

# SLO Presentation

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AED

Date: 09/11/2019

<b>ADULT EDUCATION</b>
<b>AED</b>
<b>AED 80.01 INTRODUCTION TO ENERGY SURVEYING 1</b> <ul style="list-style-type: none"><li>• A. Identify the evaluation procedure, steps and protocols required for accurate energy data collection</li><li>• B. Demonstrate the correct and safe use of various diagnostic tools and equipment</li><li>• C. Describe the proper procedures when using tools and equipment</li><li>• D. Demonstrate knowledge of OSHA safety standards</li></ul>
<b>AED 80.02 BASIC ELECTRICITY AND WIRING FUNDAMENTALS 1</b> <ul style="list-style-type: none"><li>• A. Explain basic electrical theory</li><li>• B. Identify electrical practices and codes</li><li>• C. Demonstrate correct wiring and installation techniques</li><li>• D. Demonstrate safe use of various meters, diagnostic tools, and equipment</li><li>• E. Follow proper procedures and observe OSHA safety protocols</li><li>• F. Perform wiring skills based on industry set standards</li></ul>
<b>AED 80.03 INTRODUCTION TO LIGHTING RETROFITS 1</b> <ul style="list-style-type: none"><li>• 1. Accurately answer questions on retrofit procedure, steps, analysis, components, and safety protocols required in the lighting retrofit trade. Standard grading will be used</li><li>• 2. Accurately demonstrate correct and safe use of various lighting diagnostic tools/equipment</li><li>• 3. Identify the electrical tools required during lighting retrofit activities in the lab and during real-time practice retrofits</li></ul>
<b>Automotive Tools and Equipment</b> <ul style="list-style-type: none"><li>• Demonstrate proper use of personal automotive equipment.</li><li>• Demonstrate proper use of machine tools.</li><li>• Analyze interest in Automotive CTE programs.</li><li>• Employ safety measures when using automotive tools.</li><li>• Employ proper use of common automotive power tools.</li></ul>
<b>ESL--Cert</b> <ul style="list-style-type: none"><li>• Students listen to and comprehend various texts with complex sentences.</li><li>• Students read and comprehend various texts and make inferences.</li><li>• Students speak fluently on various topics.</li><li>• Students use appropriate verb forms.</li><li>• Students write a three paragraph essay with an introduction, supporting details and a conclusion.</li></ul>
<b>GED I--Cert</b> <ul style="list-style-type: none"><li>• Students analyze excerpts from short stories, news articles, memorandums, and biographies.</li><li>• Students compute measurement and data analysis.</li><li>• Students construct persuasive, narrative and a thesis essay.</li><li>• Students demonstrate number sense and operations.</li><li>• Students interpret United States history and functions of government.</li></ul>
<b>GED II--Cert</b> <ul style="list-style-type: none"><li>• Students analyze excerpts of plays and verses of poetry.</li></ul>

- Students apply correct usage and mechanics when writing persuasive, narrative, and a thesis essay.
- Students explain the process structure of life and earth science.
- Students solve geometric application through the use of formulas.
- Students solve linear algebraic expressions.

### **Workforce Preparedness**

- Create or revise a personal statement to use on applications
- Explain how to utilize employee handbook to be successful in the workplace
- Apply technology skills to research possible careers
- Understand the characteristics of a successful technology-based employee
- Utilize effective oral and written communication for the workplace

### **CSLO**

#### **AED22.06 - Career Skills**

- A. Use at least two venues and technologies to apply for work
- B. Successfully complete two online/hard copy applications
- C. Demonstrate how to communicate using technology
- D. Apply technology skills to set goals

#### **AED36.06 - Occupational Training**

- A. Use at least two venues and technologies to apply for work
- B. Successfully complete two online applications
- C. Write a cover letter and resume utilizing Bloom Taxonomy action verbs
- D. Demonstrate how to communicate using technology

#### **AED42.1 - Spanish Ged Test Prep-A**

- Students construct a persuasive, narrative and thesis essay.
- Students analyze excerpts from short stories, news articles, memorandums and biographies.
- Students interpret U.S. history and functions of government.
- Students demonstrate number sense and operations.
- Students compute measurement and data analysis.

#### **AED42.11 - Spanish GED Test Preparation - B**

- Students apply correct usage and mechanics when writing persuasive, narrative and thesis essays.
- Students analyze excerpts of plays and verses of poetry.
- Students explain the process structure of life and earth science.
- Students solve linear algebraic expressions.
- Students solve geometric applications through the use of formulas.

#### **AED42.12 - GED Preparation - A**

- Students construct a persuasive, narrative and thesis essay.
- Students analyze excerpts from short stories, news articles, memorandums and biographies.
- Students interpret U.S. history and functions of government.
- Students demonstrate number sense and operations.
- Students compute measurement and data analysis.

#### **AED42.13 - GED Preparation - B**

- Students apply correct usage and mechanics when writing persuasive, narrative and thesis essays.
- Students analyze excerpts of plays and verses of poetry.

- Students explain the process structure of life and earth science.
- Students solve linear algebraic expressions.
- Students solve geometric applications through the use of formulas.

#### **AED42.14 - Low Beginning English as a Second Language**

- Students use appropriate verb forms.
- Students listen to and follow simple instructions.
- Students name and describe familiar objects.
- Students read and comprehend rudimentary sentences.
- Students write sentences about themselves using sentence frames.

#### **AED42.15 - High Beginning English As A Second Language**

- Students use appropriate verb forms.
- Students write complete sentences on the same topic in response to questions.
- Students read and comprehend short paragraphs.
- Students listen to and comprehend simple sentences.
- Students talk about themselves and their family.

#### **AED42.16 - Low Intermediate English as a Second Language**

- Students use appropriate verb forms.
- Students write a paragraph of at least seven sentences with a topic sentence and conclusion.
- Students read and comprehend short essays and articles.
- Students listen to and comprehend a text with simple sentences.
- Students talk about familiar topics.

#### **AED42.17 - High Intermediate English as a Second Language**

- Students read and comprehend various texts and make inferences.
- Students speak fluently on various topics.
- Students listen to and comprehend various texts with complex sentences.
- Students use appropriate verb forms.
- Students write a three paragraph essay with an introduction, supporting details and a conclusion.

#### **AED42.18 - Low Advanced English as a Second Language**

- Listen to and comprehend various texts on different topics
- Read, comprehend and summarize various texts (orally and in writing)
- Think critically, engage in conversations on varied topics and express different points of view
- Use appropriate vocabulary and verb forms in reading, writing and speaking
- Write well-developed paragraphs for a variety of purposes and for different audiences

#### **AED42.20 - Literacy Skills for General Education Development (GED) Success**

- A. Achieve 1-to-5-point increase in the post CASAS evaluation scores
- B. Apply the elimination process when taking a multiple-choice exam
- C. Write a 300-500 word extended response on an assigned topic with a clear thesis, logical support, specific details, and examples
- D. Analyze, evaluate, and determine proper use of standard American English grammar, sentence structure, punctuation, and vocabulary in peer extended responses

#### **AED42.21 - Spanish Literacy Skills for General Education Development (GED) Success**

- Achieve 1-to-5-point increase in the post CASAS evaluation scores
- Apply the elimination process when taking a multiple-choice exam

- Write a 300-500 word extended response on an assigned topic with a clear thesis, logical support, specific details, and examples
- Analyze, evaluate, and determine proper use of standard American English grammar, sentence structure, punctuation, and vocabulary in peer extended responses

#### **AED42.22 - Supplemental General Education Development (GED) Math**

- Achieve 1-to-5-point increase in the post CASAS evaluation scores
- Use the calculator to calculate percent
- Use charts and graphs to identify the mode
- Apply algebraic equations to solve word problems

#### **AED42.23 - Spanish Supplemental General Education Development (GED) Math**

- A. Achieve 1-to-5-point increase in the post CASAS evaluation scores
- B. Use the calculator to calculate percent
- C. Use charts and graphs to identify the mode
- D. Apply algebraic equations to solve word problems

#### **AED42.25 - Supervised Occupational Skill Development**

- A. Develop skill sets in alignment to specified CTE standards
- B. Practice and perform CTE competencies as designated by supervising instructor
- C. Complete a summary evaluation of skills attained or knowledge acquired

#### **AED42.98 - College Placement Strategies A**

- A. Recognize parts of speech and their varied forms
- B. Identify verb tenses and their functions
- C. Recognize properties of sentences and relationships between them
- D. Identify the structure, meaning and purpose of written compositions
- Construct grammatically correct sentences that convey desired meaning

#### **AED42.99 - College Placement Testing Strategies B**

- A. Perform basic operations (add, subtract, multiply, divide) with integers, fractions, decimals, polynomials, and radicals
- B. Evaluate exponents, roots, and absolute value
- C. Calculate the perimeter and areas of basic geometric shapes
- D. Plot inequalities on a number line
- Solve expressions with one variable

#### **AED49.01 - Preparatory Math**

- Demonstrate the correct use of mathematical symbols, notations, and syntax.
- Employ number sense and appropriate cognitive techniques with regard to:  
Addition/multiplication tables  
Perfect squares  
Estimation  
Quantitative literacy
- Interpret real world situations using concepts of geometry, ratios, rates, proportions, and measurement tools
- Perform calculations with whole numbers, fractions, decimals, and percent (Without the use of a calculator) and understand the relationship between them.

#### **AED90.01 - Introduction to Energy Surveying**

- Identify the evaluation procedure, steps and protocols required for accurate energy data collection
- Demonstrate the correct and safe use of various diagnostic tools and equipment
- Describe the proper procedures when using tools and equipment
- Demonstrate knowledge of OSHA safety standards

#### **AED90.02 - Basic Electricity and Wiring Fundamentals**

- Following proper procedures and observing OSHA safety protocols. Hands on wiring skills will be evaluated based on industry set standards.
- Students will take weekly quizzes, and final exam to demonstrate knowledge.
- Participants will accurately demonstrate correct wiring and installation techniques and safe use of various meters, diagnostic tools and equipment.
- Students will accurately answer questions on basic electrical theory and electrical practices and codes.

#### **AED90.03 - Introduction to Lighting Retrofits**

- Accurately answer questions on retrofit procedure, steps, analysis, components, and safety protocols required in the lighting retrofit trade.
- Accurately demonstrate correct and safe use of various lighting diagnostic tools/equipment
- Identify the electrical tools required during lighting retrofit activities in the lab and during real-time practice retrofits

#### **AED90.04 - Introduction to Automotive Tools and Equipment**

- A. Demonstrate the use of appropriate personal protective equipment
- B. Demonstrate the ability to properly repair damaged threads
- C. Identify the common automotive hand tools
- D. Demonstrate the proper use of machine tools
- E. Differentiate between metric and standard fasteners
- F. Demonstrate the proper use of handheld cutting and resurfacing tools
- G. Produce a common automotive hand tool

#### **AED90.05 - OSHA-10 Training**

- 1. Accurately answer questions on personal protective equipment, material handling, storage, and disposal.
- 2. Accurately demonstrate correct and safe use of various lighting diagnostic tools/equipment
- 3. Identify unsafe conditions and take corrective actions
- 4.. Prepare incidents reports using OSHA standard formats
- 5. Utilized effective, safety-enhancing workplace practices

#### **AED90.06 - Math Support: Statistics**

- A. Identify and compute interpret basic statistics
- B. Solve application problems using sampling and distribution
- C. Interpret confidence interval
- D. Determine the validity of a statement using hypothesis testing
- E. Evaluate and apply basic statistics to everyday situations

#### **AED90.07 - Math Support: College Algebra**

- A. Comprehend the properties of linear and nonlinear relations
- B. Identify and solve linear quadratic and higher order equations using technology or appropriate methods
- C. Explore and analyze linear and nonlinear relations and functions, using technology
- D. Construct graphs of higher degree polynomial functions
- E. Construct and graph higher order rational functions
- F. Evaluate, solve and apply linear and nonlinear relations

#### **FSAP72.01 - Introduction to Sprinklers**

- A. List fire sprinkler systems, codes and standards, sprinkler fitter careers, responsibilities of the employee, human relations, and employer and employee obligations, and tools
- B. Demonstrate knowledge of basic fire sprinkler systems and use of code books
- C. List characteristics of common sprinklers, above and belowground pipe, including wall thickness (C-Factor), sway bracing, hangers, control valves, check valves, water flow alarms and fire department connections

#### **FSAP72.02 - Fire Sprinklers Hand and Power Tools**

- A. List fire sprinkler systems, codes and standards, sprinkler fitter careers, responsibilities of the employee, human relations, and

employer and employee obligations, and tools

- B. Demonstrate knowledge of basic fire sprinkler systems and use of code books
- C. List characteristics of common sprinklers, above and belowground pipe, including wall thickness (C-Factor), sway bracing, hangers, control valves, check valves, water flow alarms and fire department connections

#### FSAP72.03 - Fire Sprinklers Construction Plans

- A. List 6 types of drawing sets
- B. Identify use of scale, lines of construction, abbreviations, symbols, keynotes, and gridlines
- C. Identify plan locations and dimensions
- D. Demonstrate drawing an abbreviated sprinkler plan

#### FSAP72.04 - Fire Sprinklers Steel Pipe

- A. Identify steel pipe materials, safety, tools, cutting, threading, fittings, grooving, flanges and take-outs
- B. List the materials and fittings, safety considerations, cutting, threading and grooving of steel pipe
- C. Calculate the lengths between fittings

#### FSAP72.05 - Fire Sprinklers CPVC

- A. List CPVC materials including hangers, bracing, and supports
- B. Describe CPVC safety, cutting, chamfering, cleaning, and joining
- C. Define hydrostatic testing criteria
- D. Apply CPVC pipe properly and to code

#### FSAP72.06 - Fire Sprinklers Copper Tube Systems

- A. List copper tube characteristics, fittings, cutting, bending, soldering, brazing, supports and couplings
- B. Demonstrate designing, cutting, bending, soldering, and brazing of copper tube
- C. Identify spacing and coupling considerations

#### FSAP72.07 - Fire Sprinklers Underground Pipe

- A. List steel pipe hazards, guidelines, trenching, bedding, backfilling, piping, restraints, backflow, hydrants and related appurtenances, testing, inspections and chlorinating
- B. Demonstrate identifying materials for underground pipe and safety considerations
- C. Install an underground pipe to standard
- D. Complete an underground test certificate

#### FSAP72.08 - Fire Sprinklers Residential

- A. Define the residential fire sprinkler trade
- B. Perform basic math functions
- C. Identify system design configurations, tool, materials and installation overview, and special system considerations
- D. Demonstrate residential installation of fire sprinklers
- E. Identify material, equipment and codes requirements, and safety considerations
- F. Demonstrate competence using CPVC and copper pipe and fittings
- G. Identify residential designs

#### FSAP72.10 - Fire Sprinklers Flanged, Grooved, and Plain End Pipe

- A. List general purpose valves, indicating valves, globe valves, and check valves
- B. Demonstrate an installation of service of outside screw and yoke (OS&Y) valves and butterfly grooved valves

#### FSAP72.11 - Fire Sprinklers General Trade Math

- A. Solve basic math principles and problem solving when working with fire sprinklers
- B. Convert the English and metric systems
- C. Identify temperature considerations, 45-degree offsets and tank volume, centering heads using the target, square offset and geometric methods

- D. Demonstrate an overview of components and systems

#### FSAP72.12 - Fire Sprinklers Shop Drawings

- A. List structural symbols, cut length and pipe size
- B. Identify material necessary for an installation, including standard sprinkler symbols
- C. Interpret a legend and calculate the number of sprinklers to be used, orifice size, temperature rating
- D. Calculate the square footage and the sprinklers required for a given area
- E. Identify and match the National Fire Protection Association standards to the title of the shop drawing
- F. Demonstrate drawing an abbreviated sprinkler plan

#### FSAP72.13 - Standard Spray Fire Sprinklers

- A. List standard sprinklers
- B. Identify types of occupancies, types of construction, standard coverage upright, and pendent sprinklers
- C. Demonstrate determining the maximum coverage area of standard sprinklers for various occupancies and spacing using small room rule

#### FSAP72.14 - Fire Sprinklers Wet Pipe Systems

- A. Identify wet pipe systems, flow switches, tamper switches, pressure switches, fire department connections, and hose stations
- B. Demonstrate installation of a tamper switch
- C. Demonstrate installation of a flow switch
- D. Demonstrate installation of the retard device

#### FSAP72.15 - Fire Sprinklers Dry Pipe Systems

- A. List dry-pipe system operations
- B. Identify dry-pipe trim and valve components and quick-opening devices
- C. Describe pitching dry-pipe systems and auxiliary systems
- D. Demonstrate installing, setting, and adjusting an air maintenance device and an accelerator

#### FSAP72.16 - Fire Sprinklers Preaction and Deluge

- A. Identify deluge systems, preaction systems, firecycle systems, package trim and packaged systems
- B. Demonstrate installation techniques and troubleshooting
- C. Demonstrate use of package trim and packaged systems
- D. Describe installation techniques and performing troubleshooting

#### FSAP72.18 - Fire Sprinklers Water Supplies

- A. List water supply types, water storage, water mains, backflow preventers, and meters
- B. Identify tests and reports needed for water supply systems
- C. Demonstrate flow test procedures and graph plots for static and residual pressure

#### FSAP72.19 - Fire Sprinklers Fire Pumps

- A. List pumps and drivers, controller, and sensing lines
- B. Complete a project requirement checklist
- C. Demonstrate installation and startup of fire pump
- D. Describe implementing testing, maintenance, and troubleshooting
- D. Describe implementing testing, maintenance, and troubleshooting

#### FSAP72.21 - Fire Sprinklers System Layout

- A. List system design, pipe sizing, and flow characteristics
- B. Compute hydraulic calculations
- C. Demonstrate sizing up of pipe

#### FSAP72.23 - Fire Sprinklers Extinguishing Systems

- A. Identify exposure systems, water spray systems, foam systems, carbon dioxide systems, and Halon systems
- B. List flow control valves, Halon alternatives, dry chemical systems, auxiliary alarm systems and local alarms, fire extinguishers, and water mist suppression
- C. Demonstrate operation of extinguishing systems including exposure systems, water spray systems, and foam systems

#### IWAP40.05 - IW - WELDING III

- A. Demonstrate how to safely fuse-weld heavy gauge ferrous metals using low hydrogen electrodes and flux cored wire electrodes
- B. Demonstrate the capability of passing the root and face bend test to the American Welding Society standards
- C. Able to describe and identify basic joint designs and weld metallurgy

#### IWAP40.07 - FIW - ORIENTATION

- A. Explain important elements of safety on the job
- B. Accurately measure materials on the job
- C. Identify basic hand tools used by Ironworkers
- D. Student can Describe the important skills and tools used for rigging and working around cranes
- E. Identify four types of welding processes that ironworkers use
  1. Set up and break down oxygen fuel cutting and welding equipment
  2. Identify how the leads are connected for shielded metal arc welding
- F. Describe the important skills and tools associated with the structural ironworker

#### IWAP40.09 - General Rigging - Reinforcing

- Demonstrate and apply the proper application of fiber line, steel cable, and chain in various tackle and lever combinations used in raising, transporting, and storing heavy loads
- B. Identify and demonstrate the various types of rigging equipment and procedures used in the ironworkers' trade

#### IWAP40.10 - Welding I - Reinforcing

- Demonstrate basic understanding of the structure of ferrous metals and their reactions to heat.
- Demonstrate the proper knowledge and usage of the equipment and materials used in shielded metal-arc, gas shielded-arc, and oxy-acetylene welding.
- Identify the size of a bar in standard or metric numbers
- Identify each of the marks on the piece of reinforcing steel

#### IWAP40.11 - Welding II - Reinforcing

- Demonstrate basic understanding of the structure of ferrous metals and their reactions to heat
- Demonstrate basic skills and knowledge in the handling of equipment and materials employed in the use of shielded metal-arc, gas shielded-arc, and oxy-acetylene welding.
- Demonstrate the applications of both oxy-acetylene and arc welding and the appropriate times to use each

#### IWAP40.12 - Reinforcing Iron I

- A. Interpret the standard codes, code classifications, plans, schedules, charts and specifications in common use by the ironworker
- B. Demonstrate the contraction techniques used in reinforcing concrete members with steel
- C. Use of bar supports, placement of reinforcing iron in the structural members of buildings and in structures other than buildings
- D. Demonstrate the general principles of gar splicing and welding, post tensioning and pre-stressing

#### IWAP40.15 - IW - Post Tension I

- Demonstrate proper installation of multi-strand post-tension bar system, including stressing, grouting, and inspection
- Properly assemble stressing equipment
- grouting operation including proper operation of various types of grouting equipment, checking for blockage prior to grouting, and will be able to explain proper missing and pumping procedures
- Demonstrate knowledge of the types and causes of various problems that can arise during the installation, stressing, and grouting of the various types of post-



tensioning systems

#### IWAP40.21 - Structural Steel I

- A. Read structural steel drawings
- B. Safely unload, handle, and store materials
- C. Safely erect columns and beams and install joists, joist girders, and trusses
- D. Plumb, align, and bolt up structural steel
- E. Make structural connections

#### IWAP40.22 - Cranes

- A. Demonstrate the performance of various processes related to structural steel
- Demonstrate an understanding of the recommended building procedures in structural steel construction
- C. Demonstrate the proper way to receive and store materials
- D. Define blueprint and other drawings related to structural steel

#### IWAP40.26 - Metal Building Erection / Foreman Training

- B. Describe pre-engineered metal buildings including the history and trends
- C. Safely unload and store material
- D. Erect primary and secondary structural framing systems including girts and purlins
- E. Install insulation, wall materials, metal roofing, flashing, gutter, trim and accessories
- F. Repair common metal building problems and failures
- G. Re-roof and perform other metal building renovations

#### IWAP40.50 - Mixed Base - Reinforcing

- A. Demonstrate the understanding of the specifications that constitute a safe and healthful working environment under OSHA
- B. Demonstrate the understanding of the rights and obligations that the OSHA act imposes
- C. Demonstrate the understanding of construction blueprints commonly used with emphasis on its function and interpretation
- D. Demonstrate basic math skills and apply these skills in solving typical problems that are apt to arise in the construction trades

#### IWAP40.53 - Detailing / Reinforcing Iron

- A. Demonstrate a basic knowledge of the job performed by the detailer of reinforcing iron
- Read and interpret the communication instruments of the detailer such as:
  1. placing drawings
  2. bar lists
  3. bar schedules
- C. Able to utilize instruments that guide the fabrication of reinforcing bars in the shop and their proper placement in the field. Assemble documents from the source information is derived
- Interpret mechanical drawings, math computation skills, and blue prints

#### IWAP40.55 - Foreman Training

- A. Informed of a construction worker's awareness regarding on-the- job hazards
- B. Demonstrate the understanding of OSHA standards and the many aspects of safety, compliance, scheduling, jurisdiction, and the labor law
- C. Demonstrate the understanding of the duties of the ironworker foreman, general foreman, and superintendent's and forklift operation
- D. Demonstrate how to properly and safely erection and disassemble scaffolding
- E. Demonstrate safe operation of a forklift and ability to comply with all OSHA regulations regarding the safe operation both on and off of a forklift

**IWAP40.56 - Trade Science / Ironworker History**

- A. Demonstrate basic knowledge of the Ironworkers history and profession
- B. Able to list events leading up to the birth of the Ironworker union

**IWAP40.60 - Structural Arch Orn I**

- A. Construct curtain walls, window walls, sloped walls and skylights
- B. Construct storefronts, entranceways, and cable walls
- C. Install glazing systems, glass rails, and apply sealants
- D. Able to test curtain wall and window wall systems

**IWAP40.61 - Structural Precast Concrete / Qualified Rigger**

- A. Coordination of task elements needed in the staging and economical erection of a precast concrete building
- B. Apply pre-construction planning
- C. Demonstrate understanding of field considerations for connections
- D. Demonstrate understand transportation of precast concrete to worksite
- E. Demonstrate proper rigging techniques of precast concrete
- F. Safely and properly handle and install precast concrete
- G. Demonstrate proper post-installation inspection of pre-cast concrete

**IWAP40.63 - IWS - Structural Lead Hazzard**

- A. Explain the history of lead, its uses and the health effects caused by lead exposure.
- B. Identify regulations and sampling methods related to lead
- C. Explain hazard communication regulations and workers legal rights related to lead.
- D. Demonstrate appropriate use of personal protective equipment and describe work methods on steel structures when lead may be present
- E. Describe general site safety, safe work practices, and confined space entry as related to working on construction sites where there is a possibility of lead exposure

**IWAP41.03 - IW Reinforcing III**

- A. Outline the history of reinforcing and the manufacturing of reinforcing steel.
- B. Identify reinforcing tools, ties and safety practices
- C. Identify structural forms associated with placing reinforcing steel
- D. Demonstrate how to bend, tag, mark and fabricate reinforcing steel
- E. Demonstrate how to safely unload, handle and store reinforcing steel
- F. Read engineering and placing drawings
- G. Install bar supports
- Place reinforcing in footings, walls, columns, beams and girders, and in joists and slabs
- Describe how to reinforce highway and airport pavement and how to use bar splicing and mechanical couplers

**IWAP41.04 - IW Architectural III**

- A. Demonstrate and install swing doors, door closers, sliding doors, mall fronts, revolving doors, and rolling service doors
- B. Demonstrate and install anchors and fasteners, stairs, ladders, catwalks and grating
- C. Demonstrate and install fence, guard rails, and detention systems
- D. Demonstrate and install miscellaneous architectural and ornamental work

**IWAP41.05 - IW Architectural II**

- A. Construct curtain walls, window walls, sloped walls and skylights
- B. Construct storefronts, entranceways, and cable walls

- C. Install glazing systems, glass rails, and apply sealants
- D. Test curtain wall and window wall systems

#### **IWAP41.06 - IW Structural Steel II**

- A. Safely install metal decking and sheeting
- B. Explain how to erect bridges, towers, wind turbines, clear span, and amusement park structures
- C. Use composites in structural erection
- D. Read structural drawings

#### **IWAP41.07 - Post-Tension II**

- Apply the principles and theories of post-tensioning and be able to identify the components of monostrand tendon systems and barrier cable systems
- Use the tools, equipment and procedures to safely unload, handle, layout, install, stress, grout and finish each type of post-tensioning system; including systems used in aggressive and non-aggressive environments
- Apply proper procedures for detensioning and performing lift-offs on post-tensioning systems
- Troubleshoot and repair post-tensioning systems and equipment on the job.
- Install and stress post-tensioned barrier cable systems

#### **IWAP41.08 - Post-Tension III**

- A. Apply the principles and theories of post-tensioning and be able to identify the components of multi-strand and bar tendon systems
- B. Use the tools, equipment and procedures to unload, handle, layout, install, and stress each type of bonded post-tensioning system
- C. Use the tools, equipment and procedures to grout and finish each type of bonded post-tensioning system
- Troubleshoot and repair post-tensioning systems, stressing equipment, and grouting equipment on the job

#### **IWAP41.09 - IW - Extension and Review**

- Demonstrate proper weld and cut using oxyacetylene
- Demonstrate proper weld using the shielded metal arc welding process
- Demonstrate proper weld using the flux cored arc welding process
- Demonstrate proper weld using the gas tungsten arc welding process