



**UNION PLUMBERS,
FITTERS, WELDERS AND
SERVICE TECHNICIANS**

**PROVIDING
OPPORTUNITIES
IN 2016**

↓ <https://uanet.org> ↓

**2016
REGIONAL TRAINING
COURSE CATALOG**

United Association Building
Three Park Place
Annapolis, MD 21401
(410) 269-2000
<http://www.ua.org>

January 2016

Dear Brothers and Sisters,

Another year has passed and we can now look back on 2015 as one of our busiest. We are meeting the challenge of preparing the workforce of tomorrow through all of our training initiatives and programs, but I know none of this would be possible without the commitment of our training directors, coordinators and instructors. All of you are on the frontlines in training our members, and we appreciate your dedication to this effort. It is what sets us apart from the crowd and you should all be proud of your accomplishments over the past year.

We are now busy preparing for the coming year, including a focus on our regional training programs. We have new courses available again this year—including two specialized sprinklerfitting courses as well as a variety of other new classes ranging from hydronic heating and cooling to downhill welding to training on carbon dioxide refrigeration systems. These courses, as well as the entire regional training effort, demonstrates our determination to stay ahead of developments in our industry, even as we work hard to meet the needs and concerns of our employers. If you haven't done so already, it's a good idea to share this information with your contractors so they can see for themselves the commitment the United Association has to training at the highest level.

As you look through this catalog, you will find a large number of classes available for every sector of our trade. This year's catalog is segmented into class offerings by district as well as courses offered online. Classes are also available throughout the year at the UA's Great Lakes Training Center at Washtenaw Community College. As always, classes are offered to instructors at local training centers; however, when a specific industry need is identified, these classes may be offered to non-instructors.

Don't forget that when instructors participate in one or more of our classes, they receive college credit for these courses, which in turn can lead to Associate's or Bachelor's degrees. UA members can also earn college credit for their apprenticeship for courses that are taught by instructors at their local union training center, as outlined in the UA's Apprenticeship Standards.

We encourage you to take time to look through the courses that are listed in this catalog and take advantage of the various training programs that are being offered. Class sizes are limited; however, most classes require a minimum number of students in attendance to warrant holding the class.

In the meantime, we will be looking forward to seeing you in Ann Arbor at the 2016 Instructor Training Program.

Fraternally,



Christopher A. Haslinger
United Association Director of Training
International Training Fund

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Our Mission Statement

The mission of the UA Training Department is to equip United Association locals with educational resources for developing the skills of their apprentices and journeymen. By thus facilitating the training needs of the membership, we maximize their employability and prepare them for changes in the industry. We are committed to making training opportunities available across North America, allowing members to acquire new skills and remain competitive in the industry regardless of geography. In this way, we are determined to meet the needs of the piping industry and enhance employment opportunities for our members, while remaining fiscally responsible to the beneficiaries of the fund.

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PREPARING FOR YOUR CAREER

The International Training Fund provides local union instructors with the educational resources they need to maintain the high level of achievement for United Association apprentices and journeyworkers and prepare them for their work in the piping industry.



District No. 1

Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont

District No. 2

District of Columbia, Indiana, Kentucky, Maryland, Michigan, Ohio, Pennsylvania, Virginia and West Virginia

District No. 3

Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee and Texas

District No. 4

Illinois, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, North Dakota, South Dakota, Wisconsin and Wyoming

District No. 5

Alaska, Arizona, California, Colorado, Hawaii, Idaho, Nevada, New Mexico, Oregon, Utah and Washington

Online Courses

Great Lakes Regional Training Center (GLRTC)

A CLOSER LOOK

The International Training Fund offers a number of regional training opportunities throughout the year. These courses are offered at various local unions within the five districts of the UA; in addition, courses are available online, and at the Great Lakes Training Center. These courses are listed by district for easier navigation, but you may register for courses in any district.

NEW COURSES OFFERED IN 2016

- 219 Drainage
- 314 Victaulic Vortex System Training
- 315 Fire Pump ITM and Repair Class
- 603 Principles of Welding Design

COURSE REGISTRATION

Course Registration is available online at <https://rtregistration.uanet.org>. You will find the home web site to be very similar to the 2015 ITP registration process.

To register for one or more classes, click the **Begin Registration** button at the bottom of the page. Enter the **Card Number** and then click **Verify Card#**. The information will be added to the screen. Verify the address information is correct. Then, enter the **Cell** phone number and verify the email address by typing it in the **Re-Enter Email** block, then click the **Next** button.

Select courses by clicking on the **Click Here to Add a Class** link. A window will open with a list of courses. You can scroll through the list of courses or search by course number, title, date, location or status (open or closed). See the Course Catalog for descriptions of each course. To select a course, simply click on the **Add** button. The course will be added to your list. Repeat the process as necessary to add additional courses. When all courses have been selected, click on the **Next** button.

If you have any special requests, enter them in the block provided. Click on the **Next** button to continue.

Review the information on the **Register** screen. If everything is correct, click on the **Register** button. If there are corrections to make, click on the **Previous** button to go back one screen, or click on the green step button to the right of the registration information. When you click **Register**, you will be asked to confirm you wish to register. If so, click the **OK** button. To register additional students, click the **Register Another** button. Otherwise, click **Logout** to end your session.



CERTIFICATION FEES

All certification course fees are the responsibility of the student. Fees are due prior to the beginning of the class; upon registration for a class, due dates will be provided. Listed below are the fee rates:

Medical Gas Certification Fees:

(Payable to NITC)
Certification = \$116.00
Recertification = \$49.00

UA STAR Exam Fees:

(Payable to NITC)
Certification = \$136.00
Recertification = \$84.00

CWI® Certification Fees:

(Payable to American Welding Society)
CWI = \$1065.00 (non AWS members) /
\$850.00 (AWS members)
CWI/CWE Combo = \$1205.00 (non AWS members) /
\$990.00 (AWS members)
Re-Exams = \$275.00 per part / \$595.00 all parts
Additional Endorsements = \$275.00

The United Association Training Department is pleased to offer HVACR Industry courses in an agreement with the following major HVACR manufacturers through the 2016 Regional Training System: Carrier Corporation, Johnson Controls, Mitsubishi, and Daikin. These courses will be taught by authorized factory instructors, incorporating manufacturer specific curriculum, and have limited availability. It is the goal of the International Training Fund to provide the best possible training for the UA local unions to satisfy the current HVACR industry needs as it relates to project specifications for high performance buildings. Admittance into each course is subject to Registration Policies provided to the UA ITF by each participating manufacturer. Early registration by UA active instructors is encouraged. Participation by all active UA HVACR technicians is welcome.

320 SER 120 Centrifugal Compressor Fundamentals (Carrier Corporation)

In this course, students learn how to operate, maintain, troubleshoot and service 19 Series low and high-pressure machines (including PIC controls on newer models). Learning is tested in our labs. Studies include: refrigeration cycles, compressor theory, lubrication cycles, purge operation, refrigerants, heat exchangers and heat transfer. The course also covers troubleshooting techniques and equipment needed to: record and analyze machine temperatures and pressures; determine performance using heat exchange approaches; waterside flow rate analysis; maintenance requirements; and logging machine data. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date

February 16-19, 2016

Syracuse, NY

321 SER 130 Centrifugal Disassembly and Reassembly (Carrier Corporation)

Prerequisite: Centrifugal Compressor Fundamentals

CDR is designed to teach experienced service mechanics how to properly disassemble both low and high-pressure centrifugal compressors, including Models 19XL, XR and EX. Techniques and procedures for using precision instruments are taught for determining clearances, fits, and tolerances of various bearings, seals and components. Students also review compressor lubrication, motor cooling, and capacity control. Because this course is lab oriented with enhanced student/instructor contact, attendance is limited and early registration is recommended. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates

February 29 – March 3, 2016

Syracuse, NY

October 4 – October 7, 2016

Syracuse, NY

322 SER 270 30 Series Screw and Scroll Chiller Fundamentals (Carrier Corporation)

You'll learn to operate, maintain, troubleshoot and service Carrier's complete line of 30 series air-cooled and water-cooled chillers, models include 30GX/HX, RA.RB, XA.XW. This course is a must for any technician whose job it is to service the complete line of 30 series chillers. Studies include chiller refrigeration cycle, compressor theory, cooler heat transfer, water and air-cooled condensers. You'll also learn how to analyze performance by recording and analyzing refrigerant and water pressures and temperatures. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates

March 8-10, 2016

Ann Arbor, MI

October 11-13, 2016

Ann Arbor, MI

323 SER 275 23XRV Liquid Chiller Screw Chiller Service and Operator Course (Carrier Corporation)

This two-day course is targeted at service technicians who operate or service 23XRV chillers. This class will cover the chiller refrigeration cycle, compressor theory, drive theory, cooler heat transfer, and water cooled condensers. Operation and function of the compressors, muffler, condenser, coolers, economizers, metering devices, oil concentrator and accessories are covered. You will learn how to analyze performance by recording and analyzing refrigerant and water pressures and temperatures. Service technicians will be able to distinguish between chiller and system problems and to quickly diagnose problems using service logs. The class also covers the unit controls and how to set-up and adjust the controls for optimum system performance. In addition, recommended pre-start and start-up procedures, operational and field issues will be covered. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates

March 16-17, 2016

Ann Arbor, MI

October 11-12, 2016

Ann Arbor, MI

333 SER 143 Single Zone Rooftop Units (Carrier Corporation)

The Single Zone Rooftop service course is for technicians servicing Carrier Single Zone rooftop units. This is the first of a two-sequenced training course on commercial rooftop units and deals with the most common packaged product in the industry. The class provides detailed training intended to improve the troubleshooting skills and product knowledge of HVAC technicians. A variety of rooftop units and simulators are used to provide training exercises for wiring diagram interpretation, compressor troubleshooting, and control/sensor troubleshooting. The course specifically covers Carrier rooftop units produced over the last 20 years; however many procedures covered can be universally applied to all makes of rooftop units. Specific models covered include 48/50 D,T,H, P and L series units under 25 tons. These models cover electric/electric, gas/electric, heat pump, and dual fuel units primarily as applied in constant volume applications. At the end of this course a student will be better able to quickly diagnose and repair refrigeration, gas heating, heat pump, economizer, air side and system option problems on these units. The class addresses electromechanical, ComfortLink™, PremierLink™, and the RTU-OPEN™ Control systems and their operation. The class also addresses staged air volume, ECM and VFD applications, Humidi-MiZer Adaptive dehumidification system, EnergyX heat recovery, and various economizer options used with these units. This class is a mix of classroom training and in lab exercises on actual rooftop units. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date

April 11-15, 2016

Syracuse, NY

October 24-28, 2016

Syracuse, NY

334 SER 147 Applied Rooftop Units (Carrier Corporation)

The Packaged Variable Volume Commercial Rooftop service course is for technicians servicing Carrier Variable Volume-Zoned rooftop units. This is the second of a two-sequenced training course on commercial rooftop units and deals with the most common packaged product in the over 20-ton market in the industry. The class provides detailed training intended to improve the troubleshooting skills and product knowledge of HVAC technicians. This course covers the Carrier A, Z,P and N Series Rooftops with ComfortLink™ Controls. This three-day training session is conducted utilizing classroom presentations and supplemented with simulator exercises on actual unit control panels. Students will learn how to use the system controls and the latest controls and troubleshooting documents to quickly determine and repair system faults. The simulators exercises cover the three modes of operation: cooling, heating and ventilation. There are over 16 faults built into each simulator, allowing the technician to experience the most common problems encountered in the field. Technicians work their way through the panel bug list to ensure a hands-on comfort level with each unit type. Classroom activities include a detailed coverage of installation, start-up, maintenance, and troubleshooting of the refrigeration, heating, economizer, and system option. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date

May 23-25, 2016

Syracuse, NY

Nov 7-9, 2016

Syracuse, NY

620 C-2102 YK High Pressure Centrifugal Operation and Maintenance (Johnson Controls)

Students will learn about the internal workings of the YK high pressure centrifugal single-stage compressor, oil return system, OptiView Control Center and other components and subsystems. A comprehensive review of the preventive maintenance schedule and system capacity checkout procedure is also covered. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date

January 26-28, 2016

Cypress, CA

621 C-2107 YT/YK Centrifugal Chiller and Compressor Overhaul(Johnson Controls)

Service personnel will become familiar with the operation and maintenance of centrifugal systems. Students will review R-11, R-123, R-22 and R-134a single stage centrifugal chillers. They will also learn the internal workings of the compressor, oil return system, lube circuit, purge and heat exchangers. The OptiView Control Center plus preventive maintenance and system checkout procedures are also addressed along with a hands-on teardown and rebuild of an YK centrifugal compressor. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date

April 4-8, 2016

Houston, TX

622 C-2111 YVAA Air Cooled Screw Chiller (Johnson Controls)

This three-day course teaches experienced service technicians about the YVAA Chiller. The course will include features of this unit and the differences in installation, operation and maintenance from the YCAV. Prerequisites: Working knowledge of the YCAV/YCIV Chiller, Working knowledge of VSDs, Understanding of basic electronics. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date

March 15-17, 2016

Sparks, MD

April 19-21, 2016

Phoenix, AZ

623 C-2103 YCAV Air Cooled Rotary Screw Liquid Chillers (Johnson Controls)

This three-day course teaches service personnel about the YCAV Chiller features, including the screw compressor, system ancillary components, start-up procedures, unit operation and maintenance. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date

Feb 16-18, 2016

Sparks, MD

March 8-10, 2016

Phoenix, AZ

317 Variable Refrigerant Flow (VRF)-The CITY MULTI Service Course (Mitsubishi)

This course is an introduction to Variable Refrigerant Flow Systems (VRF) applied in the HVACR industry of duct-less/multi-split systems. This course has been designed to provide the knowledge and tools required to demonstrate and explain how best to teach VRF systems. Instructors will be provided with up-to-date service and engineering manuals, and software where possible to assist with program start-up. Training-the-trainers and the best methods of teaching the skills of application, designing, installing and commissioning VRF systems will be a focused outcome. Industry standards and some troubleshooting of popular VRF systems will be provided. Laptop computers may be an asset for this course. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates**March 1-3, 2016****March 8-10, 2016****Philadelphia, PA****Pasco, WA****318 Variable Refrigerant Volume (VRV) Systems (Daikin)**

VRV Variable Refrigerant Volume Install and Commissioning Course Covers best practices for installation starting with piping, flaring, systems pressure test and evacuation, and charging methods. The course then covers: VRV Product and Technology- the VRV products that the technician in the field will encounter, how to identify them and the basic technology that allows VRV Heat Recovery. VRV Basic Install explains the equipment and the installation requirements for 12 different indoor fan coils, including wiring, piping, and condensate management, as well as the outdoor units single and manifolded. VRV Remote Control Installation covers control installation, communication, field settings, group addressing, and setback programming. VRV System Commissioning is the field guide for the technician that contains the step-by-step commissioning checklist, most common field settings for indoor units and outdoor units, charging calculations, charging procedures, test operation, and basic installation troubleshooting. This courses will include a notebook for note taking and the printed copy of the commissioning guide, as well as electronic versions of the presentations and the IOM and service manuals. Electronic simulation software will be demonstrated in class. Students will need colored pencils and pen for note taking. The presentations will be available as a PDF. If the student has Adobe Reader X or later version notes can be taken on a personal laptop. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**February 9-11, 2016****Aurora IL**

ADVANCED WELD ENGINEERING CERTIFICATE PROGRAM

A Welding Engineering Certificate Program titled “Welding Fundamentals and Technology for ASME Code Application” has been developed for the United Association by The Ohio State University Welding Engineering Program. The Ohio State University (OSU) and their Welding Engineering Program faculty will provide the instruction via four (4) twenty hour courses, that upon successful completion, result in the participants receiving a Welding Engineering Certificate from OSU. This includes the recently developed new course on design. The Ohio State University is recognized as having the premier program for Welding Engineering. This program has been developed with the intention of providing an opportunity for individuals to increase their knowledge in the welding field as the United Association continues to promote its workforce as the most qualified and trained workforce in the world.

The courses are customized courses built around the B31.3 ASME Pressure Piping Code “Process Piping”. These “hybrid” courses are designed for the level of an inspector and/or weld technician/specialist. Due to the specialized nature of this course, upon successful completion of the course, individuals will receive a certificate. There may be certain costs associated with each course. The courses may be offered as lectures or in an online format (being developed), and many laboratory experiments and demonstration are included. The courses will be taught at OSU’s Welding Engineering Laboratory in Columbus, Ohio. The certificate program is composed of the following courses:

600 Principles of Arc Welding Processes, Welder and Weld Process Qualification

Prerequisite: Attendees must hold current credentials as an AWS Certified Welding Inspector (CWI®)

This first course of a four-course certificate program, which focuses on the fundamentals and principles of welding processes used for pressure piping, with emphasis on the arc welding process. Arc welding topics include power supply fundamentals, process variables and other important characteristics. The course includes an introduction to non-arc welding processes, such as laser, resistance, friction and explosion welding as well as brazing. The end of the course covers a brief review of ASME Section IX, with emphasis on the importance of the weld process variables discussed throughout the course.

601 Weld Metallurgy, Defects, and Discontinuities for Process Piping Materials

Prerequisite: Attendees must hold current credentials as an AWS Certified Welding Inspector (CWI®)

This course builds upon Course 600, but focuses on the weld metallurgy of important B31.3 materials such as plain carbon and low alloy steels, stainless/corrosion resistant steels, and nickel base alloys. In addition to building an understanding of metallurgical issues pertaining to the welding of these materials, the course will include an emphasis on the typical defects and discontinuities that are encountered during welding and how they can be prevented.

602 NDE for Process Piping

Prerequisite: Attendees must hold current credentials as an AWS Certified Welding Inspector (CWI®)

This course will focus on the principles and application of all of the NDE techniques used for process piping including visual, magnetic particle, liquid penetrant, x-ray, and ultrasonic. A particular emphasis will, of course, be placed on how these techniques are used to detect weld discontinuities and defects.

603 Principles of Welding Design (New)

Prerequisites: Attendees must hold current credentials as an AWS Certified Welding Inspector (CWI®)

This course focuses on the fundamentals of welding design with associated laboratory experiences. It includes introduction to the physical and mechanical properties of materials, heat flow during welding, formation of thermal and residual stresses and distortion, and fracture and fatigue. Also discussed are joint and weld types, mechanical testing of joints and examples of weld sizing and joint design. Laboratory experiences include measurement of temperature history and relation to microstructure, measurement of residual stresses and examples of distortion, and mechanical testing of welds.

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

Review the course requirements carefully. The OSHA requirements were changed September 1, 2011; therefore all new instructors **must take UA Course 471 - OSHA 510 OSHA Standards for the Construction Industry prior to taking UA Course 470 - OSHA 500 Trainer Course for the Construction Industry.**

Each instructor enrolled in UA Course 471 - OSHA 500 or UA Course 474 - OSHA 502 courses must complete, sign and submit the **NRC/CPWR Prerequisite Verification Form** in order to attend either class. Click on the **[NPC/CPWR Prerequisite Verification Form](#)**, to electronically view or complete this form. This form must be brought to class as OSHA will audit our use of these forms. It is essential that the form be submitted by all students on the first day of class.

471 - OSHA 510 OSHA Standards for the Construction Industry

470 - OSHA 500 Trainer Course for the Construction Industry

474 - OSHA 502 Update for Construction Industry Outreach Trainers

Due to this change, OSHA is requiring us to ensure this prerequisite is met, along with the long-standing prerequisite of instructors possessing five years of safety and health experience in the construction industry.



NINE-YEAR RECERTIFICATION FOR CWI®

A minimum of eighty (80) Professional Development Hours (PDHs) must be earned (training received or instruction delivered) during the nine-year certification period and twenty (20) of the eighty (80) PDHs must be earned in the final three-year period of your nine-year certification period.

Instructors who want to substitute teaching hours for the required PDHs shall submit documentation of the hours of training performed. Such documentation shall include a complete syllabus of subjects taught, a copy of the certificates of attendance or completion issued, the number of students attending, the dates of the training provided, and documentation that the training was a formal offering and not personal coaching, tutoring, or individual instruction delivered to meet job requirements.

A maximum of eighty (80) PDHs are allowed for any one course.

Credit for a particular course may only be granted once in a nine-year period. (Example: a single 40-hour course taught any number of times can only be used to fulfill 40 hours of the 80 hours required for recertification without examination.)

Trainers who want to substitute teaching hours for the required PDHs shall submit documentation of the hours of training performed. Such documentation shall include a complete syllabus of subjects taught, a copy of the certificates of attendance or completion issued, the number of students attending, the dates of the training provided, and documentation that the training was a formal offering and not personal coaching, tutoring, or individual instruction delivered to meet job requirements. For more information please visit <http://www.aws.org>.

The following UA Courses are acceptable to use as PDH:

213 Applied Metallurgy	476 Methods in Teaching Advanced Orbital Welding
274 Teaching Oxy-Acetylene Cutting and Welding	477 Certified Wire Feed Machine Orbital Welding
276 Teaching Advanced Orbital Welding	478 Gold Track GTAW – Wire Feed Machine Welding
279 Machine Cutting, Severing and Beveling	478 Wire Feed “Remote Video” Welding Systems
280 Teaching Aluminum Pipe Welding	479 UA Machine Cutting, Severing and Beveling
280 ASME Section B31.1 Code	480 Radiographic Film Interpretation
274 Teaching Oxy-Acetylene Cutting and Welding	482 Teaching Orbital Wire Feed Welding
276 Teaching Advanced Orbital Welding	483 Troubleshooting and Basic Repair of the AMI 207 Orbital Welding Machines
279 Machine Cutting, Severing and Beveling	491 Basic Non-Destructive Testing
280 Teaching Aluminum Pipe Welding	493 AWS-CWI® Preparation Course and Exam
286 Downhill Welding	494 Heavy Wall Welding, Heat Treat Technician Training and Pipe Joint Machine Overview
288 Teaching Shielded Metal Arc Welding	600 Principles of Arc Welding Processes, Welder and Weld Process Qualification through Ohio State University
290 Teaching Gas Tungsten Arc Welding	601 Weld Metallurgy, Defects, and Discontinuities for Process Piping Materials through Ohio State University
346 Wire Feed OrbiMig Welding Systems	602 NDE for Process Piping through Ohio State University
350 Heat Treat Technician Training	603 Principles of Welding Design through Ohio State University
353 ASME Section IX Welding Code	
355 Quality Control Inspection	
356 Teaching Advanced GTAW	
357 Tip Tig Wire Feed Welding	
358 Teaching Advanced SMAW	
359 Teaching Gas Metal Arc Welding (GMAW)	
360 Teaching Submerged Arc Welding	
390 Authorized Testing Representative Refresher	
430 Authorized Testing Representative Training	

UA/EPRI/IBEW INSTRUMENTATION INTRODUCTION TO TESTING

Level I - The Written Test

To pre-qualify for Level 1 Certification, individuals must have attended and completed an approved UA or IBEW instrumentation class, or the individual must hold a Level II ISA certification and have a minimum of five (5) years of instrumentation calibration experience.

Once pre-qualified, those seeking certification must sit for a written test. This open book, open note exam is comprised of 200 questions covering the various aspects of instrumentation, electrical and mechanical theory and instrument calibration. A three-and-a-half (3.5) hour time period is allowed for completion of this exam. There is no "grandfathering." Anyone requesting to certify is required to take the test.

The UA has developed an online version of the exam which is now available through Blackboard™. This method will allow a journeyworker to instantly receive feedback with their results for the exam. The same prerequisites apply to this exam and the content will be identical to the written version.

Level II - The Practical Test

Once an individual has successfully completed the written certification test, he or she is eligible to take the Level 2 - Practical Exam. The Practical Exam is a hands-on proficiency test. Participants will be required to perform various calibrations on an assortment of different instruments using the test and calibration equipment provided. This portion of the exam is performed on a one-on-one basis with a Test Administrator. The Test Administrator will be observing and validating the process that is used to ensure that the procedures are performed according to recognized industry standards. There is no "grandfathering."

Practical Test Format

This test may contain two types of steps: discussion (D) or performance (P). Discussion steps are administered to the examinee simply by asking them the appropriate questions written in the exercise. Performance steps are administered by having the examinee actually perform the steps using the necessary tools and equipment.

The evaluation is a pass/fail test. The calibration equipment and instrumentation listed below will be provided for the test. You will be expected to select the appropriate test equipment from the test equipment listed when performing a calibration on the transmitters and field equipment during the exam. This exam is strictly an evaluation of the calibration process and does not cover the mounting or installation of the devices.

Calibration Equipment:

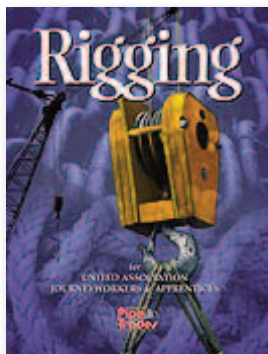
- Transmation PneuXal IV - Process Calibrator
- Fluke 700P06 - Pressure Module
- Transcat 23232E - DC Power Supply
- Fluke 744 - Process Calibrator
- Fluke 87 - Digital Multimeter
- Altek 334A - Milliamper Calibrator
- Rosemount (HART) Communicator

Transmitters and Field Devices:

- Rosemount 1151 - Differential Pressure Transmitter (Smart and Analog)
- Asco Pressure Switch
- Rosemount I/P (current to pressure) Transducer
- Rosemount 3051 - Differential (Gauge) Pressure Transmitter
- Rosemount 3144P - Temperature Transmitter

Additional information for [UA Instrumentation Certification](http://uanet.org) is available on <http://uanet.org>.

UA/EPRI INDUSTRIAL RIGGING CERTIFICATION EXAMINATION COURSE



Prerequisites to Registering

Several years ago, under the leadership of General President Hite, the United Association, in association with the Electrical Power Research Institute (EPRI), established the Industrial Rigging Examination/Certification Program. A major emphasis of the program is the UA's commitment to continually improve the methods of training and qualifying its members.

It is with this commitment in mind that members registering to take the UA/EPRI Industrial Rigging Certification Examination Course 420 must have completed the 40-hour UA training course on Industrial Rigging Technology. This course (419 Industrial Rigging Technologies) will ensure that individuals are trained in the planning and precautions required when lifting materials and equipment; proper and safe rigging of loads; proper applications of slings and rigging hardware; advantages and disadvantages of each piece of rigging gear; uses of rigging hardware; determination/calculations of rigging loads and equipment; proper maintenance of rigging equipment and rigging personal protective equipment.

Only those individuals who have completed Course 419 Industrial Rigging Technologies are eligible to take the UA/EPRI Industrial Rigging Certification Examination Course. The certification examination consists of a multiple choice written examination and a hands-on performance examination, developed under the strict requirements of the EPRI-Standard Task Evaluation Program. A score of 80% or above must be achieved on the written examination. During the performance examination individuals must plan and execute a critical lift utilizing a complicated piping assembly, and perform a load inversion and load transfer. All elements of the hands-on performance examination must be completed satisfactorily to pass.

The implementation of these changes to the UA/EPRI Industrial Rigging Certification Program is a continuation of the United Association's commitment to assure that the best trained and qualified personnel are available for all future rigging requirements in the construction industry.



<u>Course #</u>	<u>Name</u>	<u>Date</u>	<u>Location</u>	<u>District</u>
103	Planning Teaching and Assessing Effective Lessons: Advanced	March 14 – April 25	Blackboard™	Online
103	Planning Teaching and Assessing Effective Lessons: Advanced	October 3 – November 14	Blackboard™	Online
219	Drainage	October 18-20	Ann Arbor, MI	GLRTC
224	Introduction to Teaching Online Using Blackboard™	March 7-9	Ann Arbor, MI	GLRTC
228	Online Teaching Techniques Using Blackboard™	March 21 – May 2	Blackboard™	Online
228	Online Teaching Techniques Using Blackboard™	October 3 – November 14	Blackboard™	Online
231	Methods in Teaching the Green Professional Building Skills Training – GPRO-UA	April 18-21	Ann Arbor, MI	GLRTC
257	Teaching Hydronic Heating and Cooling Systems	May 10-12	Ann Arbor, MI	GLRTC
261	Principles of Training on Carbon Dioxide (CO2R744) Refrigeration Systems	March 8-10	Landover, MD	2
271	Orbital Tube Welding	May 10-12	Ann Arbor, MI	GLRTC
275	Advanced Orbital Tube Welding	October 11-13	Ann Arbor, MI	GLRTC
286	Downhill Welding	May 9-11	Denver, CO	5
311	Introduction to Microturbines and Service	May 23-25	Ann Arbor, MI	GLRTC
313	Operation and Setup of Fire Protection Trailer	January 12-14	Whittier CA	5
313	Operation and Setup of Fire Protection Trailer	March 8-10	Orlando FL	3
313	Operation and Setup of Fire Protection Trailer	September 13-15	Ann Arbor, MI	GLRTC
314	Victaulic Vortex System Training	October 18-20	Easton, PA	2
315	Fire Pump ITM and Repair Class	July TBD	North Aurora, IL	4
317	Variable Refrigerant Flow (VRF)-The CITY MULTI Service Course	March 1-3	Philadelphia, PA	2
317	Variable Refrigerant Flow (VRF)-The CITY MULTI Service Course	March 8-10	Pasco, WA	5
318	Variable Refrigerant Volume (VRV) Systems	February 9-11	Aurora IL	4
320	SER 120 Centrifugal Compressor Fundamentals	February 16-19	Syracuse, NY	1
321	SER 130 Centrifugal Disassembly and Reassembly	February 29 – March 3	Syracuse, NY	1
321	SER 130 Centrifugal Disassembly and Reassembly	October 4 – October 7	Syracuse, NY	1
322	SER 270 30 Series Screw and Scroll Chiller Fundamentals	March 8-10	Ann Arbor, MI	GLRTC
322	SER 270 30 Series Screw and Scroll Chiller Fundamentals	October 11-13	Ann Arbor, MI	GLRTC
323	SER 275 23XRV Liquid Chiller Screw Chiller Service and Operation	March 16-17	Ann Arbor, MI	GLRTC
323	SER 275 23XRV Liquid Chiller Screw Chiller Service and Operation	October 11-12	Ann Arbor, MI	GLRTC
333	SER 143 Single Zone Rooftop Units	April 11-15	Syracuse, NY	1
333	SER 143 Single Zone Rooftop Units	October 24-28	Syracuse, NY	1
334	SER 147 Applied Rooftop Units	May 23-25	Syracuse, NY	1
334	SER 147 Applied Rooftop Units	Nov 7-9	Syracuse, NY	1
340	Pipe Fitting Layout	April 4-8	Aurora, IL	4
357	Tip Tig Wire Feed Welding	March 22-24	San Jose, CA	5
357	Tip Tig Wire Feed Welding	May 10-12	Jersey City, NJ	1
357	Tip Tig Wire Feed Welding	September 27-29	Paducah, KY	2
359	Methods in Teaching Gas Metal Arc Welding (GMAW)	April 12-14	Ann Arbor, MI	GLRTC
377	Methods in Teaching the Plumbing Service Maintenance and Repair Manual	April 4-8	Ann Arbor MI	GLRTC
382	Teaching the HVACR UA Star Certification	March 14 – April 25	Blackboard™	Online
382	Teaching the HVACR UA Star Certification	October 3 – November 14	Blackboard™	Online
419	Industrial Rigging Technologies	March 21-25	Ann Arbor, MI	GLRTC
420	Industrial Rigging Certification for Instructors	October 24-28	Ann Arbor, MI	GLRTC

Course #	Name	Date	Location	District
430	Authorized Testing Representative (ATR) Training	February 16-18	Terre Haute, IN	2
430	Authorized Testing Representative (ATR) Training	February 23-25	Van Nuys, CA	5
430	Authorized Testing Representative (ATR) Training	March 22-24	Orlando, FL	3
430	Authorized Testing Representative (ATR) Training	April 5-7	Salt Lake City, UT	5
430	Authorized Testing Representative (ATR) Training	April 12-14	Rockford, IL	4
430	Authorized Testing Representative (ATR) Training	May 17-19	Ann Arbor, MI	GLRTC
430	Authorized Testing Representative (ATR) Training	June 7-9	Savannah, GA	3
430	Authorized Testing Representative (ATR) Training	June 14-16	San Jose, CA	5
430	Authorized Testing Representative (ATR) Training	July 12-14	Pittsburgh, PA	2
430	Authorized Testing Representative (ATR) Training	September 20-22	Milwaukee, WI	4
430	Authorized Testing Representative (ATR) Training	October 11-13	Englishtown, NJ	1
430	Authorized Testing Representative (ATR) Training	October 18-20	Colorado Springs, CO	5
430	Authorized Testing Representative (ATR) Training	November 15-17	Newark, DE	1
452	Introduction to Computer Aided Drafting (CAD)	March 7 – May 13	Blackboard™	Online
468	Medical Gas Instructor	April 18-22	Ann Arbor, MI	GLRTC
468	Medical Gas Instructor	October 3-7	Wichita KS	4
470	OSHA 500 Trainer Course for the Construction Industry	April 11-15	Ann Arbor, MI	GLRTC
470	OSHA 500 Trainer Course for the Construction Industry	November 7-11	Ann Arbor, MI	GLRTC
471	OSHA 510 OSHA Standards for the Construction Industry	March 14-17	Ann Arbor, MI	GLRTC
471	OSHA 510 OSHA Standards for the Construction Industry	August 8-11	Ann Arbor, MI	GLRTC
471	OSHA 510 OSHA Standards for the Construction Industry	October 17-20	Ann Arbor, MI	GLRTC
474	OSHA 502 Update for Construction Industry Outreach Trainer	June 14-16	San Antonio, TX	3
474	OSHA 502 Update for Construction Industry Outreach Trainer	December 6-8	Ann Arbor, MI	GLRTC
491	Basic Non-Destructive Testing	March 21-25	Aurora, IL	4
491	Basic Non-Destructive Testing	November 7-11	Ann Arbor, MI	GLRTC
493	AWS-CWI® Preparation Course and Exam	January 16-23	Augusta, GA	3
493	AWS-CWI® Preparation Course and Exam	February 6-13	Cedar Rapids, IA	4
493	AWS-CWI® Preparation Course and Exam	February 20-27	Van Nuys, CA	5
493	AWS-CWI® Preparation Course and Exam	February 27 – March 5	Phoenix, AZ	5
493	AWS-CWI® Preparation Course and Exam	March 19-26	Tulsa, OK	3
493	AWS-CWI® Preparation Course and Exam	April 9-16	Paducah, KY	2
493	AWS-CWI® Preparation Course and Exam	April 30-May 7	Waco, TX	3
493	AWS-CWI® Preparation Course and Exam	May 21-28	Kansas City, MO	4
493	AWS-CWI® Preparation Course and Exam	May 21-28	Pittsburgh, PA	2
493	AWS-CWI® Preparation Course and Exam	June 11-18	Landover, MD	2
493	AWS-CWI® Preparation Course and Exam	July 16-23	Indianapolis, IN	2
493	AWS-CWI® Preparation Course and Exam	August 6-13	Ann Arbor, MI	GLRTC
493	AWS-CWI® Preparation Course and Exam	September 17-24	Pasco, WA	5
493	AWS-CWI® Preparation Course and Exam	October 8-15	Lima, OH	2
493	AWS-CWI® Preparation Course and Exam	November 12-19	Butte, MT	4
493	AWS-CWI® Preparation Course and Exam	December 10-17	E. Providence, RI	1
498	Level I Certification and Implementing a Process Controls Instrument Technician Program	March 14-19	Ann Arbor, MI	GLRTC
499	Level II Certification and Implementing a Process Controls Instrument Technician Program	May 23-28	Ann Arbor, MI	GLRTC
522	Labor History and the UA: 1800 to the Present	February 1 – April 22	Blackboard™	Online
522	Labor History and the UA: 1800 to the Present	October 3 – December 5	Blackboard™	Online
600	Principles of Arc Welding Processes, Welder and Weld Process Qualification	July 11-13	OSU	2
601	Weld Metallurgy, Defects and Discontinuities for Process Piping Materials	June 6-8	OSU	2
602	NDE for Process Piping	June 8-10	OSU	2
603	Principles of Welding Design	July 13-15	OSU	2
620	C-2102 YK High Pressure Centrifugal Operation/Maintenance	January 26-28	Cypress, CA	5
621	C-2107 YT/YK Centrifugal Chiller and Compressor Overhaul	April 4-8	Houston, TX	3
622	C-2111 YVAA Air Cooled Screw Chiller	March 15-17	Sparks, MD	2
622	C-2111 YVAA Air Cooled Screw Chiller	April 19-21	Phoenix, AZ	5
623	C-2103 YCAV Air Cooled Rotary Screw Liquid Chillers	February 16-18	Sparks, MD	2
623	C-2103 YCAV Air Cooled Rotary Screw Liquid Chillers	March 8-10	Phoenix, AZ	5

GLRTC - Great Lakes Regional Training Center

The date for the 2016 Instructor Training Program is August 13-19, 2016

<u>Course Reference</u>	<u>Course Name</u>	
30 Series Screw**	ITP 322 SER 270 30 Series Screw and Scroll Chiller Fundamentals.....	Page 24
3rd Professional Course**	ITP 103 Planning, Teaching and Assessing Effective Lessons: Advanced.....	Page 39
Applied Rooftop Units	ITP 334 SER 147 Applied Rooftop Units.....	Page 28
ATR	ITP 430 Authorized Testing Representative (ATR) Training	Page 25, 29, 30, 33, 35, 38
AWS-CWI®	ITP 493 AWS-CWI® Preparation Course and Exam.....	Page 27, 29, 31, 33, 36, 38
Blackboard™**	ITP 228 Online Teaching Techniques Using Blackboard™	Page 39
CAD	ITP 452 Introduction to Computer Aided Drafting (CAD).....	Page 39
Carbon Dioxide Refrigeration	ITP 261 Principles of Training on Carbon Dioxide (CO2R744) Refrigeration Systems.....	Page 30
Centrifugal Compressor	ITP 320 SER 120 Centrifugal Compressor Fundamentals	Page 28
Disassembly	ITP 321 SER 130 Centrifugal Disassemble and Reassembly	Page 28
Downhill Welding	ITP 286 Downhill Welding.....	Page 37
Drainage	ITP 219 Drainage.....	Page 23
Fire Protection Trailer	ITP 313 Operation and Setup of Fire Protection Trailer	Page 24, 33, 37
Fire Pump	ITP 315 Fire Pump ITM and Repair Class	Page 35
GMAW**	ITP 359 Methods in Teaching Gas Metal Arc Welding (GMAW).....	Page 24
GPRO	ITP 231 Methods in Teaching the Green Professional Building Skills Training – GPRO-UA	Page 23
Hydronic Heat and Cool	ITP 257 Teaching Hydronic Heating and Cooling Systems.....	Page 23
Instrumentation** Level 1	ITP 498 Level I Certification and Implementing a Process Controls Instrument Technician Program	Page 27
Instrumentation ** Level 2	ITP 499 Level II Certification and Implementing a Process Controls Instrument Technician Program	Page 27
Labor History	ITP 522 Labor History and the UA: 1800 to Present	Page 40
Liquid Chiller	ITP 323 SER 275 23XRV Liquid Chiller Screw Chiller Service and Operation.....	Page 24
Medical Gas**	ITP 468 Medical Gas Instructor.....	Page 26, 36
Microturbines	ITP 311 Introduction to Microturbines and Service	Page 24
NDT	ITP 491 Basic Non-Destructive Testing.....	Page 26, 36
Orbital Tube Welding	ITP 271 Orbital Tube Welding	Page 23
Orbital Welding**	ITP 275 Advanced Orbital Welding.....	Page 24
OSHA 500**	ITP 470 OSHA 500 Trainer Course for the Construction Industry.....	Page 26
OSHA 502**	ITP 474 OSHA 502 Update for Construction Industry Outreach Trainer	Page 26, 33
OSHA 510	ITP 471 OSHA 510 OSHA Standards for the Construction Industry.....	Page 26
OSU Course 1	ITP 600 Principles of Arc Welding Processes, Welder and Weld Process Qualification	Page 31
OSU Course 2	ITP 601 Weld Metallurgy, Defects and Discontinuities for Process Piping Materials.....	Page 31
OSU Course 3	ITP 602 NDE for Process Piping	Page 31
OSU Course 4	ITP 603 Principles of Welding Design.....	Page 32
Pipe Fitting Layout	ITP 340 Pipe Fitting Layout.....	Page 35
Plumbing Repair	ITP 377 Methods in Teaching the Plumbing Service Maintenance and Repair Manual	Page 25
Rigging Certification**	ITP 420 Industrial Rigging Certification for Instructors.....	Page 25
Rigging Technologies	ITP 419 Industrial Rigging Technologies.....	Page 25
Single Zone Rooftop Units	ITP 333 SER 143 Single Zone Rooftop Units	Page 28
Teaching Introduction using Blackboard™	ITP 224 Introduction to Teaching Online Using Blackboard™	Page 23
Tip Tig	ITP 357 Tip Tig Wire Feed Welding	Page 29, 30, 37
UA STAR	ITP 382 Teaching the HVACR UA Star Certification	Page 39
Victaulic	ITP 314 Victaulic Vortex System Training.....	Page 30
VRF	ITP 317 Variable Refrigerant Flow (VRF)-The CITY MULTI Service Course.....	Page 30, 37
Variable Refrigerant Flow – Daikin	ITP 318 Variable Refrigerant Volume (VRV) Systems.....	Page 35
YCAV Rotary Screw		
Liquid Chillers	ITP 623 C-2103 YCAV Air Cooled Rotary Screw Liquid Chillers	Page 32, 38
YK High Pressure	ITP 620 C-2102 YK High Pressure Centrifugal Operation/Maintenance.....	Page 38
YT/YK Centrifugal Chiller	ITP 621 C-2107 YT/YK Centrifugal Chiller and Compressor Overhaul.....	Page 34
YVAA Air Cooled Screw Chillers	ITP 622 C-2111 YVAA Air Cooled Screw Chillers.....	Page 32, 38

** Prerequisite

Note: You must bring the required material to class. If you do not have this material, the following items are available for purchase through the [UA/IPT Bookstore](#) or as indicated.

<u>Course # – Description</u>	<u>Required Material</u>
231 Methods in Teaching the Green Professional Building Skills Training – GPRO-UA	GPRO Fundamentals of Building Green; GPRO Plumbing; GPRO Mechanical
257 Teaching Hydronic Heating and Cooling Systems	Hydronic Heating and Cooling (R/15)
271 Orbital Tube Welding	Orbital Welding CD
275 Advanced Orbital Tube Welding	Orbital Welding CD
317 Variable Refrigerant Flow (VRF)-The CITY MULTI Service Course ..	Mitsubishi CityMulti Course Book
318 Variable Refrigerant Volume (VRV) Systems	TBD
377 Methods in Teaching the Plumbing Service Maintenance and Repair Manual	Plumbing Service Maintenance and Repair Manual (ATP) (F/11); Customer Service Flash Cards
419 Industrial Rigging Technologies	Rigging Manual; IPT Crane and Rigging Handbook
420 Industrial Rigging Certification for Instructors	Rigging Manual; IPT Crane and Rigging Handbook
452 Introduction to Computer Aided Drafting (CAD)	2016 AutoCAD, Level 1 Manual
468 Medical Gas Instructor	NFPA-99 2012 Edition Health Care Facilities; NFPA Medical Gas and Vacuum Systems Installation Handbook (2012); ASSE Series 6000 Medical Gas Professional Qualifications Standard
470 OSHA 500 Trainer Course for the Construction Industry**	OSHA 500 Manual; CFR 1926; Disaster Response DVD
471 OSHA 510 OSHA Standards for the Construction Industry** ..	OSHA 510 Training Binder; CFR 1926
474 OSHA 502 Update for Construction Industry Outreach Trainer** ..	OSHA 502 Training Binder; CFR 1926; Disaster Response DVD
493 AWS-CWI® Preparation Course and Exam***	API 1104 (21st Edition) Welding Pipelines and Related Facilities
522 Labor History and the UA: 1800 to the Present	Labor in America (Melvyn Dubosfky and Foster Rhea Dulles); Skilled Hands, Strong Spirits (Grace Palladino); The Rise of the United Association (Martin Segal); DVD published by AFLCIO Building Construction Trades Department “A Century of Leadership - Skilled Hands Strong Spirits 100 Year Anniversary” (1908 - 2008)

Notes: *OSHA material is not sold directly to students. It is sent to the course location and the instructor distributes it along with a purchase order which is filled out by students and returned to the instructor, who forwards the purchase order to the International Pipe Trades Bookstore.

**To purchase the API 1104 (21st Edition) Welding Pipelines and Related Facilities book for Course 493, AWS-CWI® Preparation Course and Exam, call IHS Global Engineering Documents at (877) 413-5184. The cost is \$286.00.

Purchase Material for all Regional Training Classes at:
 International Pipe Trades Joint Training Committee (Bookstore)
 687-B Commerce Drive
 Upper Marlboro, MD 20774
 Telephone: 301-218-1241
 Fax: 301-218-8961
 E-Mail: iptbookstore@uanet.org

2016 SAFETY REQUIREMENTS

Students must bring their own safety equipment. These items will not be supplied. Safety equipment and protective clothing is required for all shop classes. Safety requirements will be strictly enforced. Any student who fails to meet safety requirements will be removed from class.

1. Eye and Face Protection (OSHA-1926 1926.102)

Goggles or spectacles conforming to ANSI Z87.1-1968 shall be used as primary protection. Safety glasses will be required in all shop classes.

2. Face Shields

Face shields shall be used as secondary protection when the faculty instructor requires it.

3. Welding Shields

Welding shields and head covering must meet industry standards and be approved by the faculty instructor. You must bring welding hoods for welding classes.

4. Hand Protection

Appropriate gloves must be worn when doing hot work or working with sharps as approved by the faculty instructor. You must bring gloves for welding classes and other classes where hands-on work is a part of the class.

5. Arms and Torso Protection

Welders must use appropriate protective jackets, sleeves, and/or other protective gear. All protective gear must be approved by the faculty instructor. Long sleeve shirts will be required in all shop classes. You must bring welding jackets for classes.

6. Foot Protection

Work shoes must be made of leather or other similarly strong materials, and are required in all shop classes (No sneakers or sandals will be permitted).

7. Leg Protection

Long pants will be required in all shop classes (No shorts will be permitted).

Facilities

The Great Lakes Regional Training Center (GLRTC) was built in 2003 and is the home base for the UA's Instructor Training Program. The GLRTC is a 15,000-square-foot facility with classrooms, labs, and equipment used in all aspects of UA training. In 2013 and 2014, the GLRTC underwent extensive renovation. It now includes new welding labs with the latest in technology such as training on microturbines. Classrooms were updated as well, creating a flexible environment that can accommodate everything from computer-based learning to the newest equipment and technology that instructors and UA members are likely to find on jobsites all across North America. The GLRTC has proven to be an essential component of the overall training program.



What We Do

The Great Lakes Regional Training Center:

- Answers any questions you have about training center services
- Assists students in web-based classes using Blackboard™
- Helps instructors develop online classes
- Facilitates student participation in College on Demand® courses
- Provides academic advising for WCC Associates Degrees
- Evaluates transfer credits from other academic institutions
- Facilitates various onsite training courses throughout the year.

Over 75,000 UA apprentices and 6,500 instructors and journeymen participate in college credit programs at Washtenaw Community College. Each year the Great Lakes Regional Training Center awards around 110,000 college credits to UA members.

Staff

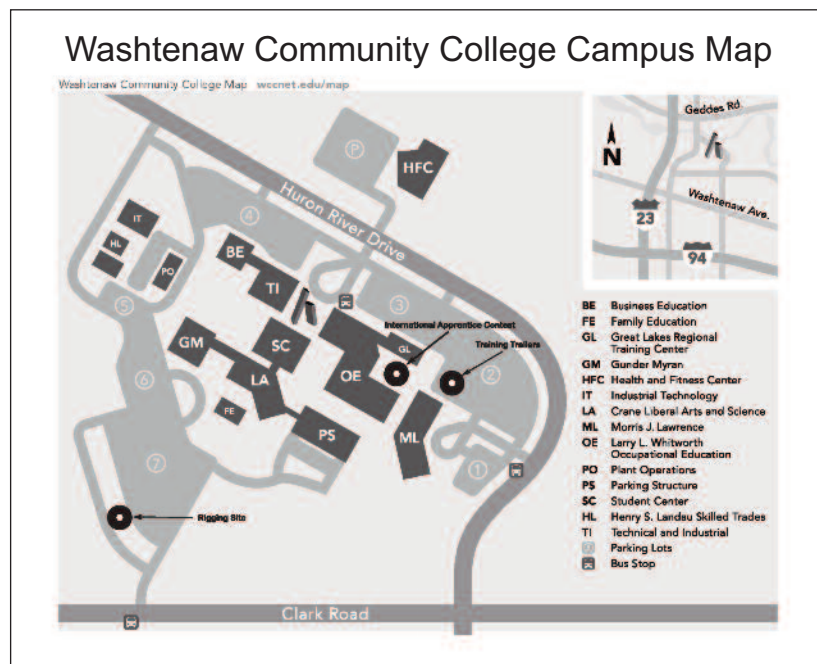
Anthony Esposito,
Technical Director

Kim Billings,
Logistics Director

Mike Griffith,
WCC-UA Student Services
Coordinator

Address

UA Great Lakes Regional
Training Center
4800 East Huron River Drive
Ann Arbor, MI 48105
(734)-973-3300



In our efforts to serve the United Association on a more year-round basis, the Ann Arbor Area CVB created a Preferred Rate Program for all UA members. The program runs from January 1 through December 31 each year.

The program operates as follows:

- The Preferred rate applies to group reservation and individual transient type reservations and DOES NOT include the UA Instructor Training Program in August.
- Participating hotels will offer special UA discounted rates throughout the year. Every UA member will receive the special Preferred Rate at the time of the reservation. Black-out dates may apply during special event dates.
- Rates quoted do not include accommodation/sales tax.

Participating Hotel Partners

Ann Arbor Regent Hotel & Suites
2455 Carpenter Rd., Ann Arbor, MI 48108
Reservations (734)973-6100
www.annarborregent.com

Special Amenities

Code: UA
Breakfast Included
Complimentary Wireless Internet

Courtyard by Marriott Ann Arbor
2455 Carpenter Rd., Ann Arbor, MI 48108
Reservations (734)973-6100
www.marriott.com/arbch

Code: UAPC
\$134 Single/Double
Complimentary Wireless Internet
Pool / Fitness Center

Holiday Inn & Suites University of Michigan Area
3155 Boardwalk Dr., Ann Arbor, MI 48108
Reservations (734)213-1900
<http://www.holidayinn.com/annarbormi>

Code: UA Great Lakes Center
\$99 Single/Double
Online Corporate ID: 100203393
Complimentary Wireless Internet
IHG Rewards Club Points

Holiday Inn near the University of Michigan
3600 Plymouth Rd., Ann Arbor, MI 48105
Reservations (734)769-9800
www.hiannarbor.com

Code: UA Rate
\$92.00 Single/Double or \$102 Executive Level
Complimentary transportation to/from Great Lakes
Regional Training Center (based on availability)
IHG Rewards Club Points

Kensington Court Hotel
600 Briarwood Circle, Ann Arbor, MI 48108
Reservations (734)761-7800
www.kcourtaa.com

Code: UA LNR Rate

Residence Inn Ann Arbor North
3535 Green Ct., Ann Arbor, MI 48105
Reservations (734)327-0011
www.marriott.com/arbrn
Jessie.piercy@marriott.com

Contact Sales for Discount: Jessie Piercy
10% off Rack Rate
Contact Sales for Discount: Jessie Piercy
Complimentary Wireless Internet

Weber's Inn
3050 Jackson Ave., Ann Arbor, MI 48103
Reservations (734)769-2500

Code: UA Rate
\$93.00 Single/Double
Online Corporate ID: 0105099

Questions? Call Kristy Poore at the Ann Arbor Area Convention & Visitors Bureau
UA Dedicated Phone Line: (734) 794-0649
1-800-888-9487 or email at ua@annarbor.org

219 Drainage (New)

This course is designed for those teaching installation of the various drainage systems used by pipe trades journeymen. The course includes: Drainage historical perspectives, an illustrated glossary, drainage waste and vent materials, fittings and supports, traps and fixture connections, the building sanitary drainage system, vent systems, sewers and sewage treatment, storm drainage, alternate sources drainage systems, private sewage disposal systems, and DWV and storm water sizing

Course Dates

October 18-20, 2016

224 Introduction to Teaching Online Using Blackboard™

Prerequisite: Basic computer experience and understanding of online tools such as browser knowledge. A valid email is required.

This is a twenty hour introductory course/workshop for novice computer users wishing to learn about future Blackboard™ use. Students will learn to effectively navigate various internet sites and gain an understanding of internet addresses (URLs). Using an assigned Blackboard™ Course site, they will learn how to use some of the basic content areas of a Blackboard™ Course site. Various file types used on the internet will also be covered.

Course Dates

March 7-9, 2016

231 Methods in Teaching the Green Professional Building Skills Training – GPRO-UA

This course teaches the basics of sustainability and provides an overview of the essential strategies and work practices that make buildings more efficient. GPRO-UA covers the "green gap" between standard trade skills and the new awareness required to successfully implement sustainable building practices. The GPRO-UA Manual is comprised of three content areas - GPRO Fundamentals of Building Green, Green Plumbing and Green Mechanical Systems. This new certification program and manual provides a more complete overview of what constitutes green building and maintenance. The GPRO-UA Instructor Resource Library Training Package will be demonstrated, used and made available for instructor use after successfully passing the course. A written exam will be administered at the end of the course. UA instructors who successfully pass the course and exam will receive the Urban Green Council GPRO-UA Instructor Certification.

Required text for this course: *GPRO Fundamentals of Building Green; GPRO Plumbing; GPRO Mechanical*

Course Date

April 18-21, 2016

257 Teaching Hydronic Heating and Cooling Systems

This course is for UA instructors who presently teach, or are planning to teach Hydronic Heating and Cooling systems. Through a combination of PowerPoint presentations, lecture and group discussion, this class will familiarize the student instructors with the fundamentals of hydronic heating and cooling systems. The class will cover low pressure water boilers, heat exchangers, chillers and condensers, water source heat pump systems, cooling towers, system controls and accessories, hydronic control valves, valve arrangement, piping system layouts, piping practices, centrifugal pumps, pump curves, system curves, primary-secondary pumping, flow balancing (elementary), venting, zoning, expansion/compression tanks, fluid flow principles, and heat transfer calculations.

Required text for this course: *Hydronic Heating and Cooling (R/15)*

Course Date

May 10-12, 2016

271 Orbital Tube Welding

All students are required to have UA 18A certification before this class. It is recommended that students have past experience in programming and using orbital welding. This class will help them learn how to program "step welding" and when it is practical to use. In combination with that, they will be taught a very efficient method of layout and bending of tubing. They will receive all of the training and materials needed to return to the home local and teach it in an effective manner. **Refer to 2016 Safety Requirements.**

Required text for this course: *Orbital Welding CD*

Course Date

May 10-12, 2016

275 Advanced Orbital Tube Welding

Prerequisite: Certified Welder in the Gas Tungsten Arc Welding (GTAW) process

This course provides UA instructors with an understanding of how to teach the orbital wire feed welding process at the local level. The course covers the operation, technology, equipment set-up, and safety issues associated with these types of advanced welding systems. Additionally, this course will cover process variables, system programmer control functions, and weld parameter selection, and gives the theoretical basis for weld program development. The course provides instructors with a hands-on approach in using the AMI 227 and Liburdi Gold Track orbital wire feed welding systems.

Required text for this course: *Orbital Welding CD*

Course Date

October 11-13, 2016

311 Introduction to Microturbines and Service

This course will provide an overview of the fundamentals involved with the installation, operation and maintenance involved in Microturbines. Additionally, students will be given instruction on how Microturbines can be used as part of a Trigeneration system. Instruction will be done on a CCHP (Combined, Cool, Heat Power) system utilizing a new equipment installed in Washtenaw Community College and the Great Lakes Regional Training Center which includes two 65kW Capstone Microturbines, an absorber and cooling tower.

Course Date

May 23-25, 2016

313 Operation and Setup of Fire Protection Trailer

UA student instructors participating in this course will learn how to present classes utilizing the trainers contained within the UA Fire Protection training trailer as they apply to the fire protection equipment installed and serviced by UA members, this will include the Victaulic Vortex system set up and breakdown that protects the trailer. Instructors will learn the best practices for teaching with the training trailer along with proper trailer setup and repacking including water connections, setup and draining. They will learn the operation of the onboard generator and audio video systems, this will also include equipment safety of the fuel, electrical systems. The training trailer event scheduling and transportation policies will be covered. Safety shoes are mandatory. **Refer to 2016 Safety Requirements.**

Course Date

September 13-15, 2016

322 SER 270 30 Series Screw and Scroll Chiller Fundamentals

In one weeks' time you will learn to operate, maintain, troubleshoot and service Carrier's complete line of 30 series air-cooled and water-cooled chillers, models include 30GX/HX, RA/RB, XA/XW. This course is a must for any technician whose job it is to service the complete line of 30 series chillers. Studies include chiller refrigeration cycle, compressor theory, cooler heat transfer, water and air-cooled condensers. You'll also learn how to analyze performance by recording and analyzing refrigerant and water pressures and temperatures. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates

March 8-10, 2016

October 11-13, 2016

323 SER 275 23XRV Liquid Chiller Screw Chiller Service and Operation

This course is targeted at service technicians who operate or service 23XRV chillers. This class will cover the chiller refrigeration cycle, compressor theory, drive theory, cooler heat transfer, water cooled condensers. Operation and function of the compressors, muffler, condenser, coolers, economizers, metering devices, oil concentrator and accessories are covered. You will learn how to analyze performance by recording and analyzing refrigerant and water pressures and temperatures. Service technicians will be able to distinguish between chiller and system problems and to quickly diagnose problems using service logs. The class also covers the unit controls and how to set-up and adjust the controls for optimum system performance. In addition, recommended pre-start and start-up procedures, operational and field issues will be covered. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates

March 16-17, 2016

October 11-12, 2016

359 Methods in Teaching Gas Metal Arc Welding (GMAW)

Prerequisite: Certified Welder in the GMAW welding process

This course is designed for local union welding instructors, and covers advanced gas metal arc welding equipment and techniques. The course focuses on how to teach advanced techniques of gas metal arc welding (GMAW) and process variables for a variety of materials. More and more, the piping industry is turning to the use of advanced welding equipment and techniques. This course provides local unions with a means

of preparing their members in developing the skills necessary to address industry's welding needs. Students must bring their own welding hoods, welding jackets, welding gloves, work shoes, and wear proper protective clothing. **Refer to 2016 Safety Requirements.**

Course Date

April 12-14, 2016

377 Methods in Teaching the Plumbing Service Maintenance and Repair Manual

This course is intended to assist UA instructors in their development and presentation of classroom instruction of the UA Plumbing Service, Maintenance and Repair Manual curriculum. The course will also concentrate on hands-on skills training utilizing the Plumbing Service Mobile Classroom Training Modules and appropriate tools and equipment. The course emphasizes the communication skills needed in the plumbing service industry. The course will include material referencing plumbing service troubleshooting, repair, installation, sales, business operations, vehicles, and equipment and company policies. **Refer to 2016 Safety Requirements.**

Required text for this course: *Plumbing Service Maintenance and Repair Manual (ATP) (F/11); Customer Service Flash Cards*

Course Date

April 4-8, 2016

419 Industrial Rigging Technologies

This course will ensure that individuals are trained in the planning and precautions required when lifting materials and equipment; proper and safe rigging of loads; proper applications of slings and rigging hardware; advantages and disadvantages of each piece of rigging gear; uses of rigging hardware; determination/calculations of rigging loads and equipment; and proper maintenance of rigging equipment and rigging personal protective equipment. All courses are train-the-trainer and center around methods of teaching. Only a small portion of the course will involve hands-on training, although proper protective clothing, foot protection and safety glasses are mandatory. **Refer to 2016 Safety Requirements.**

Required text for this course: *Rigging Manual; IPT Crane and Rigging Handbook*

Course Date

March 21-25, 2016

420 Industrial Rigging Certification for Instructions

Prerequisite: Course #419 Industrial Rigging Technologies

Industrial Rigging Certification for the instructor is a train-the-trainer course that teaches a theoretical and a practical component covering the best rigging practices, calculating centers of gravity, sling stress, crane set up, and the use of the tuggers, jacks, and rollers. There will be a hands-on performance evaluation. Participants rigging skills are evaluated by means of a certification examination consisting of a multiple choice written exam and a hands-on performance exam. The hands-on performance exam consists of performance steps that are administered by having the examinee actually perform a sequence of lifts using the necessary tools and equipment. Proper protective clothing, foot protection and safety glasses are mandatory. **Refer to 2016 Safety Requirements.**

Required text for this course: *Rigging Manual (R/04); IPT Crane and Rigging Handbook; Students must read pages 1 to 163 in the IPT Crane and Rigging Handbook and all of the Rigging Manual prior to class and have a clear understanding of both books.*

Course Date

October 24-28, 2016

430 Authorized Testing Representative (ATR) Training

This course is designed to provide participants a working knowledge of the UA Welder Certification Program in order to perform the duties and responsibilities of an Authorized Testing Representative. Following successful completion of the course and upon meeting the Authorized Testing Representative Candidate Requirements as specified in Section 3 of the *UA Welder Certification Program Quality System Manual* individuals will receive their appointment as an Authorized Testing Representative. This course will also serve as a refresher class for those individuals looking to renew their credentials as an Authorized Testing Representative. **Students should bring a calculator to class.**

Course Date

May 17-19, 2016

468 Medical Gas Instructor

Prerequisite: Current Medical Gas Installer and Medical Gas Brazier Certifications

All fees are the responsibility of the student and must be paid by the first day class. See fee schedule.

This train-the-trainer course covers the NFPA 2012 codes and ASSE Series 6000 standards that govern medical gas and medical-surgical vacuum piping system installation and testing, requirements for installer qualification, and requirements for brazer qualification in accordance with ASME Section IX. A written exam will be administered at the end of the course. UA instructors who successfully pass the course and exam will receive the certification of a Medical Gas Instructor of the United Association issued by NITC.

Required text for this course: *NFPA-99 2012 Edition Health Care Facilities; NFPA Medical Gas and Vacuum Systems Installation Handbook (2012); ASSE Series 6000 Medical Gas Professional Qualifications Standard*

Course Date

April 18-22, 2016

470 OSHA 500 Trainer Course for the Construction Industry

Prerequisite: Course 471, OSHA 510

This course certifies UA instructors to teach the OSHA 10-hour and OSHA 30-hour construction safety and health outreach programs at their respective locals. Special emphasis is placed on adult learning principles and training techniques to clearly identify, define, and explain construction industry hazards and acceptable corrective measures as required in the programs, using 29 CFR 1926 OSHA Construction Standards as a guide. This course also covers the effective use of electronic visual aids and handouts. After successful completion of the course the student will be given a bag containing hands-on training materials to use in class, i.e., eye, ear, head and hand protection items.

Required text for this course: *OSHA 500 Manual; CFR 1926; Disaster Response DVD*

Course Date

April 11-15, 2016

November 7-11, 2016

471 OSHA 510 OSHA Standards for the Construction Industry

This is the prerequisite course for Course 470, OSHA 500. This course covers the construction safety and health principles and OSHA policies, procedures and standards, as they apply to the construction industry. Topics include scope and application of the OSHA construction standards. Special emphasis is placed on those

areas that are the most hazardous, using OSHA standards as a guide. As of September 1, 2011 all new instructors must have taken the OSHA 510 prior to taking the OSHA 500 course. OSHA is requiring this to ensure this prerequisite is met, along with the longstanding prerequisite of instructors possessing five years of safety and health experience in the construction industry.

Required text for this course: *OSHA 510 Training Binder; CFR 1926*

Course Dates

March 14-17, 2016

August 8-11, 2016

October 17-20, 2016

474 OSHA 502 Update for Construction Industry Outreach Trainers

Prerequisite: Course 470, OSHA 500

This course is designed for instructors who have completed the Basic Instructor Course in Occupational Safety and Health Standards for the Construction Industry (OSHA 500) Course. OSHA requires that these instructors stay current on OSHA standards and they must take the OSHA 502 update course every four years to maintain their status. Course participants will be provided updates on such topics as OSHA construction standards, policies and regulations. After completion of the course, each participant will receive a certificate. OSHA will be notified that they have completed this course and met their obligation to stay current.

Required text for this course: *OSHA 502 Training Binder; CFR 1926; Disaster Response DVD*

Course Date

December 6-8, 2016

491 Basic Non-Destructive Testing

This course covers the basic Non-Destructive Examination (NDE) methods of Liquid Penetrate (PT) using the solvent removable visible dye technique, and Magnetic Particle (MT) using the dry particle electromagnetic yoke technique. The course will involve theory and hands-on practical application of both the PT and MT methods. It is recommended class attendees hold the AWS CWI® credential. A certification will be issued upon completing and passing of the exams given at the end of this course. **Refer to 2016 Safety Requirements.**

Course Date

November 7-11, 2016

493 AWS-CWI® Preparation Course and Exam

Prerequisite: 5 Years' Welding Experience

All fees are the responsibility of the student. See fee schedule.

This course will provide welding inspectors with the knowledge of welding and inspection fundamentals useful on the jobsite. It involves great responsibility and remarkable skill demonstration. The CWI® is widely recognized, both nationally and internationally. This intensive course covers information on nondestructive examination methods applicable to common welding processes and general provisions of API 1104, which includes qualification of welding procedures for welds containing filler-metal additions, design and preparation of the joint for production welding, nondestructive testing and acceptance standards, and automatic welding with and without filler-metal additions. You must be a high school graduate or hold an equivalency diploma and have a minimum of five (5) years' experience in the welding field.

Required text for this course: *API 1104 (21st Edition) Welding Pipelines and Related Facilities*

Course Date

August 6-13, 2016

498 Level I Certification and Implementing a Process Controls Instrument Technician Program

This 60-hour course (six 10-hour days) consists of basic sciences and fundamentals related to instrumentation and controls, as applied to the UA certification. The objectives of this course is to present the principles and operations of Industrial Instrumentation and to prepare UA instructors who will teach the class to UA members; the course will consist of definitions, symbols and flow diagrams, level, pressure, flow and temperature measuring instruments. The course will also introduce the UA instructor to the equipment and information on calibration of transmitters, transducers, valve positioners, and controllers. There will be a review of the *UA Instrumentation and Process Control Book* and questions; and questions from the ISA Instrumentation Program. We will review the four domains of instrumentations: (1) Level, (2) Flow, (3) Pressure, and (4) Temperature. Quizzes will be taken after each section. There will be a final 200-question, multiple choice certification exam. This is the Level I UA/IBEW/EPRI certification exam.

Required text for this course: *Instrumentation Manual*

Course Date

March 14-19, 2016

499 Level II Certification and Implementing a Process Controls Instrument Technician Program

Prerequisite: Course 498, Level I Certification and Implementing a Process Controls Instrument Technician Program.

This 60-hour course (six 10-hour days) consists of basic sciences and fundamentals related to instrumentation and controls, as applied to the UA certification. The course will also introduce the UA instructor to the equipment and information on calibration of transmitters, transducers, valve positioners, and controllers. This course is constructed of two parts. The first part is designed for instructors who hold a current UA/IBEW/EPRI Level I Certification and are seeking to be certified as a Level II Technician. Students should have a strong background in the fundamentals of industrial instrumentation and calibration. The UA/IBEW/EPRI Level II Certification consists of three (3) process control instruments using a variety of calibration equipment. For information on the calibration equipment and instruments to be calibrated, please refer to the uanet.org website. This is a hands-on pass/fail certification exam. The second part is designed specifically for local unions that want to set up and implement an Instrument Calibration program. The curriculum will cover the educational resources, calibration equipment, and instruments needed to set up a program. Students will be given the curriculum materials to assist them in setting up this program. **Class is limited to 6 students.**

Required text for this course: *Instrumentation and Process Controls Manual (R/00); Instrumentation Instructor CD*

Course Date

May 23 – 28, 2016

320 SER 120 Centrifugal Compressor Fundamentals

In this 32 hour course, students learn how to operate, maintain, troubleshoot and service 19 series low and high-pressure machines (including PIC controls on newer models). Learning is tested in the labs. Studies include: refrigeration cycles, compressor theory, lubrication cycles, purge operation, refrigerants, heat exchangers and heat transfer. The course also covers troubleshooting techniques and equipment needed to: record and analyze machine temperatures and pressures; determine performance using heat exchange approaches; waterside flow rate analysis; Maintenance requirements; and logging machine data. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**February 16-19, 2016**

Carrier Corporation

6540 Old Collamer Road S.; E. Syracuse, NY 13057

321 SER 130 Centrifugal Disassembly and Reassembly

CDR is designed to teach experienced service mechanics how to properly disassemble both low and high-pressure centrifugal compressors, including Models 19XL, XR and EX. Techniques and procedures for using precision instruments are taught for determining clearances, fits, and tolerances of various bearing, seals and components. Students also review compressor lubrication, motor cooling, and capacity control. Because this course is lab oriented with enhanced student/instructor contact, attendance is limited and early registration is recommended. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates**February 29- March 3, 2016**

Carrier Corporation

6540 Old Collamer Road S.; E. Syracuse, NY 13057

October 4- October 7, 2016

Carrier Corporation

6540 Old Collamer Road S.; E. Syracuse, NY 13057

333 SER 143 Single Zone Rooftop Units

The Single Zone Rooftop service course is for technicians servicing Carrier Single Zone rooftop units. This is the first of a two-sequenced training course on commercial roof top units and deals with the most common packaged product in the industry. The class provides detailed training intended to improve the troubleshooting skills and product knowledge of HVAC technicians. A variety of rooftop units and simulators are used to

provide training exercises for wiring diagram interpretation, compressor troubleshooting, and control/sensor troubleshooting. The course specifically covers Carrier rooftop produced over the last 20 years, however many procedures covered can be universally applied to all makes of rooftop units. Specific models covered include 48/50 D,T,H, P and L series units under 25 tons. These models cover electric/electric, gas/electric, heat pump, and dual fuel units primarily as applied in constant volume applications. At the end of this course a student will be able to better able to quickly diagnose and repair refrigeration, gas heating, heat pump, economizer, air side and system option problems on these units. The class addresses electromechanical, ComfortLink, PremierLink™, and the RTU-OPEN™ Control systems and their operation. The class also addresses staged air volume, ECM and VFD applications, Humidi-MiZer Adaptive dehumidification system, EnergyX heat recovery, and various economizer options used with these units. This class is a mix of classroom training and in lab exercises on actual rooftop units. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates**April 11-15, 2016**

Carrier Corporation

6540 Old Collamer Road S.; E. Syracuse, NY 13057

October 24-28, 2016

Carrier Corporation

6540 Old Collamer Road S.; E. Syracuse, NY 13057

334 SER 147 Applied Rooftop Units

The Packaged Variable Volume Commercial Rooftop service course is for technicians servicing Carrier Variable Volume-Zoned rooftop units. This is the second of a two-sequenced training course on commercial rooftop units and deals with the most common packaged product in the over 20 ton market in the industry. The class provides detailed training intended to improve the troubleshooting skills and product knowledge of HVAC technicians. This course covers the Carrier A, Z, P and N Series Rooftops with ComfortLink Controls. This 3-day training session is conducted utilizing classroom presentations and supplemented with simulator exercises on actual unit control panels. Students will learn how to use the system controls and the latest Controls and Troubleshooting documents to quickly determine and repair system faults. The simulators exercises cover the three modes of operation: Cooling, Heating and Ventilation. There are over 16 faults built in each simulator, allowing the technician to experience the most common problems encountered in the field. Technicians work their way through the panel bug list to ensure a hands-on comfort level with each unit type. Classroom activities include a detailed coverage of installation, start-up, maintenance, and troubleshooting of the refrigeration, heating, economizer, and system option. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Dates**May 23-25, 2016**Carrier Corporation
6540 Old Collamer Road S.; E. Syracuse, NY 13057**November 7-9, 2016**Carrier Corporation
6540 Old Collamer Road S.; E. Syracuse, NY 13057**357 Tip Tig Wire Feed Welding**

This train-the-trainer course is specifically designed for local union welding instructors that provide a detailed understanding of the "Tip Tig" (GTAW) hot wire welding process. The "Tip Tig" manual welding process allows for substantial increases in filler metal deposition while maintaining superior GTAW weld quality. This course covers the safety, operation, technology and equipment set-up associated with this type of advanced welding system. In addition, the course covers process variables, system control functions and weld parameter selection for a variety of material. Enrollment shall be limited to local union instructors with a minimum of five (5) years' experience with the GTAW and GMAW welding processes. Students must bring their own welding hoods, welding jackets, welding gloves, and wear proper protective clothing and foot protection. **Refer to 2016 Safety Requirements.**

Course Date**May 10-12, 2016**Local Union 274 Training Center
205 Jefferson Road; Parsippany, NJ 07054**430 Authorized Testing Representative (ATR) Training**

This course is designed to provide participants a working knowledge of the UA Welder Certification Program in order to perform the duties and responsibilities of an Authorized Testing Representative. Following successful completion of the course and upon meeting the Authorized Testing Representative Candidate Requirements as specified in Section 3 of the *UA Welder Certification Program Quality System Manual* individuals will receive their appointment as an Authorized Testing Representative. This course will also serve as a refresher class for those individuals looking to renew their credentials as an Authorized Testing Representative. **Students should bring a calculator to class.**

Course Dates**October 11-13, 2016**Local Union 9
450 Route 33 & Iron Ore Rd; Englishtown, NJ 07726**November 15-17, 2016**Local Union 74 Training Center
201 Executive Drive; Newark, DE 19702**493 AWS-CWI® Preparation Course and Exam***Prerequisite: 5 Years' Welding Experience***All fees are the responsibility of the student. See fee schedule.**

This course will provide welding inspectors with the knowledge of welding and inspection fundamentals useful on the jobsite. It involves great responsibility and remarkable skill demonstration. The CWI® is widely recognized, both nationally and internationally. This intensive course covers information on nondestructive examination methods applicable to common welding processes and general provisions of API 1104, which includes qualification of welding procedures for welds containing filler-metal additions, design and preparation of the joint for production welding, nondestructive testing and acceptance standards, and automatic welding with and without filler-metal additions. You must be a high school graduate or hold an equivalency diploma and have a minimum of five (5) years' experience in the welding field.

Required text for this course: *API 1104 (21st Edition) Welding Pipelines and Related Facilities***Course Date****December 10-17, 2016**Local Union 51 Training Center
11 Hemingway Drive; E. Providence, RI 02915

261 Principles of Training on Carbon Dioxide (CO2R744) Refrigeration Systems

This course is designed to demonstrate and explain how best to teach CO2 Refrigeration Systems. The instructor will be provided with the latest technology, information, materials and resources necessary to deliver a program on the use of R744 in refrigeration systems. The safety, tools and equipment required to practice in the CO2 industry will be demonstrated. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**March 8-10, 2016**

Local Union 602 Training Center
8421 Ardwick-Ardmore Rd; Landover, MD 20785

314 Victaulic Vortex System Training (New)

The UA journeymen instructor will learn the installation process and design guidelines on Vortex Systems and detailed information on how the system functions and operates, including the Vortex panel controls and functions. This will include putting the system in service and placing the system in maintenance mode for servicing the system. During this class the participants will learn the commissioning process and perform the commissioning test. Inspection Testing and Maintenance for Victaulic Vortex Systems will be covered and include handouts with detailed steps in the ITM process. The participants will gain knowledge and understanding of the science behind the system along with proper installation and testing methods. The proposed NFPA Standard for Hybrid systems will also be discussed. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**October 18-20, 2016**

Victaulic
4901 Kellersville Road; Easton PA 18040

317 Variable Refrigerant Flow (VRF)-The CITY MULTI Service Course

This course is an introduction to Variable Refrigerant Flow Systems (VRF) applied in the HVACR industry of ductless/multi-split systems. This course has been designed to provide the knowledge and tools required to demonstrate and explain how best to teach VRF systems. Instructors will be provided with up-to-date service and engineering manuals, and software where possible to assist with program start-up. Training-the-trainers and the best methods of teaching the skills of application, designing, installing and commissioning VRF systems will be a focused outcome. Industry standards and some troubleshooting of popular VRF systems will be provided. Laptop computers may be an asset for this course. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Required text for this course: *Mitsubishi CityMulti Course Book*

Course Date**March 1-3, 2016**

Local Union 420 Training Center
14420 Townsend Rd., Suite C; Philadelphia, PA 19154

357 Tip Tig Wire Feed Welding

This train-the-trainer course is specifically designed for local union welding instructors that provide a detailed understanding of the "Tip Tig" (GTAW) hot wire welding process. The "Tip Tig" manual welding process allows for substantial increases in filler metal deposition while maintaining superior GTAW weld quality. This course covers the safety, operation, technology and equipment set-up associated with this type of advanced welding system. In addition, the course covers process variables, system control functions and weld parameter selection for a variety of material. Enrollment shall be limited to local union instructors with a minimum of five (5) years' experience with the GTAW and GMAW welding processes. Students must bring their own welding hoods, welding jackets, welding gloves, and wear proper protective clothing and foot protection. **Refer to 2016 Safety Requirements.**

Course Date**September 27-29, 2016**

Local Union 184 Training Center
5820 Benton Road; Paducah, KY 42003

430 Authorized Testing Representative (ATR) Training

This course is designed to provide participants a working knowledge of the UA Welder Certification Program in order to perform the duties and responsibilities of an Authorized Testing Representative. Following successful completion of the course and upon meeting the Authorized Testing Representative Candidate Requirements as specified in Section 3 of the *UA Welder Certification Program Quality System Manual* individuals will receive their appointment as an Authorized Testing Representative. This course will also serve as a refresher class for those individuals looking to renew their credentials as an Authorized Testing Representative. **Students should bring a calculator to class.**

Course Dates**February 16-18, 2016**

Local Union 157 Training Center
8707 East Milner Ave.; Terre Haute, IN 47803-9796

July 12-14, 2016

Local Union 449 Training Center
1459 Woodruff Street; Pittsburgh, PA 15220

493 AWS-CWI® Preparation Course and Exam

Prerequisite: 5 Years' Welding Experience

All fees are the responsibility of the student. See fee schedule.

This course will provide welding inspectors with the knowledge of welding and inspection fundamentals useful on the jobsite. It involves great responsibility and remarkable skill demonstration. The CWI® is widely recognized, both nationally and internationally. This intensive course covers information on nondestructive examination methods applicable to common welding processes and general provisions of API 1104, which includes qualification of welding procedures for welds containing filler-metal additions, design and preparation of the joint for production welding, nondestructive testing and acceptance standards, and automatic welding with and without filler-metal additions. You must be a high school graduate or hold an equivalency diploma and have a minimum of five (5) years' experience in the welding field.

Required text for this course: *API 1104 (21st Edition) Welding Pipelines and Related Facilities*

Course Dates**April 9-16, 2016**

Local Union 184 Training Center
5820 Benton Road; Paducah, KY 42003

May 21-28, 2016

Local Union 449 Training Center
1459 Woodruff Street; Pittsburgh, PA 15220

June 11-18, 2016

Local Union 602 Training Center
8421 Ardwick-Ardmore Rd; Landover, MD 20785

July 16-23, 2016

Local Union 440 Training Center
3747 S High School Road; Indianapolis, IN 46241

October 8-15, 2016

Local Union 776
1300 Bowman Road; Lima, OH 45804

600 Principles of Arc Welding Processes, Welder and Weld Process Qualification

Prerequisite: Attendees must hold current credentials as an AWS Certified Welding Inspector (CWI®)

This first course of a four-course certificate program, which focuses on the fundamentals and principles of welding processes used for pressure piping, with emphasis on the arc welding process. Arc welding topics include power supply fundamentals, process variables and other important characteristics. The course includes an introduction to non-arc welding processes, such as laser, resistance, friction and explosion welding as well as brazing. The end of the course covers a brief review of ASME Section IX, with emphasis on the importance of the weld process variables discussed throughout the course.

Course Date**July 11-13 2016**

Ohio State University
Columbus, OH

601 Weld Metallurgy, Defects and Discontinuities for Process Piping Materials

Prerequisite: Course 600 and be a Certified Welding Inspector

All fees are the responsibility of the student. See fee schedule.

This course would build upon Course 600, but focus on the weld metallurgy of important B31.3 materials such as plain carbon and low alloy steels, stainless/corrosion resistant steels, and nickel base alloys. In addition to building an understanding of metallurgical issues pertaining to the welding of these materials, the course will include an emphasis on the typical defects and discontinuities that are encountered during welding and how they can be prevented.

Course Date**June 6-8, 2016**

Ohio State University
Columbus, OH

602 NDE for Process Piping

Prerequisite: Course 600 and be a Certified Welding Inspector

All fees are the responsibility of the student. See fee schedule.

This course will focus on the principles and application of all of the NDE techniques used for process piping including visual, magnetic particle, liquid penetrant, x-ray, and ultrasonic. A particular emphasis will, of course, be placed on how these techniques are used to detect weld discontinuities and defects.

Course Date**June 8-10, 2016**

Ohio State University
Columbus, OH

603 Principles of Welding Design (New)

Prerequisites: Attendees must hold current credentials as an AWS Certified Welding Inspector

This course focuses on the fundamentals of welding design with associated laboratory experiences. It includes introduction to the physical and mechanical properties of materials, heat flow during welding, formation of thermal and residual stresses and distortion, and fracture and fatigue. Also discussed are joint and weld types, mechanical testing of joints and examples of weld sizing and joint design. Laboratory experiences include measurement of temperature history and relation to microstructure, measurement of residual stresses and examples of distortion, and mechanical testing of welds.

Course Date**June 13-15, 2016**Ohio State University
Columbus, OH**623 C-2103 YCAV Air Cooled Rotary Screw Liquid Chillers**

This three day course teaches service personnel about the YCAV Chiller features, including the screw compressor, system ancillary components, start-up procedures, unit operation and maintenance. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**February 16-18, 2016**Johnson Controls
60 Loveton Circle; Sparks, MD 21152

622 C-2111 YVAA Air Cooled Screw Chiller

This three day course teaches experienced service technicians about the YVAA Chiller. The course will include features of this unit and the differences in installation, operation and maintenance from the YCAV. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**March 15-17, 2016**Johnson Controls
60 Loveton Circle; Sparks, MD 21152

313 Operation and Setup of Fire Protection Trailer

UA student instructors participating in this course will learn how to present classes utilizing the trainers contained within the UA Fire Protection training trailer as they apply to the fire protection equipment installed and serviced by UA members, this will include the Victaulic Vortex system set up and breakdown that protects the trailer. Instructors will learn the best practices for teaching with the training trailer along with proper trailer setup and repacking including water connections, setup and draining. They will learn the operation of the onboard generator and audio video systems, this will also include equipment safety of the fuel, electrical systems. The training trailer event scheduling and transportation policies will be covered. Safety shoes are mandatory. **Refer to 2016 Safety Requirements.**

Course Date**March 8-10, 2016**

Local Union 803

2447 Orlando Central Parkway; Orlando, FL 32809

430 Authorized Testing Representative (ATR) Training

This course is designed to provide participants a working knowledge of the UA Welder Certification Program in order to perform the duties and responsibilities of an Authorized Testing Representative. Following successful completion of the course and upon meeting the Authorized Testing Representative Candidate Requirements as specified in Section 3 of the *UA Welder Certification Program Quality System Manual* individuals will receive their appointment as an Authorized Testing Representative. This course will also serve as a refresher class for those individuals looking to renew their credentials as an Authorized Testing Representative. **Students should bring a calculator to class.**

Course Dates**March 22-24, 2016**

Local Union 803 Training Center

2447 Orlando Central Parkway; Orlando, FL 32809

June 7-9, 2016

Local Union 188 Training Center

2337 E Victory Drive; Savannah, GA 31404

474 OSHA 502 Update for Construction Industry Outreach Trainer

This course is designed for instructors who have completed the Basic Instructor Course in Occupational Safety and Health Standards for the Construction Industry (OSHA 500) Course. OSHA requires that these instructors stay current on OSHA standards and they must take the OSHA 502 update course every four years to maintain their status. Course participants will be provided updates on such topics as OSHA construction standards, policies and regulations. After completion of the course, each participant will receive a certificate. OSHA will be notified that they have completed this course and met their obligation to stay current.

Required text for this course: *OSHA 502 Training Binder; CFR 1926; Disaster Response DVD*

Course Date**June 14-16, 2016**

Local Union 142 Training Center

3630 Belgium Lane; San Antonio, TX 78219

493 AWS-CWI® Preparation Course and Exam

Prerequisite: 5 Years' Welding Experience

All fees are the responsibility of the student. See fee schedule.

This course will provide welding inspectors with the knowledge of welding and inspection fundamentals useful on the jobsite. It involves great responsibility and remarkable skill demonstration. The CWI® is widely recognized, both nationally and internationally. This intensive course covers information on nondestructive examination methods applicable to common welding processes and general provisions of API 1104, which includes qualification of welding procedures for welds containing filler-metal additions, design and preparation of the joint for production welding, nondestructive testing and acceptance standards, and automatic welding with and without filler-metal additions. You must be a high school graduate or hold an equivalency diploma and have a minimum of five (5) years' experience in the welding field.

Required text for this course: *API 1104 (21st Edition) Welding Pipelines and Related Facilities*

Course Dates**January 16-23, 2016**

Local Union 150 Training Center

1211 Telfair Street; Augusta, GA 30901

March 19-26, 2016

Local Union 798 Training Center

4823 S. 83rd East Avenue; Tulsa, OK 74147

April 30- May 7, 2016

Local Union 529 Training Center

510 Crescent Street; Waco, TX 76705

621 C-2107 YT/YK Centrifugal Chiller and Compressor Overhaul

Service personnel will become familiar with the operation and maintenance of centrifugal systems. Students will review R-11, R-123, R-22 and R-134a single stage centrifugal chillers. They will also learn the internal workings of the compressor, oil return system, lube circuit, purge and heat exchangers. The OptiView Control Center plus preventive maintenance and system check-out procedures are also addressed along with a hands-on teardown and rebuild of an YK centrifugal compressor. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**April 4-8, 2016**

Johnson Controls

10644 West Little York Road; Houston, TX 77041

315 Fire Pump ITM and Repair Class (New)

This course is designed to provide teaching methods, working knowledge and skills to UA instructors on understanding proper installation, ITM and repair on the various types of Aurora fire pumps. The course includes a practical, hands-on workshop where the participants will disassemble detect and troubleshooting problems and make necessary repairs and reassemble. The code requirements per NFPA 20 and NFPA 25 for installation, inspection, testing and maintenance for fire pumps along with requirements for proper PPE per NFPA 70E will also be addressed along with a fire pump test where participants will plot and analyze pump curves. **Refer to 2016 Safety Requirements.**

Course Date**July TBD**

Aurora Fire Pumps

800 Airport Road, North Aurora, IL 60542

318 Variable Refrigerant Volume (VRV) Systems

VRV Install and Commissioning class covers best practices for installation starting with piping, flaring, system pressure test and evacuation, and charging methods. The course then covers: VRV Product and Technology—the VRV products that the technician in the field will encounter, how to identify them, and the basic technology that allows VRV Heat Recovery. VRV Basic Install explains the equipment and the installation requirements for 12 different indoor fan coils, including wiring, piping, and condensate management, as well as the outdoor units single and manifolded. VRV Remote Control Installation covers control installation, communication, field settings, group addressing, and setback programming. VRV System Commissioning is the field guide for the technician that contains the step-by-step commissioning checklist, most common field settings for indoor units and outdoor units, charging calculations, charging procedures, test operation, and basic installation troubleshooting. This course will include a notebook for note taking and the printed copy of the commissioning guide, as well as electronic versions of the presentations and the IOM and service manuals. Electronic simulation software will be demonstrated in class. Students will need colored pencils and pen for note taking. The presentations will be available as a PDF. If the student has Adobe Reader X or later version, notes can be taken on a personal laptop. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Required text for this course: TBD**Course Date****February 9-11, 2016**

UA/Local Union 597 Midwest Training Center

2650 North Farnsworth Avenue; Aurora, IL 60502

340 Pipe Fitting Layout Course

This class will show UA instructors a unique way to teach how to layout pipe and fittings in the field without math or manuals. This class will also cover the mitering of pipe and fittings and the fabrication of specialty tools for the trade. All courses are train-the-trainer and center around methods of teaching. Only a small portion of the course will involve hands-on training, although proper work clothing and safety shoes are still mandatory for that time. **Refer to 2016 Safety Requirements.**

Course Date**April 4-8, 2016,**

UA/Local Union 597 Midwest Training Center

2650 North Farnsworth Avenue; Aurora, IL 60502

430 Authorized Testing Representative (ATR) Training

This course is designed to provide participants a working knowledge of the UA Welder Certification Program in order to perform the duties and responsibilities of an Authorized Testing Representative. Following successful completion of the course and upon meeting the Authorized Testing Representative Candidate Requirements as specified in Section 3 of the *UA Welder Certification Program Quality System Manual* individuals will receive their appointment as an Authorized Testing Representative. This course will also serve as a refresher class for those individuals looking to renew their credentials as an Authorized Testing Representative. **Students should bring a calculator to class.**

Course Dates**April 12-14, 2016**

Local Union 23 Training Center

4525 Boeing Drive; Rockford, IL 61109

September 20-22, 2016

Local Union 601 Training Center

3300 South 103rd Street; Milwaukee, WI 53227

468 Medical Gas Instructor

Prerequisite: Current Medical Gas Installer and Medical Gas Brazier Certifications

All fees are the responsibility of the student and must be paid by the first day class. See fee schedule.

This train-the-trainer course covers the NFPA 2012 codes and ASSE Series 6000 standards that govern medical gas and medical-surgical vacuum piping system installation and testing, requirements for installer qualification, and requirements for brazer qualification in accordance with ASME Section IX. A written exam will be administered at the end of the course. UA instructors who successfully pass the course and exam will receive the certification of a Medical Gas Instructor of the United Association issued by NITC.

Required text for this course: *NFPA-99 2012 Edition Health Care Facilities; NFPA Medical Gas and Vacuum Systems Installation Handbook (2012); ASSE Series 6000 Medical Gas Professional Qualifications Standard*

Course Date**October 3-7, 2016**

Local Union 441 Training Center
1330 E First, Suite 110; Wichita, KS 67214

491 Basic Non-Destructive Testing

This course covers the basic Non-Destructive Examination (NDE) methods of Liquid Penetrate (PT) using the solvent removable visible dye technique, and Magnetic Particle (MT) using the dry particle electromagnetic yoke technique. The course will involve theory and hands-on practical application of both the PT and MT methods. It is recommended class attendees hold the AWS CWI® credential. A certification will be issued upon completing and passing of the exams given at the end of this course. Proper work clothing and safety shoes are mandatory. **Refer to 2016 Safety Requirements.**

Course Date**March 21-25, 2016,**

UA/Local Union 597 Midwest Training Center
2650 North Farnsworth Avenue; Aurora, IL 60502

493 AWS-CWI® Preparation Course and Exam

Prerequisite: 5 Years' Welding Experience

All fees are the responsibility of the student. See fee schedule.

This course will provide welding inspectors with the knowledge of welding and inspection fundamentals useful on the jobsite. It involves great responsibility and remarkable skill demonstration. The CWI® is widely recognized, both nationally and internationally. This intensive course covers information on nondestructive examination methods applicable to common welding processes and general provisions of API 1104, which includes qualification of welding procedures for welds containing filler-metal additions, design and preparation of the joint for production welding, nondestructive testing and acceptance standards, and automatic welding with and without filler-metal additions. You must be a high school graduate or hold an equivalency diploma and have a minimum of five (5) years' experience in the welding field.

Required text for this course: *API 1104 (21st Edition) Welding Pipelines and Related Facilities*

Course Dates**February 6-13, 2016**

Local Union 125 Training Center
5101 J Street SW; Cedar Rapids, IA 52404

May 21-28, 2016

Local Union 8 Training Center
9876 Hickman Mills Drive; Kansas City, MO 64137

November 12-19, 2016

Local Union 41 Training Center
45 East Silver Street; Butte, MT 59701

286 Downhill Welding

This course is designed for the welding instructor who will be instructing apprentices and journey workers in the technique of Downhill Welding. The welding instruction will be given on large diameter pipe. Classroom instruction on how and what to teach will be presented. This class will include joint preparation, line up on coupons and hands-on welding. **Refer to 2016 Safety Requirements.**

Course Date**May 9-11, 2016**

Local Union 208

6350 Broadway; Denver, CO 80216

313 Operation and Setup of Fire Protection Trailer

UA student instructors participating in this course will learn how to present classes utilizing the trainers contained within the UA Fire Protection training trailer as they apply to the fire protection equipment installed and serviced by UA members, this will include the Vic-taulic Vortex system set up and breakdown that protects the trailer. Instructors will learn the best practices for teaching with the training trailer along with proper trailer setup and repacking including water connections, setup and draining. They will learn the operation of the onboard generator and audio video systems, this will also include equipment safety of the fuel, electrical systems. The training trailer event scheduling and transportation policies will be covered. Safety shoes are mandatory. **Refer to 2016 Safety Requirements.**

Course Date**January 12-14, 2016**

Local Union 709

12140 Rivera Road, Suite B; Whittier, CA 90606

317 Variable Refrigerant Flow (VRF)-The CITY MULTI Service Course

This course is an introduction to Variable Refrigerant Flow Systems (VRF) applied in the HVACR industry of ductless/multi-split systems. This course has been designed to provide the knowledge and tools required to demonstrate and explain how best to teach VRF systems. Instructors will be provided with up-to-date service and engineering manuals, and software where possible to assist with program start-up. Training-the-trainers and the best methods of teaching the skills of application, designing, installing and commissioning VRF systems will be a focused outcome. Industry standards and some troubleshooting of popular VRF systems will be provided. Laptop computers may be an asset for this course. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Required text for this course: *Mitsubishi CityMulti Course Book*

Course Date**March 8-10, 2016**

Local Union 598 Training Center

1328 N. Road; Pasco, WA 99301

357 Tip Tig Wire Feed Welding

This train-the-trainer course is specifically designed for local union welding instructors that provide a detailed understanding of the "Tip Tig" (GTAW) hot wire welding process. The "Tip Tig" manual welding process allows for substantial increases in filler metal deposition while maintaining superior GTAW weld quality. This course covers the safety, operation, technology and equipment set-up associated with this type of advanced welding system. In addition, the course covers process variables, system control functions and weld parameter selection for a variety of material. Enrollment shall be limited to local union instructors with a minimum of five (5) years' experience with the GTAW and GMAW welding processes. **Refer to 2016 Safety Requirements.**

Course Date**March 22-24, 2016**

Local Union 393 Training Center

780 Commercial Street; San Jose, CA 95112

430 Authorized Testing Representative (ATR) Training

This course is designed to provide participants a working knowledge of the UA Welder Certification Program in order to perform the duties and responsibilities of an Authorized Testing Representative. Following successful completion of the course and upon meeting the Authorized Testing Representative Candidate Requirements as specified in Section 3 of the *UA Welder Certification Program Quality System Manual* individuals will receive their appointment as an Authorized Testing Representative. This course will also serve as a refresher class for those individuals looking to renew their credentials as an Authorized Testing Representative. **Students should bring a calculator to class.**

Course Date**February 23-25, 2016**A&J Training Trust
7850 Haskell Avenue; Van Nuys, CA 914068**April 5-7, 2016**Local Union 140 Training Center
640 North Billy Mitchell Road; Salt Lake, UT 84116**June 14-16, 2016**Local Union 393 Training Center
780 Commercial Street; San Jose, CA 95112**October 18-20, 2016**Local Union 58 Training Center
2864 Janitell Road; Colorado Springs, CO 80906**493 AWS-CWI® Preparation Course and Exam***Prerequisite: 5 Years' Welding Experience***All fees are the responsibility of the student. See fee schedule.**

This course will provide welding inspectors with the knowledge of welding and inspection fundamentals useful on the jobsite. It involves great responsibility and remarkable skill demonstration. The CWI® is widely recognized, both nationally and internationally. This intensive course covers information on nondestructive examination methods applicable to common welding processes and general provisions of API 1104, which includes qualification of welding procedures for welds containing filler-metal additions, design and preparation of the joint for production welding, nondestructive testing and acceptance standards, and automatic welding with and without filler-metal additions. You must be a high school graduate or hold an equivalency diploma and have a minimum of five (5) years' experience in the welding field.

Required text for this course: *API 1104 (21st Edition) Welding Pipelines and Related Facilities***Course Dates****February 20-27, 2016**A&J Training Trust
7850 Haskell Avenue; Van Nuys, CA 914068**February 27-March 5, 2016**Local Union 469 Training Center
2950 W. Thomas Road; Phoenix, AZ 85017**September 17-24, 2016**Local Union 598 Training Center
1328 N. Road; Pasco, WA 99301**620 C-2102 YK High Pressure Centrifugal Operation and Maintenance**

Students will learn about the internal workings of the YK high pressure centrifugal single-stage compressor, oil return system, OptiView Control Center and other components and subsystems. A comprehensive review of the preventive maintenance schedule and system capacity checkout procedure is also covered. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**January 26-28, 2016**Johnson Controls
Cypress, CA**622 C-2111 YVAA Air Cooled Screw Chiller**

This three day course teaches experienced service technicians about the YVAA Chiller. The course will include features of this unit and the differences in installation, operation and maintenance from the YCAV. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**April 19-21, 2016**Gateway Community Center
108 N. 40th Street; Phoenix, AZ 85034**623 C-2103 YCAV Air Cooled Rotary Screw Liquid Chillers**

This three day course teaches service personnel about the YCAV Chiller features, including the screw compressor, system ancillary components, start-up procedures, unit operation and maintenance. Work shoes and long pants are required. **Refer to 2016 Safety Requirements.**

Course Date**March 8-10, 2016**Gateway Community Center
108 N. 40th Street; Phoenix, AZ 85034

These classes are provided through the Blackboard™ Learning System at Washtenaw Community College. Participants must have high speed Internet access and be familiar with a computer, navigating the Internet and using email. Participants with little or no experience should enroll and complete course Introduction to Online Learning offered by WCC at no cost to UA members.

To enroll through the Blackboard™ Learning System go to:

www.wccnet.edu/uauniversity/reginfo.php

103 Planning, Teaching and Assessing Effective Lessons: Advanced

This course builds on the lessons and skills learned in 102 and practiced in the RTAs. Instructors will focus on developing reading and video guides as a way to expand their knowledge of lesson planning. Instructors will also learn how to ask questions to get students involved in discussion, how to support their learning of large amounts of information (such as codes), and how to get them to participate actively in classes. The Instructor will continue to practice using technology and designing in-depth learning assessments. As in 101 and 102, instructors should have specific lesson plans and assessments to use in teaching at their local union. **Instructors should also have materials for a course they expect to teach.**

Reflective Teaching Assignments (RTAs)

As with previous RTA's, when the course is completed, the instructor will be expected to demonstrate the specific skills in teaching and assessment from 103 and write a short assessment, noting changes. These are required assignments and must be submitted to the on-line portfolio.

Course Dates

March 14 – April 25, 2016

October 3 – November 14, 2016

228 Online Teaching Techniques Using Blackboard™

Prerequisite: Must have completed Course 224 or have fair to good knowledge of Blackboard™ basics. Students must have experience in a Blackboard™ course as an Instructor.

This online course builds on Blackboard™ basics previously learned in 224. Students will get hands-on experience creating and managing their own Blackboard™ course sites. Instructions will be provided on creating effective announcements, using the discussion board, and managing Blackboard™ users. Students will create and take Blackboard™ exams and learn methods and strategies for teaching online using Blackboard™. This is not a Beginners course.

Course Dates

March 21 – May 2, 2016

October 3 – November 14, 2016

382 Teaching the HVACR UA STAR Certification

All fees are the responsibility of the student and must be paid by the first day of class. See fee schedule.

This course will familiarize you with the UA STAR HVACR Technician Certification exam and prepare you to take the exam through your local union. All of the categories covered by the exam will be reviewed online. Using the Blackboard™ On-line Training Platform, you will complete reading assignments, post questions to other participants and your instructors and take practice quizzes. You will have access to online material to help you prepare your own review classes at your local union. The NITC proctored UA STAR HVACR Certification exam will be conducted by your local union.

Course Dates

March 14 – April 25, 2016

October 3 – November 14, 2016

452 Introduction to Computer Aided Drafting (CAD)

This course is designed as an introduction to Computer Aided Drafting (CAD) and the CAD environment. Emphasis is placed upon the fundamentals of CAD software and the creation of two-dimensional CAD piping drawings. It is suggested that each student have a USB thumb drive to use with this course.

Required text for this course: 2016 AutoCAD, Level 1 Manual

Course Dates

March 7 – May 13, 2016

522 Labor History and the UA: 1800 to the Present

Labor History and the UA is a class covering the struggles of the labor movement from 1800 to the present. This class will cover various Labor History and United Association events and people throughout time and the impact and role they have had in labor history.

Required text for this course: *Labor in America* (Melvyn Dubofsky and Foster Rhea Dulles); *Skilled Hands, Strong Spirits* (Grace Palladino); *The Rise of the United Association* (Martin Segal); DVD published by AFLCIO Building Construction Trades Department "A Century of Leadership - Skilled Hands Strong Spirits 100 Year Anniversary" (1908 - 2008)

Course Dates**February 1 – April 4, 2016****October 3 – December 5, 2016**

WEB RESOURCES

(To get the IP address for the websites listed below, go to https://uanet.org/regional_training.asp/)

[American Society of Safety Engineers \(ASSE\)](#)
[Ann Arbor Area Convention & Visitors Bureau](#)
[Blackboard™ Help Page](#)
[Blackboard™ Login](#)
[Local Union Training Directory Lookup](#)
[JATC Bookstore](#)
[Occupational Safety & Health Administration \(OSHA\)](#)
[National Inspection Testing Certification](#)
[UA Course Registration](#)

REGISTRAR'S OFFICE

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 Fax: (410) 267-0382

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CERTIFICATIONS

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 Fax: (410) 267-0382

Angie Sterling
 Email: angies@uanet.org
 Telephone: (410) 269-2000, ext. 4029

International Pipe Trades
Joint Training Committee (Bookstore)
 Dianne Lash, Manager
 Email: iptbookstore@uanet.org
 Telephone: (301) 218-1241
 Fax: (301) 218-8961

WCC UA Blackboard™ Help

Arista Metler, UA Distance Learning Administrator
 Email: arista@wccnet.edu
 Telephone: (734) 477-8908
 24/7 Voice Line Help: 1-800-218-4341

WCC Technical Director

Tony Esposito
 Email: aesposito@wccnet.edu
 Telephone: (734) 677-5222
 Fax: (734) 677-5427

WCC Logistics Director of UA Programs & Services

Kim Billings, Logistics Director
 Email: kbillings@wccnet.edu
 Telephone: (734) 373-3359
 Fax: (734) 677-5427

Ann Arbor Area Convention & Visitors Bureau

Kristy Poore, National Sales Account Executive
 Email: kpoore@annarbor.org
 Hospitali-key (734) 717-7282
 Phone: (734) 995-7281, ext. 305
 Toll-free: 1-800-888-9487
 Fax: (734) 995-7283

Doug Anderson
Local Union 469
Phoenix, AZ

Glen Aspen
Local Union 488
Edmonton, AB, Canada

Michael Baptista
Local Union 342
Oakland, CA

Kim Billings
Washtenaw Community College
Ann Arbor, MI

Daniel Bliven
Local Union 7
Albany, NY

Jason Blondin
Local Union 136
Evansville, IN

William Boyd
Local Union 597
Chicago, IL

Glen Burch
Local Union 597
Chicago, IL

Alfred Caron
Local Union 51
Providence, RI

Jim Clark
Local Union 400
Appleton, WI

Jay Clevenger
Local Union 26
Western Washington

Dennis Critelli
Local Union 30
Billings, MT

Eric DeFew
Local Union 184
Paducah, KY

Robert Derby
Local Union 174
West Michigan

Gino DiFebo
Local Union 787
Toronto, ON, Canada

Dale Donnell
Local Union 9
Central New Jersey

Mark Duewerth
Local Union 597
Chicago, IL

Elwood "Ken" Eden
Local Union 430
Tulsa, OK

Jeff Ehrlich
Local Union 157
Terre Haute, IN

Pat Faley
Local Union 353
Peoria, IL

Joseph Fernandez Jr.
Local Union 519
Miami Lakes, FL

Weldon Fink
Local Union 25
Rock Island, IL

Justin Forni
Local Union 412
Albuquerque, NM

Joe Franks,
Local Union 542
Pittsburgh, PA

Dennis Gervais
Local Union 552
Windsor, ON, Canada

Leroy Givens
Local Union 630
West Palm Beach, FL

Dale Glavin
Local Union 449
Pittsburgh, PA

Lester Guilfoyle
Local Union 475
Newark, NJ

Julie Henderson
Local Union 177
Brunswick, GA

Melton Hendricks
Local Union 798
Tulsa, OK

James Hendrikson
Local Union 533
Kansas City, MO

David Hintz
Local Union 597
Chicago, IL

Michael Howard
Local Union 353
Peoria, IL

Farron Hollabough
Local Union 798
Tulsa, OK

James Ivey
Local Union 669
Columbia, MD

Nathan Jacobson
Local Union 400
Appleton, WI

Jaritt Kagan
Local Union 51
Providence, RI

David Kealey
Local Union 25
Rock Island, IL

David Lavoie
Local Union 51
Providence, RI

Thomas Ley
Local Union 449
Pittsburgh, PA

Mike Magennis
Local Union 441
Wichita, KS

David Marland
Local Union 51
Providence, RI

Shawn Masterson
Local Union 469
Phoenix, AZ

Paul McNish
Local Union 760
Sheffield, AL

Robert Melko
Local Union 130
Chicago, IL

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Ann Arbor, MI

Thomas G. Murphy
Local Union 520
Harrisburg, PA

Rita Neiderheiser
Local Union 669
Columbia, MD

David Owen
Local Union 033
Des Moines, IA

Stephen Parsons
Local Union 537
Boston, MA

Mike Pelegrino
Local Union 597
Chicago, IL

Buster Perry
Local Union 184
Paducah, KY

Brett Petrea
Local Union 188
Savannah, GA

Carl Phipps
Local Union 94
Canton, OH

Brent Richardson
Local Union 050
Toledo, OH

Robert Kelly Robinson
Local Union 552
Windsor, ON, Canada

Mark Ronecker
Local Union 268
St. Louis, MO

George Schalk
Local Union 22
Buffalo, NY

Anthea Schroeder
Washtenaw Community
Ann Arbor, MI

Michael Schmitt
Local Union 13
Rochester, NY

Randall Schnabelrauch
Local Union 190
Ann Arbor, MI

Aaron Schulz
Local Union 669
Columbia, MD

James J. Smith
Local Union 25
Rock Island, IL

Sean Straser
Local Union 602
Washington, DC

Con Sullivan
Local Union 41
Butte, MT

Frederick Usher
Local Union 268
St. Louis, MO

Joe Vellenga
Local Union 597
Chicago, IL

Chris Waeckerle
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