NIDA CORPORATION
COMPUTER ASSISTED INSTRUCTION

LESSON AND OBJECTIVE LISTING

Master Course Listing
Cables and Connectors

2018-08-30

Representative

Technology Education Concepts
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TABLE OF CONTENTS

OBJECTIVE LISTING - Master Course Listing

LESSON ID/TITLE — CARDS/KITS

MOD 35 - CIRCUIT CONSTRUCTION

5021-912-130 Circuit Construction 130X
- ▪ Describe soldering and breadboarding methods of circuit construction.
- ▪ Describe the Nida Series PC130X.
- ▪ Describe how to construct a simple series circuit using PC130X.
- ▫ Insert and remove a component from the PC130X breadboard card.

5021-912-160 DC Circuit Construction 130X
- ▫ Construct a series circuit.
- ▫ Verify series circuit operation.
- ▫ Construct a parallel circuit.
- ▫ Verify parallel circuit operation.
- ▫ Construct a series-parallel circuit.
- ▫ Verify series-parallel circuit operation.
- ▫ Construct a circuit using various components.
- ▫ Verify circuit operation.

5021-912-190 AC Circuit Construction 130X
- ▫ Construct an AC circuit.
- ▫ Verify AC circuit operation.

5021-912-220 Analog Circuit Construction 130X
- ▫ Construct an analog circuit.
- ▫ Verify analog circuit operation.

5021-912-250 Digital Circuit Construction 130X
- ▫ Construct a digital circuit.
- ▫ Verify digital circuit operation.

MOD 36 - SOLDERING (LEAD)

5021-914-130 Soldering Safety and Electrostatic Sensitive Devices . . . . . ---
- ▪ Understand the safety requirements of soldering chemicals and supplies.
- ▪ Describe the procedure for use of an eyewash station.
- ▪ Define an electrostatic sensitive device.
- ▪ Describe the sources of electrostatic discharge and list its hazards to electronic components.
- ▪ Identify the static-producing materials in the work area.
- ▪ Explain the principles of static control and methods employed in developing static control facilities.
- ▪ Describe the special handling, identification, packaging, and protection requirements for electrostatic sensitive devices.

5021-914-160 Solder and Soldering Equipment . . . . . ---
- ▪ Identify different types of solder.
- ▪ Identify proper solder flux.
- ▪ Understand how to handle a soldering iron properly.
- ▪ Understand how and why a soldering iron tip is tinned.
- ▪ Understand correct use of safety equipment.
- ▪ Identify hand tools used to aid soldering.
- ▪ Describe proper use of heat sinks and wire forming tools.
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to tin a soldering iron tip properly.

LESSON ID/TITLE — CARDS/KITS

MOD 36 - SOLDERING (LEAD) (cont.)

5021-914-170 Solder and Soldering Equipment Practical Exam . . . . . ---
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to tin a soldering iron tip properly.

5021-914-190 Wire Stripping, Tinning, and Splicing . . . . . ---
- ▪ Identify different types of wire strippers and trimmers.
- ▪ Identify the proper tools used to strip various wires.
- ▪ Understand how to strip wires using wire strippers.
- ▪ Identify methods of wire tinning.
- ▪ Understand how and when to tin a wire.
- ▪ Identify methods of wire splicing.
- ▪ Understand how and when to splice a wire.
- ▫ Strip wires using the available wire strippers.
- ▫ Demonstrate wire tinning.
- ▫ Demonstrate wire splicing.

5021-914-200 Wire Stripping, Tinning, and Splicing Practical Exam . . . . . ---
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly the strip and tin the end of a wire.
- ▫ Demonstrate how to properly make a wire splice.

5021-914-220 Terminal Types and Connections . . . . . ---
- ▪ Understand the IPC/EIA J-STD-001C standards used for turret, bifurcated, and hook terminals.
- ▪ Identify turret, bifurcated, and hook terminals.
- ▪ Describe the application of turret, bifurcated, and hook terminals.
- ▪ Understand the IPC/EIA J-STD-001C standards used for pierced and cup turrets.
- ▪ Identify pierced and cup turrets.
- ▪ Describe the application of pierced and cup turrets terminals.
- ▫ Solder connections to a turret terminal.
- ▫ Solder connections to a bifurcated terminal.
- ▫ Solder connections to a hook terminal.
- ▫ Solder connections to a pierced terminal.
- ▫ Solder a connection to a cup terminal.

5021-914-230 Terminal Types and Connections Practical Exam . . . . . ---
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly solder a wire to a turret terminal.
- ▫ Demonstrate how to properly solder a wire to a bifurcated terminal.
- ▫ Demonstrate how to properly solder a wire to a hook terminal.
- ▫ Demonstrate how to properly solder a wire to a pierced terminal.
- ▫ Demonstrate how to properly solder a wire to a cup terminal.

5021-914-250 Printed Circuit Board Types and Manufacturing Methods 1410K1
- ▪ Identify the general characteristics of PC boards.
- ▪ Identify several connection methods used on PC boards.
- ▪ Identify the options and procedures available for repairing broken circuit board copper lands.
- ▫ Prepare a circuit board for repair using a surface mount jumper.
- ▫ Repair a circuit board using a surface mount jumper.

5021-914-260 Printed Circuit Board Types and Manufacturing Methods Practical Exam 1410K1
- ▫ Use safety equipment properly.

LESSON ID/TITLE CARDS/KITS

MOD 36 - SOLDERING (LEAD) (cont.)

5021-914-260 Printed Circuit Board Types and Manufacturing Methods Practical Exam (cont.)
- ▫ Demonstrate how to properly prepare a PC board for installation of a surface mount jumper wire.
- ▫ Demonstrate how to properly solder a surface mount jumper wire.

5021-914-280 Through-Hole Non-Polarized Component Soldering and Desoldering 1410K1
- ▪ Understand the soldering process.
- ▪ Identify good, cold, flux, and disturbed solder connections.
- ▪ Identify common non-polarized components.
- ▪ Identify tools used to form leads.
- ▪ Understand lead forming methods.
- ▪ Identify the methods used to mount components on a PCB.
- ▪ Understand desoldering methods.
- ▪ Understand how to correct poor solder connections.
- ▫ Form component leads.
- ▫ Mount and solder components to a PCB.
- ▫ Desolder components from a PCB.

5021-914-290 Through-Hole Non-Polarized Component Soldering Practical Exam 1410K1
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly form the leads of a thru-hole component.
- ▫ Demonstrate how to properly solder non-polarized thru-hole components.
- ▫ Demonstrate how to properly desolder non-polarized thru-hole components.

5021-914-310 Through-Hole Polarized Component Soldering 1410K1
- ▪ Identify common polarized components.
- ▪ Identify orientation of components.
- ▪ Explain heat fragility of some components.
- ▫ Form leads of polarized components.
- ▫ Mount polarized components on a PCB.
- ▫ Solder heat-sensitive components on a PCB.
- ▫ Solder polarized components on a PCB.

5021-914-320 Through-Hole Polarized Component Soldering Practical Exam 1410K1
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly solder polarized thru-hole components.
- ▫ Demonstrate how to properly desolder polarized thru-hole components.

5021-914-340 Soldering Surface Mount Devices 1410K1
- ▪ Explain differences between through-hole and SMD technologies.
- ▪ Identify common SMD components.
- ▪ Understand SMD soldering and desoldering techniques.
- ▫ Prepare surface mount pads for soldering of a component.
- ▫ Solder a surface mount resistor to a PCB.
- ▫ Solder a surface mount IC to a PCB.

5021-914-350 Soldering Surface Mount Devices Practical Exam 1410K1
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly tin a PC board in preparation for installation of surface mount components.
- ▫ Demonstrate how to properly solder surface mount components.
- ▫ Demonstrate how to properly desolder surface mount components.

LESSON ID/TITLE CARDS/KITS

MOD 36 - SOLDERING (LEAD) (cont.)

5021-914-370 Coax Cable Connectors . . . . . ---
- ▪ Review BNC connector history, advantages, and limitations.
- ▪ Review RG-58 cable history, advantages, and limitations.
- ▪ Understand the assembly of the UG-88C/U BNC connector.
- ▪ Understand how a UG-88C/U BNC connector is attached to a coaxial cable.
- ▫ Install a UG-88C/U BNC connector on the RG-58 A/U cable.

5021-914-380 Coax Cable Connectors Practical Exam . . . . . ---
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly a BNC connector on a cable.

5021-914-920 Soldering Post-Test (Theory) . . . . . ---

MOD 37 - LEAD-FREE SOLDERING

5021-916-130 Soldering Safety and Electrostatic Sensitive Devices . . . . . ---
- ▪ Understand the safety requirements of soldering chemicals and supplies.
- ▪ Describe the procedure for use of an eyewash station.
- ▪ Define an electrostatic sensitive device.
- ▪ Describe the sources of electrostatic discharge and list its hazards to electronic components.
- ▪ Identify the static-producing materials in the work area.
- ▪ Explain the principles of static control and methods employed in developing static control facilities.
- ▪ Describe the special handling, identification, packaging, and protection requirements for electrostatic sensitive devices.

5021-916-160 Solder and Soldering Equipment . . . . . ---
- ▪ Identify different types of solder.
- ▪ Identify proper solder flux.
- ▪ Understand how to handle a soldering iron properly.
- ▪ Understand how and why a soldering iron tip is tinned.
- ▪ Understand correct use of safety equipment.
- ▪ Identify hand tools used to aid soldering.
- ▪ Describe proper use of heat sinks and wire forming tools.
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to tin a soldering iron tip properly.

5021-916-170 Solder and Soldering Equipment Practical Exam . . . . . ---
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to tin a soldering iron tip properly.

5021-916-190 Wire Stripping, Tinning, and Splicing . . . . . ---
- ▪ Identify different types of wire strippers and trimmers.
- ▪ Identify the proper tools used to strip various wires.
- ▪ Understand how to strip wires using wire strippers.
- ▪ Identify methods of wire tinning.
- ▪ Understand how and when to tin a wire.
- ▪ Identify methods of wire splicing.
- ▪ Understand how and when to splice a wire.
- ▫ Strip wires using the available wire strippers.
- ▫ Demonstrate wire tinning.
- ▫ Demonstrate wire splicing.

LESSON ID/TITLE CARDS/KITS

MOD 37 - LEAD-FREE SOLDERING (cont.)

5021-916-200 Wire Stripping, Tinning, and Splicing Practical Exam . . . . . ---
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly the strip and tin the end of a wire.
- ▫ Demonstrate how to properly make a wire splice.

5021-916-220 Terminal Types and Connections . . . . . ---
- ▪ Understand the IPC/EIA J-STD-001C standards used for turret, bifurcated, and hook terminals.
- ▪ Identify turret, bifurcated, and hook terminals.
- ▪ Describe the application of turret, bifurcated, and hook terminals.
- ▪ Understand the IPC/EIA J-STD-001C standards used for pierced and cup turrets.
- ▪ Identify pierced and cup turrets.
- ▪ Describe the application of pierced and cup turrets terminals.
- ▫ Solder connections to a turret terminal.
- ▫ Solder connections to a bifurcated terminal.
- ▫ Solder connections to a hook terminal.
- ▫ Solder connections to a pierced terminal.
- ▫ Solder a connection to a cup terminal.

5021-916-230 Terminal Types and Connections Practical Exam . . . . . ---
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly solder a wire to a turret terminal.
- ▫ Demonstrate how to properly solder a wire to a bifurcated terminal.
- ▫ Demonstrate how to properly solder a wire to a hook terminal.
- ▫ Demonstrate how to properly solder a wire to a pierced terminal.
- ▫ Demonstrate how to properly solder a wire to a cup terminal.

5021-916-250 Printed Circuit Board Types and Manufacturing Methods 1410K1
- ▪ Identify the general characteristics of PC boards.
- ▪ Identify several connection methods used on PC boards.
- ▪ Identify the options and procedures available for repairing broken circuit board copper lands.
- ▫ Prepare a circuit board for repair using a surface mount jumper.
- ▫ Repair a circuit board using a surface mount jumper.

5021-916-260 Printed Circuit Board Types and Manufacturing Methods Practical Exam 1410K1
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly prepare a PC board for installation of a surface mount jumper wire.
- ▫ Demonstrate how to properly solder a surface mount jumper wire.

5021-916-280 Through-Hole Non-Polarized Component Soldering and Desoldering 1410K1
- ▪ Understand the soldering process.
- ▪ Identify good, cold, flux, and disturbed solder connections.
- ▪ Identify common non-polarized components.
- ▪ Identify tools used to form leads.
- ▪ Understand lead forming methods.
- ▪ Identify the methods used to mount components on a PCB.
- ▪ Understand desoldering methods.
- ▪ Understand how to correct poor solder connections.
- ▫ Form component leads.
- ▫ Mount and solder components to a PCB.
- ▫ Desolder components from a PCB.

LESSON ID/TITLE CARDS/KITS

MOD 37 - LEAD-FREE SOLDERING (cont.)

5021-916-290 Through-Hole Non-Polarized Component Soldering Practical Exam 1410K1
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly form the leads of a thru-hole component.
- ▫ Demonstrate how to properly solder non-polarized thru-hole components.
- ▫ Demonstrate how to properly desolder non-polarized thru-hole components.

5021-916-310 Through-Hole Polarized Component Soldering 1410K1
- ▪ Identify common polarized components.
- ▪ Identify orientation of components.
- ▪ Explain heat fragility of some components.
- ▫ Form leads of polarized components.
- ▫ Mount polarized components on a PCB.
- ▫ Solder heat-sensitive components on a PCB.
- ▫ Solder polarized components on a PCB.

5021-916-320 Through-Hole Polarized Component Soldering Practical Exam 1410K1
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly solder polarized thru-hole components.
- ▫ Demonstrate how to properly desolder polarized thru-hole components.

5021-916-340 Soldering Surface Mount Devices 1410K1
- ▪ Explain differences between through-hole and SMD technologies.
- ▪ Identify common SMD components.
- ▪ Understand SMD soldering and desoldering techniques.
- ▫ Prepare surface mount pads for soldering of a component.
- ▫ Solder a surface mount resistor to a PCB.
- ▫ Solder a surface mount IC to a PCB.

5021-916-350 Soldering Surface Mount Devices Practical Exam 1410K1
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly tin a PC board in preparation for installation of surface mount components.
- ▫ Demonstrate how to properly solder surface mount components.
- ▫ Demonstrate how to properly desolder surface mount components.

5021-916-370 Coax Cable Connectors . . . . . ---
- ▪ Review BNC connector history, advantages, and limitations.
- ▪ Review RG-58 cable history, advantages, and limitations.
- ▪ Understand the assembly of the UG-88C/U BNC connector.
- ▪ Understand how a UG-88C/U BNC connector is attached to a coaxial cable.
- ▫ Install a UG-88C/U BNC connector on the RG-58 A/U cable.

5021-916-380 Coax Cable Connectors Practical Exam . . . . . ---
- ▫ Use safety equipment properly.
- ▫ Demonstrate how to properly a BNC connector on a cable.

5021-916-920 Lead-Free Soldering Post-Test (Theory) . . . . . ---

MOD 38 - CABLES AND CONNECTORS

5021-216-130 Cables, Connectors, and Tools . . . . . ---
- ▪ Define wire.
- ▪ Define cable.
- ▪ Define harness.

LESSON ID/TITLE CARDS/KITS

MOD 38 - CABLES AND CONNECTORS (cont.)

5021-216-130 Cables, Connectors, and Tools (cont.)
- ▪ Identify solid and stranded wires.
- ▪ Understand the purpose of a connector.
- ▪ Determine the difference between a plug and jack.
- ▪ Understand connector terminology.
- ▪ Understand the purpose of cutters.
- ▪ Understand the purpose of crimpers.
- ▪ Understand the purpose of a multimeter.
- ▪ Understand the purpose of a cable tester.

5021-216-160 Single Wire Assemblies w7
- ▪ Identify the steps used to prepare, build, and test single wire assemblies.
- ▫ Assemble a FASTON type connector.
- ▫ Assemble a butt splice.
- ▫ Assemble a 0.156 KK Series connector.
- ▫ Build and test single wire assemblies without guidance.

5021-216-190 Flat Satin Cable and RJ Connectors w6
- ▪ Describe flat satin cable.
- ▪ Understand flat satin cable applications.
- ▪ Describe the RJ11 connector.
- ▪ Describe the RJ45 connector.
- ▪ Understand RJ11 and RJ45 applications.
- ▫ Assemble an RJ14 cable.
- ▫ Assemble an RJ45 cable.
- ▫ Build and test flat satin cable assemblies without guidance.

5021-216-220 Cabling Standards and Categories of Performance . . . . . ---
- ▪ Understand the origin of cabling standards.
- ▪ Know the agencies responsible for establishing standards.
- ▪ Define Universal Service Ordering Codes.
- ▪ Understand the types of serial data connections.
- ▪ Describe characteristics of a multi-conductor cable.
- ▪ Describe characteristics of a flat satin cable.
- ▪ Describe characteristics of a twisted pair cable.
- ▪ Describe characteristics of a coaxial cable.
- ▪ Identify UTP, SCTP, and STP cable.
- ▪ Understand Cat 1 through Cat 7 cable properties.

5021-216-250 Twisted Pair Cable w6
- ▪ Identify and describe how a modular RJ45 plug is used.
- ▪ Identify and describe how a keystone jack is used.
- ▪ Identify the difference between an ATT 110 punchdown type jack and a CAT 5 TIA/EIA-568-A/B keystone type jack.
- ▪ Identify and describe how CAT 5 UTP cable is used.
- ▪ Understand T568A, T568B, and 10BASE-T wiring standards.
- ▪ Understand straight-through and cross-over wiring methods.
- ▫ Understand how to prepare CAT 5 UTP cable for assembly with an RJ45 modular plug and CAT 5 TIA/EIA-568-A/B keystone type jack.
- ▫ Identify the tools used to attach a modular RJ45 plug and CAT 5 TIA/EIA-568-A/B keystone type jack to CAT 5 UTP.

LESSON ID/TITLE CARDS/KITS

MOD 38 - CABLES AND CONNECTORS (cont.)

5021-216-250 Twisted Pair Cable (cont.)

- ▫ Understand how to attach a CAT 5 TIA/EIA-568-A/B keystone type jack to a UTP cable following T568A standards.
- ▫ Prepare, build, and test a CAT 5 UTP cable with RJ45 plugs following T568A standards and the straight-through wiring method without guidance.
- ▫ Prepare, build, and test CAT 5 UTP cable with a CAT 5 TIA/EIA-568-A/B keystone type jack following T568A standards and the straight-through wiring method.

5021-216-280 Multi-Wire Cable W7

- ▪ Describe a multi-wire cable.
- ▪ Identify a D-Sub connector.
- ▪ Understand how a D-Sub connector is used.
- ▪ Understand the purpose of DCE and DTE devices.
- ▪ Identify DCE and DTE cable configurations.
- ▫ Identify and examine the parts and types of D-Sub connectors.
- ▫ Examine the RS-232 wiring standard.
- ▫ Prepare, build, and test a multi-wire cable assembly using a D-Sub connector and RS-232 standards.
- ▫ Prepare, build, and test multi-wire cable assemblies without guidance.

5021-216-310 Coaxial Cable W6

- ▪ Describe the parts of a coaxial cable.
- ▪ Recognize types of coaxial cable.
- ▪ Identify coaxial cable applications.
- ▪ Recognize an F-type coaxial connector.
- ▪ Recognize a BNC coaxial connector.
- ▫ Understand how to prepare a coaxial cable for assembly with an F-type connector and a BNC connector.
- ▫ Identify the tools used to construct a coaxial cable assembly.
- ▫ Understand how to test a coaxial cable assembly with a multimeter.
- ▫ Prepare, build, and test a coaxial cable assembly with F-type connectors.
- ▫ Prepare, build, and test a coaxial cable assembly with BNC type connectors.

5021-216-920 Cables and Connectors Post-Test (Theory) . . . . . ---

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