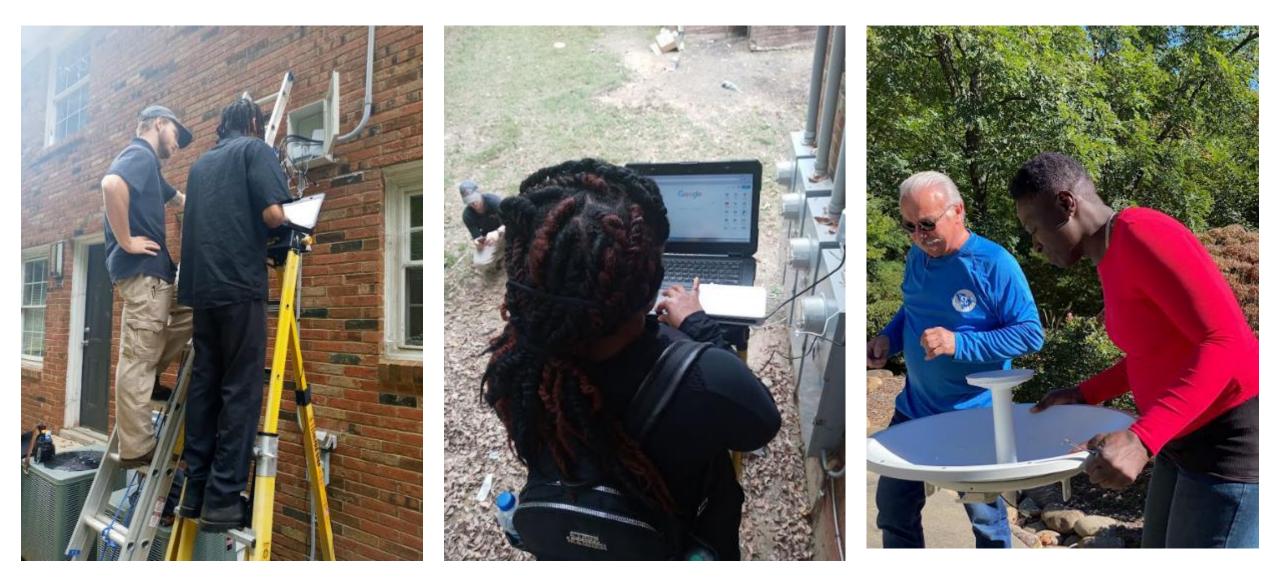


Continued learning after formal training

The learning doesn't stop once the course ends. We transition to an on the job style of working that reinforces the foundation that was established while building additional skills to the student's tool box.

Every student does a rotation of a residential installation, they are also afforded the opportunity to assist in a cell tower deployment and get exposed to data center operations. Based on their interests we also provide training in several certification courses and NOC operations training.

Integration with the rest of the team for OJT



Network Operations Center (NOC) training and other certs

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UBIQUITI Broadband Routing & Switching Admin



UBIQUITI Broadband Wireless Admin

2. City Startup Labs and Access Charlotte Job Training for Returning Citizens

: REENTRY JOB OPPORTUNITY :





This is an entry-level technical position with training provided, working under limited supervision, to perform cabling and equipment installs. Will help lead, oversee and participate in performing a wide variety of skilled tasks with low-voltage structured cable including making and installing, mounting antennas and access points. Must have reliable transportation, be handy with tools and in good shape.

GET TRAINED TODAY! CITY STARTUP LABS HAS <u>ONLY 8 SLOTS</u> AVAILABLE HELPING TO INSTALL NEW INTERNET SERVICES THROUGHOUT CHARLOTTE WORKING WITH OPEN BROADBAND.

\$15/HR + PAID TO TRAIN • STEADY WORK THROUGH THE END OF THE YEAR • TOOLS PROVIDED

If you have been justice-involved /formerly incarcerated or know someone who has and is ready to get busy fixing Charlotte's Digital Divide – **APPLY TODAY! (see below)**

See the full job description here - READ BEFORE APPLYING





Returning Citizens Program

Partnership with City Startup Labs







open broadband

Returning Citizens Program

Partnership with City Startup Labs









3. Training Program at Rappahannock Community College



4 Day Program spread over two weekends

The course introduces students to the concepts and practical skills needed to become an internet installation technician

RCC provides the infrastructure and Open Broadband provides the syllabus and instructors.

6-10 students/course.

Upon successful completion, top students will be hired by Open Broadband as installers.

All students will have learned skills to enter the telecommunications field.

ISP Technician Training



https://openbb.net 980-246-8989 open broadband

Introduction to the Fiber Broadband Association (FBA)

- Established in 2001
- FBA provides advocacy, education and resources to companies, organizations and communities who want to deploy the best networks through fiber to the home, fiber to the business and fiber everywhere.
- Member based
- Hundreds of members in the US and Canada
 - Telecommunications Service Providers of all types
 - Vendors of telecommunications equipment
 - Installation contractors
 - Consultants
- FBA is affiliated with similar groups advocating for fiber optic networks around the world.





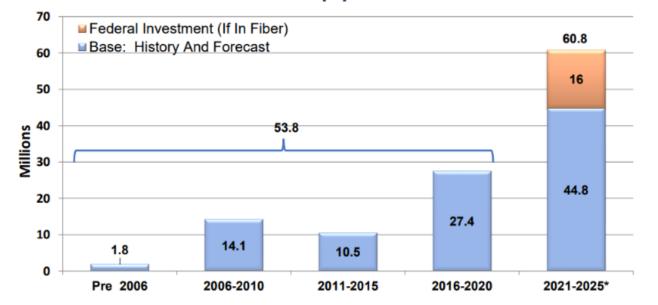






Fiber is growing dramatically – significant need for trained technicians

More New Fiber May Be Built In This 5-Year Period Than All To Date Preliminary Homes Marketed Long-Term Forecast RVA Whitepaper 2021



*This Early 21-25 forecast could be somewhat optimistic given potential supply constraints, federal infrastructure moneys going to non fiber etc.



Job Opportunities for Technicians in Fiber Optics

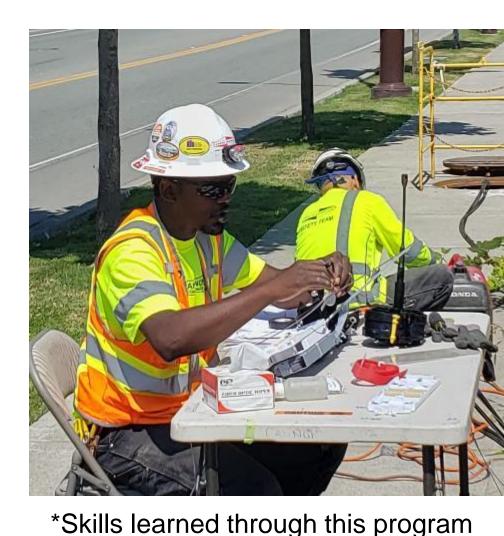
- Installers*
- Splicers*
- Maintenance Technicians*
- Linemen
- Low voltage communication systems installers
- Manufacturing
- Engineering
- Contractors











FBA OpTIC Path[™] Course and Certification Program

- Nationwide program
- US Department of Labor Approved National Apprenticeship Program
- Offered through community colleges and vocational schools in conjunction with a telecom service provider
- Deep focus on fiber-related knowledge and skill set for fiber optic technicians, fiber splicers and premise technicians













OpTIC course intent

- To date, much fiber optic training has occurred by OJT or vendor training for people already in the industry
- Existing fiber training is often expensive
 - Good for already employed individuals
- Existing training is often **relatively short**
 - Instructors and hotels are expensive
 - Students come to the course
- No generally recognized entry-level credential for fiber optic broadband technicians
 - Credentials are available, but not widely accepted by FTTH hiring managers











OpTIC course intent

- Intent is for OpTIC to be a trusted FTTH industry hiring credential
 - Detailed curriculum, aiming for best practices
 - Comprehensive mix of theory and hands-on
- This course comes to students
 - Hence, the need for school and telecom provider relationship
- Designed to be relatively inexpensive and excellent value
 - Looking to attract people from outside the industry
- Ultimately looking to compress the amount of time to bring qualified people into the industry









PJ, learning to splice

Gene Scott

- OSP manager for Greenlight
 - Multi-decade career in telecom, telco, municipality
 - Past president of NCBBM
- Developed fiber training program with WCC
- Intimately involved with OpTIC
 - Provided guidance on curriculum, hiring manager perspective
- Passionate about education and training





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FBA Deployment Specialists Committee

- Diverse set of industry influencers focused on fiber deployment
- Brendan O'Boyle, PLP, Chair
- Reviewed curriculum and providing ongoing suggestions



Brendan O'Boyle









OpTIC Agenda – Chapter List

- Introduction
- Applications
- Why Fiber (Advantages)
- Theory
- Safety
- Fiber Types
- Fiber Geometry
- Cables
- Cable Structures
- Tools
- Architectures & Topologies

- Connectors
- Splicing
- Splitters
- Cable and Fiber Management
- Test Equipment
- Testing
- Installation
- Systems Overview
- Optical Network Terminals
- Troubleshooting
- Glossary







Course is designed to be roughly 40/60 knowledge/skills



Knowledge



Skills

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Repetition

- Critical skills are repeated throughout the curriculum
- The curriculum is presented in order to build experience with skill repetition
 - Connector cleaning (multiple times)
 - Cable stripping (multiple times)
 - Splicing and splice on connector building (several times)
 - Testing (several times)
 - Closure building (2x minimum)
- Focus on building confidence and muscle memory









Greenlight – Jimmi Hendricks

- About Greenlight
- Benefits to Greenlight
- Suggestions to new course operators









Pilot with Greenlight

- Justin Hayden "The Fiber Broadband Association OpTIC course has been incredible! I feel lucky to have had the chance to meet some amazing people along the way. I have not had any hands on experience with fiber before this class, and I now feel confident in my skills, although more practice never hurts."
- Jimmi Hendricks "Just wanted to say how much this class has actually helped in real life. We had a significant outage this past Friday and have been working nonstop to repair the network. I pulled Cesar into the repair team and he was amazing! The training he received paid off big time. He was able to build closures, prep and splice cables on his own and did an amazing job! I picked Cesar strictly because of the training he received. A huge thanks to FBA and all involved this shows how important this class is and will be!"





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Current Support Resources

- Presentations (> 1000 slides)
 - Includes chapter reviews
- Student kit (lays out exercises)
- Train the Trainer Resources
- Materials list
- Instructor skills assessment
- Calendar scheduling tool
- Photo and video library from pilot
- Class timing planning tool
- Final exam and LMS
- Certificates
- FBA connection to vendor partners



Skills Testing Documentation	– Fiber Optic Splice Closure		Deter		
Nome Lest	Pist		Middle:		
Opened cable the length identified in the application procedure			Technician properly seals the endplate following cable anchorm,		
When working with armoved cable, technician properly installed a shreld bond concertor to the cable			Buffer tubes and/or ribbons are properly routed to their storage area		
Technician properly identifies shield bond connector (when applicable)			Technician cuts proper buffer tube or ribbon based on the awigned application.		
Tachnician properly identifies closure kit components and their function if they will be used in the application.			Technician measures and opens buffer tube at appropriate location or technician measures and cats function fubing that will route from the locate to the tray.		
Technician properly restrained cable to the anchoring bracket			If using ribbon, technician uses proper tabing and method based on the application to get the fiber to the tray.		
Technician cuts strength members to proper length and restrains under strength member retention cap			Technician securely restrain buffer tube/funcation tube to tray, but does not look the tubing as to induce attenuation		
Technician property prepares the endplate for cable entry			Technician properly applies the lid to the spillee tray and secures the tray to the organizer.		
Technician measures the cable's OD to determine the diameter in inches and selects the correct sealing accessory per the cable being utilized			Technician properly applies scaling gasket per manufacturer recommendation (when applicable)		
Technician properly enters the cable in the proper port-based on the asplication outline. If application requires express cables or small diameter cables, ensure the proper scaling apparatus is used properly.			Technician successfully enters the organizer into the closure (when applicable) and applies the collar (when applicable)		
Cables are properly anchored the restraint bracket			Technician performs flash test on vealed closure and nemedies scaling issues where present until closure is properly scaled.		
Onternational equivalent standards may b	used and must be donimented (
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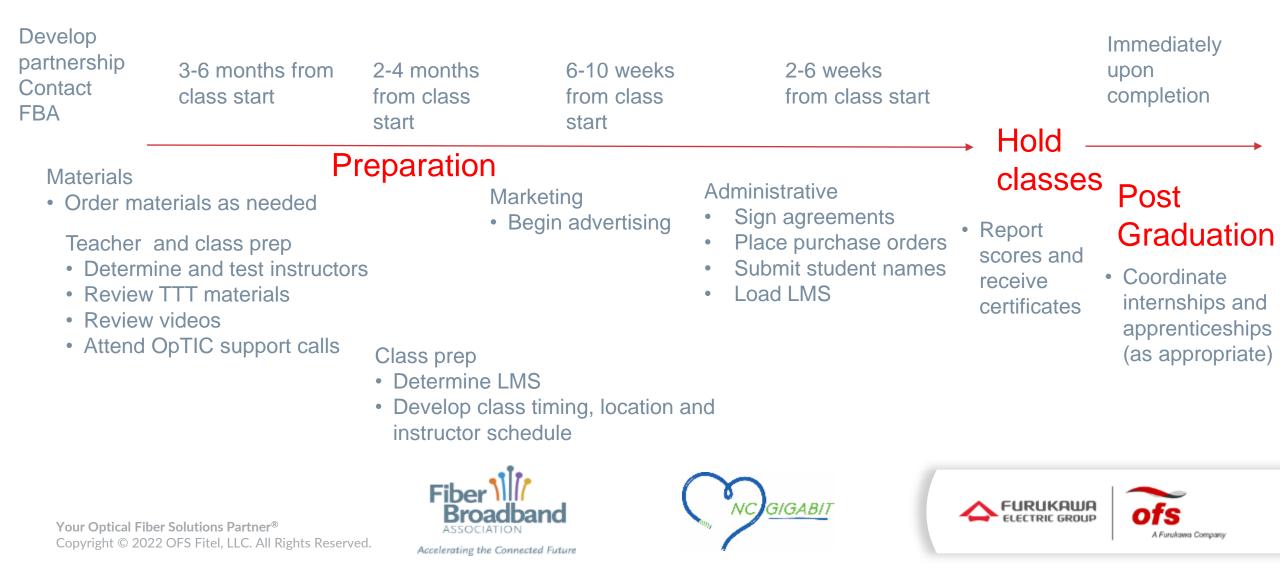








How do I start a course?



Questions or ready to start?

Deborah Kish – FBA

• FBA VP, Research & Workforce Development dkish@fiberbroadband.org







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