



**Telecommunications Installation and Maintenance  
 Credential: Certificate in Telecommunications  
 Installation and Maintenance  
 C50380**

The Telecommunications Installation and Maintenance curriculum prepares individuals for jobs in the telecommunications industry. It provides fundamental training for new students and provides upgrade training for current employees of telecommunications companies. Course work includes basic electricity, cable splicing, fiber optics, LAN-copper, cable fault location and repair, central office administration and other related topics. Emphasis is placed on hands-on installation and maintenance training. A graduate should be prepared to work in the telecommunications industry in outside plant operations, on central office equipment, and on business communication equipment.

Program Length: 1 semester  
 Career Pathway Options: Certificate in Telecommunications Installation and Maintenance  
 Program Sites: N. C. School of Telecommunications – Day

**Course Requirements for Telecommunications Installation and Maintenance Certificate**

Required Major Courses (18 SHC)	C-L-SHC
TCT 103 Installer Level I Cabling	1-2-2
TEL 100 Telecommunication Basic Electricity	3-0-3
TEL 105 Fiber Optics: Splicing	1-2-2
TEL 106 Fiber Optics: Connectors	1-2-2
TEL 108 Comdial Key Systems	0-2-1
TEL 201 Station Installation and Repair	1-2-2
TEL 202 Cable Splicing	1-2-2
TEL 203 Cable Fault Location	0-2-1
TEL 205 Digital Central Office Administration	1-2-2
TEL 209 ADSL Installation	0-2-1

Total Semester Hours Credit required for graduation: 18

**Semester Curriculum for Telecommunications Installation and Maintenance Certificate**

1st Semester (Fall or Spring)	C-L-SHC
TCT 103 Installer Level I Cabling	1-2-2
TEL 100 Telecommunication Basic Electricity	3-0-3
TEL 105 Fiber Optics: Splicing	1-2-2
TEL 106 Fiber Optics: Connectors	1-2-2
TEL 108 Comdial Key Systems	0-2-1
TEL 201 Station Install/Repair	1-2-2
TEL 202 Cable Splicing	1-2-2
TEL 203 Cable Fault Location	0-2-1
TEL 205 Digital Central Office Administration	1-2-2
TEL 209 ADSL Installation	0-2-1
	9-18-18

Total Semester Hours Credit: 18

**COURSE DESCRIPTIONS**

**TCT 103 Installer Level 1 Cabling** 1-2-2  
 This course covers structured premises cabling for the beginning level installer. Emphasis is placed on Installer Level 1 knowledge of standards and codes for the telecommunications industry and properly structured premises cabling techniques. Upon completion, students should be prepared to take the Building Industry Consulting Service International (BICSI) Installer Level 1 certification examination and install premises cabling systems. *This is a diploma-level course.*  
 \*TCT 103 replaces TEL 206 – CRC 03/26/09

**TEL 100 Telecom Basic Electricity** 3-0-3  
 This course covers DC and AC theory with specific emphasis on the specialized needs of telecommunications personnel. Emphasis is placed on electron theory, conductors, insulators, Ohm’s Law, capacitance, and inductance as it relates to small gauge, twisted-pair copper wire. Upon completion, students should be able to understand trouble symptoms and correct faults on the telephone physical plant network. *This is a diploma or certificate-level course.*

**TEL 105 Fiber Optics: Splicing** 1-2-2  
 This course covers splicing and maintaining aerial or buried, single mode, loose-tube buffered fiber optic cable. Emphasis is placed on hands-on cleaving, fusion splicing, and maintaining aerial or buried, single mode, loose-tube buffered fiber optic cable. Upon completion, students should be able to locate faults and splice, test, and return fibers to service. *This is a diploma or certificate-level course.*

**TEL 106 Fiber Optics: Connectors** 1-2-2  
 This course covers installing, splicing, and maintaining fiber optic cables, connectors, and patch panels in local area networks. Emphasis is placed on installing ST type connectors and level meter and OTDR testing of fiber optic local area networks. Upon completion, students should be able to install and maintain fiber optic local area networks. *This is a diploma or certificate-level course.*

**TEL 108 Comdial Key Systems** 0-2-1  
 This course covers programming and maintaining Comdial 616X and 816X Key Systems. Emphasis is placed on programming new systems and moves and changes in working systems. Upon completion, students should be able to install new systems, complete the initial programming, and perform routine moves and changes. *This is a diploma or certificate-level course.*

**TEL 201 Station I and R** 1-2-2  
 This course covers the fundamentals of trouble-free telephone installation from aerial and buried cable in homes and businesses. Emphasis is placed on drop-wire attachments, station protection, and wire runs, as well as methods for testing and checking stations for customer satisfaction. Upon completion, students should be able to correctly install, test, and repair telephone stations and wiring up to entry into the cable plant. *This is a diploma or certificate-level course.*

**TEL 202 Cable Splicing** 1-2-2  
 This course covers the cable color-code, splicing methods, and closures used throughout the telephone industry. Emphasis is placed on cable color-code, engineering drawings, proper splicing methods, and cable closures. Upon completion, students should be able to perform the basic functions of a cable splicer and meet telephone industry standards. *This is a diploma or certificate-level course.*

**TEL 203 Cable Fault Location** 0-2-1

This course covers identifying fault types and using test equipment to locate the faults in aerial and underground cable. Emphasis is placed on identifying fault types and correct uses of various types of test equipment to precisely locate the fault. Upon completion, students should be able to identify fault type, properly use test equipment, and locate the fault within inches. *This is a diploma or certificate-level course.*

**TEL 205 Digital CO Administration** 1-2-2

This course covers data modifications in DMS-10 digital central office switches from remote or on-site locations. Emphasis is placed on normal day-to-day data modification procedures to support customer-originated service orders, including any required hardware changes. Upon completion, students should be able to successfully perform any software or hardware modifications involved in normal daily operations of the DMS-10 digital switch. *This is a diploma or certificate-level course.*

**TEL 209 ADSL Installation** 0-2-1

This course provides the hands-on skills necessary for installing and troubleshooting digital subscriber lines (DSL). Topics include DSL technology, services and operation, network wiring, cable pair specifications, computer configuration for DSL operation, and Golite technology. Upon completion, students should be able to install, test, and repair DSL services.