Program Overview

The Broadband Technologies program prepares students for occupations in four distinct areas of the telecommunications industry—telephony, cable television, computer information systems, and wireless communications. Students will become knowledgeable in all four merging technologies. They will be trained on the installation and maintenance of business and residential electronic equipment; on coaxial, twisted pair, and fiber optic cable systems; and on wireless technologies. Students will develop hands-on skills, computer skills, and also interpersonal relations skills. Specific areas of interest can be selected according to the student's career choice.

Special Features

This program is unique in the state.

WITC is an ETA-I (Electronics Technicians Association, International) approved training provider for the following certifications:

- Fiber Optics Installer
- Certified Computer Service Technician
- Certified Satellite Installer

Admission Requirements

Students in this program must:

- Complete application form and submit with fee (fee waiver may apply if previously submitted)
- Complete Accuplacer entrance assessment to determine placement (waiver may apply with acceptable alternative test scores and/or postsecondary degree completion)
- Take a color blind test
- Review and sign the Functional Ability Statement of Understanding
- Complete admissions meeting with a WITC counselor (above requirements should be completed prior to meeting)

Career Pathway Options

Career Pathways connect progressive levels of coursework to allow students to build upon their education. Each step in the pathway connects with employment options and provides the opportunity for advancement to higher levels. The Broadband Technologies program includes the following pathway options:

- 31-451-1 Broadband Technician Technical Diploma
- 30-451-2 Broadband Installer Technical Diploma (page 68)
- 30-451-1 Broadband Customer Service Specialist Technical Diploma (page 66)

Program Outcomes

Employers will expect the Broadband Technologies graduates to be able to:

- Apply basic concepts for Broadband services
- Resolve Broadband service problems
- Demonstrate safe practices and techniques
- Perform installations of cellular systems
- Diagnose problem areas using electrical principles and solid-state/digital electronics
- Interpret system maps
- Perform repairs and troubleshooting of Broadband systems
- Test Broadband network levels
- Perform layout and construction of Broadband systems
- Perform installations of Broadband systems

Employability essentials and indicators will also be addressed to develop personal awareness, career effectiveness, and professionalism. See page 5 of the college catalog for a list of employability essentials and indicators.

Career Outlook

Graduates of this program will be ready to start their career as:

- Cellsite Technician
- Broadband Technician
- Broadband Consultant
- Telephone Installer/Repairer
- Repairer of Systems/Equipment
- Cable Splicer (Fiber Optics)
- Central Office Repairer or Installer
- Private Branch Installer/Repairer
- Residential/Business Installer
- Aerial and Buried Cable Construction
- Construction Inspector
- Network Technician
- RF Engineer
- Microwave Technician

Curriculum

<table>
<thead>
<tr>
<th>Number</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>32451361</td>
<td>Broadband Technician</td>
<td>63</td>
</tr>
</tbody>
</table>

This IMPACT program is 100% funded with an H-1B TechHire Partnership $5 million grant awarded by the U.S. Department of Labor’s Employment and Training Administration. This program is an equal opportunity program and auxiliary aids and services are available upon request to individuals with disabilities by calling 711 or 800.243.9482 Voice/TTY. WITC is an Equal Opportunity/Access Employer and Educator. This workforce product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The U.S. Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.

▲ Requires a prerequisite and/or corequisite that must be completed with a grade point of 2.0 or better.

See pages 41-43 for course descriptions.

This program was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The product was funded by a grant awarded by the U.S. Department of Labor's Employment and Training Administration. The product was created by the grantee and does not necessarily reflect the official position of the U.S. Department of Labor. The U.S. Department of Labor makes no guarantees, warranties, or assurances of any kind, express or implied, with respect to such information, including any information on linked sites and including, but not limited to, accuracy of the information or its completeness, timeliness, usefulness, adequacy, continued availability, or ownership.
Course Descriptions

(See pages 41-43 for General Studies course descriptions)

10150139 IT Essentials - Credits: 2
The IT Essentials (ITE) course introduces students to the fundamentals of computer hardware and software, mobile devices, security and networking concepts, and the responsibilities of an IT professional. The latest release includes mobile devices, Linux, and client side virtualization, as well as expanded information about Microsoft Windows operating systems, security, networking, and troubleshooting. This course covers materials on the CompTIA A+ certification exam.

32150375 Broadband Network 201 - Credits: 3
Students will learn to identify and describe the various components of a computer network, identify and compare the different networking topologies, and select appropriate cabling and connections options. Identification of hardware and software components that make up a local area network and configuration of the TCP/IP protocol, including planning and implementation, will be covered. Students will gain an understanding of the concept of resource sharing and network troubleshooting tools and procedures and apply them to their work. PREREQUISITE: 10150139 IT Essentials.

32451346 Broadband Industry Concerns - Credits: 2
This course will introduce the students to the broadband industry. It will help them understand the three distinct areas and how they operate independently, as well as together, to provide services to the customer. It will help them understand the need for good customer relations regarding problem solving for the customer and for the industry. It will discuss methods of introducing and teaching customers about new equipment and technologies and how to use them.

32451362 Broadband Transmission - Credits: 3
This course contains the study of electrical and fiber optic transmission techniques in broadband industry. Course emphasis will be placed on the alignment, testing, and troubleshooting of end-to-end DLS systems and Fiber Optic systems.

32451365 Broadband Teleco Service 101 - Credits: 1
This course will introduce the student to the basics of the telephone network portion of the broadband industry. Primary areas: the design of the cables physically and electrically and how to splice them using industry color code; print reading — construction drawing, splicing diagrams; station installation — installation of customer materials

32451366 Broadband Television Service 101 - Credits: 1
This course introduces the student to the basics of the HFC (Hybrid Fiber Optical & IczT) portion of the broadband industry. Primary areas: RF & IPTV transport, Basic Installation, Print reading and Setup Box administration.

32451367 Broadband Fiber Service 101 - Credits: 1
This course will introduce the students to industry specifications and practices for understanding fiber optic communication systems. Topics covered include fiber optic design, installation, test and maintenance for multimode and singlemode networks.

32451368 Broadband Internet Services 101 - Credits: 1
This course will introduce the students to industry specifications and practices for understanding Broadband internet services.

32451369 Broadband Installation - Credits: 3
This course introduces the student to the basics of the HFC (Hybrid Fiber Optical) portion of the broadband industry. It will focus on four (4) primary areas: cable and wire - the design of the cables physically and electrically and how to splice them; print reading — construction drawings and system maps/circuit diagrams; station installation — installation of customer materials and equipment and teaching the customers how to properly use the equipment; basic trouble shooting - finding and repairing trouble in materials and equipment.

32451370 Broadband Fiber Service 201 - Credits: 3
The student will gain a general understanding of optical fiber installation, connection testing, splicing, and testing, is familiar with optical fiber; connector, splicing and performance characteristics. Students will be proficient at the installation of connectors on various types of fiber optic cables using various types of epoxy, and can perform mechanical and fusion splicing.

32451372 Broadband Operations - Credits: 4
This course provides the student with installation, testing and troubleshooting techniques of hybrid fiber optic coaxial cable systems. System measurements, performance and government standards are also covered using various Signal Level Meters. Alternative video delivery methods to customers are explored. These include projects such as setting up satellite dishes and streaming methods. Locating of buried cable is performed.

32451373 Broadband Cable Installation 201 - Credits: 3
The student will design and install network cabling. The focus will be to understand voice and data networking. The basic cable installation will be able to build and administrate the physical layer of network infrastructure and gain a deeper understanding of the networking devices that this layer interconnects.

32451376 Broadband Termination and Testing 201 - Credits: 3
This course is designed to train those with no previous knowledge in the industry for entry-level employment in the field of security system installation. The course provides comprehensive teacher-led instruction in CCTV, analog hybrid, facial recognition, IP based security system equipment.

32451377 Fiber Optics Outside Plan 301 - Credits: 2
This includes a full understanding of Passive Optical Networks (PON), of skillfully performing splices and closures, and of the use of an Optical Time Domain Reflectometer (OTDR). Understand the concepts of fiber optic troubleshooting and service applicable to all of the functions required to safely and completely analyze PON signatures, measure reflectance, test splitters, and identify faults in fiber optics communications and transmission cables.

32451378 IP PBX Installations - Credits: 4
This course focuses on installation and administration of Business Phone systems and IP PBX systems. Students will gain basic understanding of the functions and operation of Business and IP PBX systems. Manuals are used to administrate specific commands and features of systems. The student will be able to perform installation and removal of extensions and program special features system wide. Students focus on the generic installation and maintenance concerns of systems. System prints, charts, and manuals are used to familiarize students with the step-by-step procedures of installing and troubleshooting.

32451379 Broadband Safety - Credits: 1
This course is intended for students in the broadband industry. It will be used to familiarize the student with rule setting organizations such as OSHA, DILHR, and NEC. It will focus on the safe use of equipment such as hand tools, power tools, ladders, and industry machinery. Basic first aid for medical emergencies will be covered.

32650371 Broadband Electricity - Credits: 4
This course is an introduction to the basic concepts, principles, and theories of AC and DC electricity, including the analysis of circuits to learn the relationship of current, voltage, and resistance. Knowledge and use of test equipment will focus on multimeters and signal generators. Series and parallel circuits will be explored using a digital electronics trainer and computer assisted instruction (CAI).

32650374 Broadband Electronics - Credits: 4
This course covers the theory of analog and digital electronics. Power supplies, integrated circuits (ICs), and amplifiers are covered. The signal processing to convert Analog to Digital and back, which is the backbone of communications, is explored in depth. Critical-thinking skills are emphasized within this course to aid in problem solving and troubleshooting using a digital electronics trainer and computer assisted instruction (CAI).

Gainful Employment information is available at this link: http://www.witc.edu/pgmpages/telecom/gainful-employment/Gedt.html. This information is provided as a federal requirement in an effort to help students make informed decisions related to the costs and potential employment in a chosen field.

Graduate Employment Information
(WITC Graduate Survey Responses 2014-2015; for most recent data, go to witc.edu)

<table>
<thead>
<tr>
<th>Number of graduates</th>
<th>Number of responses</th>
<th>Number available for employment</th>
<th>% employed in WITC district</th>
<th>Range of yearly salary</th>
<th>Average yearly salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>9</td>
<td>6</td>
<td>6%</td>
<td>$30,000-$41,363</td>
<td>$35,344</td>
</tr>
</tbody>
</table>

800.243.9482
witc.edu

2017-2018

71