UTAH SYSTEM OF HIGHER EDUCATION

Utah System of Higher Education
Electronics Assembly Technology
FY2024 / 10 Credits (300 Clock-Hours)

Foundational Courses

Aligned Courses

TEET 1010 Basic Electronics Fundamentals **1 Credit / 30 Clock-Hours**

This course will cover basic concepts, techniques, and terminology used in industry. Coverage of basic concepts of direct current (DC), to include proper usage of a digital multimeter (DMM) for voltage, current and resistance measurements with NC3 DMM certification. The student will also be introduced to common electronic components, wires, identification and their schematic symbols.

Objectives:
• Apply basic electronics fundamentals theory for direct current.
• Identify various industry components and their schematic symbols.
• Perform basic electrical measurements using a digital multimeter.
• Obtain multimeter certification.

TEET 1020 Mechanical Assembly **1 Credit / 30 Clock-Hours**

This course will cover the mechanical assembly skills required by industry. Identification of different types of hardware, metals, bolts/nuts/washers, wires, wire terminals/connectors and proper installation sequence as per IPC industry standards. Proper use and identification of common hand-tools, torque wrenches, drills, screw drivers, wire cutters/strippers, wrenches and crimping tools.

Objectives:
• Perform mechanical assembly of common hardware and meet torque requirements.
• Follow various procedures to complete an assembly.
• Identify and use common hand and power tools.
• Perform wire crimping with various hardware.
• Identify different types of metal and hardware.

TEET 1030 IPC-A-610 Certification: Acceptability of Electronic Assemblies **1 Credit / 30 Clock-Hours**

The IPC-A-610 Certification: Acceptability of Electronic Assemblies course prepares students to obtain their certification. The Acceptability of Electronic Assemblies certification is the industry standard program for quality assurance/visual acceptance of electronic assemblies based on the world's most widely used electronics assembly acceptability standard. Students become Certified IPC Specialist (CIS) with the IPC-A-610 certification: Acceptability of Electronic Assemblies.

Objectives:
• Discuss the purpose, contents, specifications, and terms contained within the IPC-A-610 specification.
• Recognize proper handling, ESD requirements and cleanliness.
• Recognize acceptability requirements for discrete wiring assembly.
• Identify acceptable mechanical assembly requirements.
• Identify the requirements for soldering assemblies and recognize the acceptability requirements for high voltage.
• Recognize all criteria related to terminal connections.
• Recognize the requirements for component installation including orientation, mounting, lead forming, damage, wire/lead termination.
• Recognize the requirements for surface mount assemblies.

TEET 1050 Through-Hole Technology — 3 Credits / 90 Clock-Hours

This course will cover terminology and soldering techniques to perform industry soldering for wires, terminals, and components onto printed circuit boards to IPC industry standards. Component identification, wire types, proper installation, soldering, inspection and rework/repair. The course includes chemical safety, workstation operation, proper hand-tools usage and assembly procedures.

Objectives:
• Apply knowledge of correct component identification and installation.
• Follow established ESD guidelines.
• Follow established assembly procedures and work orders.
• Perform assembly procedures using soldering hand-tools at temperature specifications.
• Inspect assemblies to IPC standards for stated class(es) of build.
• List and identify through-hole terminology.
• Maintain a safe and clean working environment by maintaining assigned work area and by complying with procedures, rules, and regulations.
• Perform various types of through-hole soldering to industry standards.

TEET 1055 Surface Mount Technology — 3 Credits / 90 Clock-Hours

This course will cover all aspects of surface mount technologies, to include component identification, soldering techniques, and inspection. The student will learn alignment, soldering with wire and paste, and rework techniques. Use of inspection tools, compliance to material safety data sheets, assembly cleaning procedures, and building to the stated IPC class required.

Objectives:
• Apply knowledge of correct component identification and installation.
• Follow established ESD guidelines.
• Follow established procedures and work orders.
• Use all available equipment and hand tools to perform assembly procedures.

• Maintain a safe and clean working environment by maintaining assigned work area and by complying with procedures, rules, and regulations.
• Perform various types of surface mount soldering to industry standards.

Supplemental Courses Varies by Institution

Salt Lake Community College

TEET 1130 IPC-J-STD-001 Certification: Requirements for Electronic Assemblies — **1 Credit / 30 Clock-Hours**

The IPC-J-STD-001 Certification course is an industry standard program for hand and machine soldering process and material requirements. Students become Certified IPC Specialist (CIS) with the IPC J-STD-001 certification. The course includes hands-on training and concludes with a qualifying examination. With this portable credential, students receive immediate recognition and value throughout the electronics industry.

Objectives:
- Recognize general safety requirements, necessary tools, and effects of electrostatic discharge (ESD).
- Make acceptable wire and terminal assemblies.
- Make acceptable through hole solder connections.
- Make acceptable surface mount solder connections.
- Identify general soldered connection acceptance requirements.
- Identify machine and reflow soldering process requirements.
- Recognize IPC Test methods and related standards.
- Pass the IPC J-STD-001 written and hands-on exams.

TEET 1140 IPC-WHMA-A-620 Certification: Cable and Wire Harness Assemblies — **1 Credit / 30 Clock-Hours**

The IPC-WHMA-A-620 Certification course is an industry standard program for cable and wire harness fabrication and installation. This training familiarizes students with the general requirements of the IPC/WHMA-A-620 Requirements and Acceptance for Cable and Harness Assemblies and concludes with a qualifying examination. Upon successful completion of this training program, participants will be certified as Application Specialists. With this portable credential, students receive immediate recognition and value throughout the electronics industry.

Objectives:
- Perform cable/wire preparation, measuring, and testing of Cable Assemblies.
- Make crimp terminations and insulation displacement connections.
- Make proper soldered terminations and learn about high voltage applications.
- Explain connectorization and Over-Molding/Potting.
- Make professional splices, Coaxial/Biaxial Cable Assemblies, and learn about Ultrasonic Welding.
- Discuss the importance of marking/labeling, wire bundle securing, shielding, and protective coverings.
- Complete common cable assemblies with correct terminations.