UTAH SYSTEM OF HIGHER EDUCATION

Utah System of Higher Education
Low Voltage Technician Apprenticeship
FY2027 / 18 Credits (540 Clock-Hours)

Foundational Courses

TELV 1000 Intro to Information/Communication Technology — 2 Credits / 60 Clock-Hours

In this course, students will be introduced to the occupation, OSHA 10 safety, Class 2, 3, and 4 electrical circuits with up to 450 volts or less, and customer service skills.

Objectives:
• Name low-voltage specialty areas and general job tasks.
• Identify industry standards and building codes and their governing bodies and role.
• Explain industry documents and their purpose.
• Describe the composition and uses of the common types of residential and commercial building materials.
• Use proper drill bits, fasteners, anchors, and tools in wood, masonry, drywall, concrete, and steel.
• Obtain OSHA 10 certification.
• Demonstrate the ability to communicate effectively, think critically, and work with others in a professional and constructive manner in typical work situations.

TELV 1100 BICSI Installer 1 — 2 Credits / 60 Clock-Hours

In this course, students will be introduced to the current methods of installing information and communication technology (ICT) cabling in a commercial building structure. Skillsets include pulling cable, terminating, and testing copper and coaxial cable. In addition, students will prepare to take the credentialing exam.

Objectives:
• Name low-voltage specialty areas and general job tasks.
• Identify industry standards and building codes and their governing bodies and role.
• Explain industry documents and their purpose.
• Describe the composition and uses of the common types of residential and commercial building materials.
• Use proper drill bits, fasteners, anchors, and tools in wood, masonry, drywall, concrete, and steel.
• Obtain OSHA 10 certification.
• Demonstrate the ability to communicate effectively, think critically, and work with others in a professional and constructive manner in typical work situations.

TELV 1200 BICSI Installer 2, Copper **2 Credits / 60 Clock-Hours**

In this course, students will be introduced to performing copper cable installations according to accepted best practices from the information & communication technology (ICT) industry. Students will also prepare to take the credentialing exam. SLCC is a BICSI-authorized training facility.

Objectives:
• Conduct field planning, implementation, and design, including types of copper and fiber cable, interpreting blueprints, inventory, complying with site safety, and labeling scheme.
• Establish pathways and space for building telecommunication spaces, installing cable support systems, and preparing telecommunication outlets.
• Set up, pull, terminate, splice, and test copper cable.
• Perform copper cable troubleshooting and retrofits, including identifying active circuits, performing cutovers, and removing abandoned cables.
• Apply concepts of physical network topologies, systems, and components.
• Install wireless systems.
• Provide structure cabling systems (SCS) to support the installation of other systems (e.g., paging, nurse call, life safety, elevator).
• Adhere to local, state, and federal fire and building codes and standards.

TELV 1300 BICSI Installer 2, Optical Fiber **2 Credits / 60 Clock-Hours**

In this course, students will be introduced to performing copper cable installations according to accepted best practices from the information & communication technology (ICT) industry. Students will also prepare to take the credentialing exam. SLCC is a BICSI-authorized training facility.

Objectives:
• Conduct field planning, implementation, and design, including types of copper and fiber cable, interpreting blueprints, inventory, complying with site safety, and labeling scheme.
• Establish pathways and space for building telecommunication spaces, installing cable support systems, and preparing telecommunication outlets.
• Set up, pull, terminate, splice, and test copper cable.
• Perform copper cable troubleshooting and retrofits, including identifying active circuits, performing cutovers, and removing abandoned cables.
• Apply concepts of physical network topologies, systems, and components.
• Install wireless systems.
• Provide structure cabling systems (SCS) to support the installation of other systems (e.g., paging, nurse call, life safety, elevator).
• Adhere to local, state, and federal fire and building codes and standards.

TELV 1400 BICSI Technician **2 Credits / 60 Clock-Hours**

In this course, students will be introduced to working with complex systems, performing highly technical installations, and diagnostic testing on structured cabling systems (SCS) and network components. In addition, students will prepare to take the credentialing exam. SLCC is a BICSI-authorized training facility.

Objectives:
• Conduct field planning, implementation, and design, including performing a pre-construction site survey and developing a job plan, performing an onsite start-up site survey, and closing out a job.
• Establish pathways and space for building telecommunication spaces, installing cable support systems, and preparing telecommunication outlets.
• Set up, pull, terminate, splice, test, and troubleshoot copper and fiber cable.
• Perform retrofits, including site survey, cutover, and removing an abandoned cable.
• Install security, alarm, wireless, and Distributed Antenna System (DAS) systems.
• Adhere to local, state, and federal fire and building codes and standards.

TELV 2000 Electronic Systems/Access Control **2 Credits / 60 Clock-Hours**

In this course, students explore technologies, codes, hardware, and installation techniques for intrusion detection, fire alarm, nurse call/signaling, and video surveillance systems. In addition, an introduction to the typical access control systems used in commercial and industrial applications and general installation and testing guidelines. UT Fire Alarm certification prep.

Objectives:
• Identify and select the correct security sensors, notification devices, and control panels.
• Install, wire, program, and troubleshoot an intrusion detection system.
• Connect and troubleshoot selected fire alarm system(s).
• Install and connect nurse call systems components.
• Select the correct lens for a given video surveillance systems.
• Set up and connect a camera to a recording device and test a video surveillance.
• Select components, install, and troubleshoot an access control system.
• Pass the Utah Fire Alarm Systems Basic Fire Alarm Technician certification exam.

TELV 2100 IT/Wireless Apps & Test Equipment **2 Credits / 60 Clock-Hours**

In this course, students explore broadband and technologies used to transmit data and the methods used to distribute the signal. In addition, students are introduced to telecommunication infrastructure, switching systems, multiplexing technologies, voice, and data transmission services, the benefits of integrated systems and networks, and standard residential and commercial networks.

Objectives:
• Identify internet protocol (IP) addresses of the devices on a network.
• Troubleshoot media access problems in a network.
• Design a basic network and set up a wireless network.
• Demonstrate PC configuration of IP and serial connections.
• Use specialized test equipment to troubleshoot electronic equipment, cables, and cabling systems.
• Set up and use selected cable testers to check out cables and evaluate the performance of copper and optical fiber cable.
• Design, set up, and test the performance of a broadband distribution system.
• Install a router or gateway and a fully operational phone.

TELV 2200 Audiovisual (AV) Technology I **2 Credits / 60 Clock-Hours**

In this course, students will be introduced to basic audio and video theory and the skills needed to install, integrate, maintain, and troubleshoot both systems. In addition, an exploration of media management systems (MMS) components, system types, network infrastructure, and how MMS video and content are stored, retrieved, and played. AVIXA CTS industry certification prep.

Objectives:
• Perform tasks like mounting a speaker, connecting equipment and speakers, using testing equipment, and conducting acceptance testing.
• Connect Wi-Fi-based video presentation systems.
• Terminate a compression connector used with a video system.
• Pass the Audiovisual and Integrated Experience Association (AVIXA) Certified Technology Specialist (CTS) industry certification.

TELV 2300 LV Building Automation Systems **2 Credits / 60 Clock-Hours**

In this course, students will be introduced to automatic centralized control of HVAC, lighting, and other systems through building automation systems (BAS). The integration of different technical systems into larger networks that gather, communicate, and disseminate data are explored along with the technology/devices and the benefits/challenges of the Internet of Things (IoT).

Objectives:
• Describe the basic fundamentals of a Building Automation System (BAS).
• Describe the basic fundamentals of HVAC and lighting controls systems.
• Perform low voltage wiring and troubleshoot HVAC and lighting systems.
• Identify technologies that work together to create the Internet of Things (IoT).
• Identify the hardware and software components of IoT, the current and future IoT applications.
• Install and configure a Wi-Fi router and repeater.