International Union of Operating Engineers

AFFILIATED WITH THE AMERICAN FEDERATION OF LABOR AND CONGRESS OF INDUSTRIAL ORGANIZATIONS

Training Course Schedule

Courses from May 20, 2024 - July 19, 2024

Course - Session	Date(s)
Pipeline - Excavator Procedures for Existing Live Pipelines	May 13, 2024 - May 25, 2024
OSHA 500 Trainer Course Construction Industry	May 18, 2024 - May 21, 2024
Indoor Air Quality	May 18, 2024 - May 20, 2024
Excavation Operations	May 20, 2024 - May 24, 2024
Crane Operations - Level 2 Luffing Crawler Crane Operations	May 20, 2024 - May 24, 2024
Crane Operations - Practical Testing for NCCCO Certification	May 20, 2024 - May 24, 2024
HVAC Systems 1	May 20, 2024 - May 24, 2024
Member Assistance Program - It's time to Get Uncomfortable: Bringing Awareness to Lifestyle Issues and Focusing on the Path to Prevention, Recovery and Support	May 21, 2024 - May 23, 2024
Pipeline - ONLINE OILER TRAINING	Jun 1, 2024 - Jun 1, 2024
Welding	Jun 3, 2024 - Jun 7, 2024
Teaching Techniques I	Jun 3, 2024 - Jun 7, 2024
Mechanics Training - Hydraulic Fundamentals	Jun 3, 2024 - Jun 7, 2024
Blueprint Reading for Stationary Engineers	Jun 4, 2024 - Jun 8, 2024
Solar Panel Installation Maintenance & Troubleshooting	Jun 6, 2024 - Jun 9, 2024
Basic Controls and Building Automation Systems	Jun 8, 2024 - Jun 10, 2024
Drone Training	Jun 10, 2024 - Jun 14, 2024
Excavation Operations	Jun 10, 2024 - Jun 14, 2024

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Training Course Schedule

Chief Engineer/Facility Management Seminar	Jun 10, 2024 - Jun 14, 2024
Pump Maintenance & Operation	Jun 10, 2024 - Jun 13, 2024
Advanced Controls & Building Automation Systems	Jun 11, 2024 - Jun 13, 2024
GPS Training for Instructors Only	Jun 11, 2024 - Jun 14, 2024
Job Corps Training Conference	Jun 11, 2024 - Jun 13, 2024
Air & Hydronic Testing and Balancing	Jun 15, 2024 - Jun 18, 2024
HVAC Systems 1	Jun 15, 2024 - Jun 19, 2024
Crane Operations – Tower Crane Standards Training & Load Chart Review / NCCCO Practical Testing for Tower Crane Certification	Jun 18, 2024 - Jun 22, 2024
Crane Operations - Level 2 Crane Operations	Jun 18, 2024 - Jun 22, 2024
New Organizer Training	Jun 18, 2024 - Jun 21, 2024
Chiller Efficiency	Jun 19, 2024 - Jun 21, 2024
Electrical Troubleshooting & Variable Frequency Drive Operations	Jun 20, 2024 - Jun 23, 2024
Excavation Operations	Jun 24, 2024 - Jun 28, 2024
Electrical Systems 2	Jun 24, 2024 - Jun 28, 2024
Welding	Jun 24, 2024 - Jun 28, 2024
Crane Operations - Practical Testing for NCCCO Certification	Jun 24, 2024 - Jun 28, 2024
Certified Pool Operator	Jun 25, 2024 - Jun 27, 2024
Instrumentation and Controls	Jun 25, 2024 - Jun 29, 2024
OSHA 503 Update for General Industry Outreach Trainers	Jul 8, 2024 - Jul 10, 2024

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Training Course Schedule

Excavation Operations	Jul 8, 2024 - Jul 12, 2024
Automated Lighting Controls by Lutron Electronics	Jul 8, 2024 - Jul 9, 2024
Crane Operations - Liebherr & Tadano Operations	Jul 8, 2024 - Jul 12, 2024
OSHA 502 Update for Construction	Jul 11, 2024 - Jul 13, 2024
HVAC Troubleshooting & Rooftop Unit Maintenance	Jul 13, 2024 - Jul 15, 2024
Basic Controls and Building Automation Systems	Jul 13, 2024 - Jul 15, 2024
Welding	Jul 15, 2024 - Jul 19, 2024
Boiler Operations 1	Jul 15, 2024 - Jul 19, 2024
Pump Maintenance & Operation	Jul 15, 2024 - Jul 18, 2024
Bulldozer Operations	Jul 15, 2024 - Jul 19, 2024
Tractor Loader-Backhoe Operations	Jul 15, 2024 - Jul 19, 2024
Crane Operations - Practical Testing for NCCCO Certification	Jul 15, 2024 - Jul 19, 2024
Advanced Controls & Building Automation Systems	Jul 16, 2024 - Jul 18, 2024

Training Course Descriptions

PIPELINE - EXCAVATOR PROCEDURES FOR EXISTING LIVE PIPELINES

Excavation class for Existing Live Pipelines (Maintenance/Rehabilitation work)

This class is a two week course; 12 days total, Monday-Saturday, the class runs 10 hours a day. A typical day will consist of two hours of classroom instruction followed by 8 hours of actual field training. The class will have one instructor and four students.

This class is intended for experienced excavator operators.

This class will prepare the operator for working in the rehabilitation of existing pipelines that are already in service. During the class the following subjects will be covered:

- How to safely probe and pothole for a hotline
- How to dig around existing pipelines using various slope methods required by different gas companies
- How to safely pad and backfill an existing pipeline
- How to safely carry a joint or a section of pipe that has been welded together
- How to dig egresses
- Pipeline terminology
- Safety
- All other various applications of the excavator throughout the rehabilitation process

OSHA 500 TRAINER COURSE CONSTRUCTION INDUSTRY

OPEN TO IUOE INSTRUCTORS ONLY

AUTHORIZES INSTRUCTOR TO TEACH: 10- and 30-Hour Construction Industry Outreach courses.

INDOOR AIR QUALITY

This course covers the vast issues of IAQ in commercial buildings and how to handle the everyday problems, how to prevent and solve IAQ problems effectively, how to work with building management and owners in developing an IAQ maintenance and tracking program, and explains the latest IAQ concerns such as airborn contaigens, mold, and radon mitigation.

EXCAVATION OPERATIONS

Excavation Operations – The IUOE Training and Education Center will be offering the Excavation Operations course for Operators with skill levels of beginner through advanced. This 40-hour course will include classroom instruction and hands-on training. Classroom instruction topics will include machine safety, working around utilities and OSHA regulations that apply to trenching/excavation activities. Hands-on will consist of machine control familiarization, benching and sloping techniques, slot dozing and backfill operations. Upon competition of this course, the member will understand trench safety techniques and how to move dirt efficiently.

CRANE OPERATIONS - LEVEL 2 LUFFING CRAWLER CRANE OPERATIONS

Level 2 Luffing Crawler Crane Operations - This course is available to members that have successfully completed an Intro to Luffing Crawler Cranes Operations course at ITEC.

Prerequisites: Member must also be certified/licensed for mobile hydraulic and/or lattice cranes. Certifications/Licenses include OECP, NCCCO, Red Seal.

CRANE OPERATIONS - PRACTICAL TESTING FOR NCCCO CERTIFICATION

Practical Testing for NCCCO Certification - Please remember when registering for this course that you should have prior experience in crane operations. The training portion of this course is only an equipment familiarization period on the crane or cranes you would like to be tested on. Members will complete a NCCCO application when the course begins and all candidate testing fees are the responsibility of the candidate.
Practical Testing available on the following cranes

- Lattice Boom Cranes
- Telescopic Boom Cranes—Swing Cab (TLL)
- Telescopic Boom Cranes—Fixed Cab (TSS)
- Tower Crane
- Overhead Crane

HVAC SYSTEMS 1

Heating Ventilation Air Conditioning and Refrigeration are core topics for Stationary Engineers. This course is designed to give students an solid understanding of HVACR. After taking this class students will have:

- Knowledge of fundamental refrigeration principles.
- Knowledge of fundamental HVAC principles.
- Knowledge of HVAC system components.
- Knowledge of HVAC control systems.

- Understand air comfort and quality.
- Ability to solder and braze connections for piping systems.

This course includes hands on training with state of the art tools and equipment.

MEMBER ASSISTANCE PROGRAM - IT'S TIME TO GET UNCOMFORTABLE: BRINGING AWARENESS TO LIFESTYLE ISSUES AND FOCUSING ON THE PATH TO PREVENTION, RECOVERY AND SUPPORT

Peer training on developing local Member Assistance Programs.

PIPELINE - ONLINE OILER TRAINING

This is an online class only. The class will take approx. 8 hours to complete, you will be able to complete the class at your own pace, meaning you can log in and out as needed to complete the course.

This class is intended for anyone who wants to work as an oiler in the pipeline industry. It is also intended for operators who have never worked in the pipeline industry.

Topics discussed and included in the course:

- Work Environment
- Duties of a Pipeline Oiler
- Nomenclature
- Work Ethic
- Vocabulary Games and review

- Final Exam
- Final Vocabulary Exam

The member will receive a certificate of completion at the end of the course.

WELDING

Courses will teach the student how to weld in all positions using different welding processes.

TEACHING TECHNIQUES I

Teaching Techniques I is designed especially for part-time, new or recently hired instructors. The course presents useful introductory concepts and also requires actual practice teaching with constructive feedback. It is conducted over a 4-½ day period. It will provide instructors with all materials and demonstrate various teaching techniques for classroom application and meets the U.S. Department of Labor requirements for apprentice instructor training.

MECHANICS TRAINING - HYDRAULIC FUNDAMENTALS

Mechanics Training - Hydraulic Fundamentals

This course will give the student a strong foundation in hydraulic systems used in mobile equipment. Upon completion, participants will be able to:

- Describe the principles of hydraulics.
- Identify and describe the function of the components that make up a typical hydraulic system.
- Identify and read the schematic symbols in a typical hydraulic schematic.
- Understand the use and operation of load sensing variable displacement pumps.

The learning environment will be established in both the classroom and the service shop.

BLUEPRINT READING FOR STATIONARY ENGINEERS

Students will be exposed to various subjects related to blueprint reading, such as blueprints, construction materials, construction methods, specifications, branding, and quantity takeoff. Students will spend approximately 70% of classroom time with hands-on labs utilizing a variety of the prints and specifications that are most often used as reference and guidance for the Stationary Engineer. Specific emphasis on owner branding, electrical, HVAC, and plumbing prints, and their use in the industry.

SOLAR PANEL INSTALLATION MAINTENANCE & TROUBLESHOOTING

This course work will include information on site location, system sizing, mounting options, system components, configurations, mechanical, electrical integration and code requirements. Topics also include Solar Radiation, System Components, Cells, Modules, and Arrays, Batteries, Inverters, System Sizing, Mechanical Integration, Electrical Integration, Utility Interconnection, Permitting and Inspection, Commissioning, Maintenance, and Troubleshooting. Students will receive hands on training in installation and configuration of actual solar voltaic systems.

BASIC CONTROLS AND BUILDING AUTOMATION SYSTEMS

BASIC CONTROLS& BUILDING AUTOMATION SYSTEMS

This course has been developed for individuals who want to take the mystery out of the understanding of how DDC controls and Building Automation Systems operate, and also the insight of the various related software packages that drive these systems and how they manipulate these systems.

This seminar has also been designed for people not familiar DDC controls and Building Automation Systems. There will be lectures on basic control strategies, the basics of DDC hardware, and also the basic understanding of building optimization for curtailing the use of energy.

For the experienced people there will be discussions on advanced control technologies dealing with the architecture of Building Automation Systems, discussing how they are installed, wired, and then programmed. Also, there will be main topic lectures on DDC Main Controllers, Stand alone controllers, and there communication protocols.

After the completion of this seminar the participants will be able to:

- Understand the basic DDC and Analog control technology for the HVAC field

- Describe the different types of control actions and when to use them
- Identify Building Automation System main components and where they are used
- Define and select the proper Automation System for different locations
- Ascertain how Building Automation Systems Operate to maintain human comfort
- Define the different types of Analog and Binary inputs and outputs
- Understand the system wiring though various schematic diagrams of installed systems
- Comprehend the different type of operator interfaces and how they communicate
- Define criteria for control strategies such as with closed loop control
- Describe control strategies and how buildings are optimized for peak efficiency
- Understand how a PID loop is written and how to tweak it in for the maximum performance
- Define the different types of programming method

DRONE TRAINING

This will be a comprehensive look at the use and versatility of Drones on today's construction projects. After completing this course you will be able to prepare for your Commercial Drone Pilot's License Test.

CHIEF ENGINEER/FACILITY MANAGEMENT SEMINAR

This Seminar is designed for chief engineers or engineers training to make the transition to chief or lead engineer. This seminar will provide the student the necessary administrative and personnel skills to handle the day-to-day leadership challenges associated with this position.

The ten sections are:

- Recommended Skills levels
- Planning and Time Management
- Budget Preparation
- Computer Applications
- Record Keeping
- Benefits of an Internal Work Force
- Reports and Presentations
- Health and Safety
- Human Relations
- Energy Conservation.

The Chief Engineers class has been updated as a Blended Learning Environment, in which traditional face-to-face instruction is also supplemented with specific computer assisted Learning. The purpose is to take advantage of the best features of both face-to-face and computer assisted learning in the same classroom setting. During class you will be given a set of credentials and guided how to log onto the platform. Once logged in, you will be instructed on how to use and navigate the system. Additionally, while performing some of the class exercises, you will be using various types of software for letter writing, email, budgets, presentations etc. With all that said, it would be advantageous if each member would bring their own laptop computer to class, being that some of these exercises will remain on the computer for the student's future reference. If you cannot bring your own laptop computer or you do not own a laptop computer, we can provide a computer for you to use during the class.

PUMP MAINTENANCE & OPERATION

Successful and efficient operations and maintenance of any mechanical system can only be accomplished with a clear understanding of the components making up the mechanical system and how they interact. Stationary engineers are responsible for the operations and maintenance of the Chilled Water, Condenser Water and Hot Water systems to just name a few. The heart of each of these is the pump.

In this four-day course students will become familiar with different types of pumps, their operating principles, how to diagnose and troubleshoot issues, and their proper maintenance and repair procedures. Focus is on hands on activities.

ADVANCED CONTROLS & BUILDING AUTOMATION SYSTEMS

ADVANCED CONTROLS &
BUILDING AUTOMATION SYSTEMS

Prerequisite: Students should have taken Basic Controls and Building Automation Systems or have similar work experience

This advanced course has been developed for individuals who want to develop the understanding of how DDC controls and Building Automation Systems are installed, wired, operated, and programmed, also included is the insight of the various related software packages, that drive and manipulate these systems. We will discuss and demonstrate advanced control technologies dealing with the architecture of various manufactures of Building Automation Systems. We will demonstrate how they are installed, wired, and then programmed. Also, there will be main topic lectures on BAS Supervisory Controllers, Standalone controllers, and their communication protocols.
There will also be lectures on advanced control strategies and the understanding of building optimization for curtailing the use of energy.
After the completion of this course the participants will be able to:

- Describe the different types of control actions and when to use them
- Identify Building Automation System main components and where their used
- Define and select the proper Automation System for various locations
- Define the different types of Analog and Binary inputs and outputs
- Understand system wiring through various schematic diagrams of installed systems
- Wire Building Automation System main components
- Understand the various types of BAS communication protocols
- Program various type of industry controllers
- Comprehend the different types of operator interfaces and how they communicate
- Describe control strategies and how buildings are optimized for peak efficiency
- Define the different types of programming graphic methods

GPS TRAINING FOR INSTRUCTORS ONLY

GPS Training for Instructors Only - Courses are available to active IUOE Instructors only.

JOB CORPS TRAINING CONFERENCE

Registration for this conference is only open to IUOE NTF Job Corps Staff.

AIR & HYDRONIC TESTING AND BALANCING

This seminar is designed to enhance an engineer's air and hydronic balancing skills. Students will become familiar with the proper tools, instruments, and common methods of transferring air and water through a facility. Students will work on actual equipment including Air Handler, VAV's and fan boxes, dampers, various types of diffusers, blueprints, and appropriate tools and measuring devises.

CRANE OPERATIONS – TOWER CRANE STANDARDS TRAINING & LOAD CHART REVIEW / NCCCO PRACTICAL TESTING FOR TOWER CRANE CERTIFICATION

Crane Operations – Tower Crane Standards Training & Load Chart Review / NCCCO Practical Testing for Tower Crane Certification - This course will include standards from OSHA 1926.1435 and ASME B30.3, load chart and range diagram review.

Please remember when registering for this course that you should have prior experience in crane operations. The training portion of this course is only an equipment familiarization period on the crane or cranes you would like to be tested on. Members will complete a NCCCO application when the course begins and all candidate testing fees are the responsibility of the candidate.

Practical Testing available for Tower Crane only.

Members must bring PPE to include hardhat, boots, gloves, safety vest and safety glasses to training.

CRANE OPERATIONS - LEVEL 2 CRANE OPERATIONS

Level 2 Crane Operations – This course promotes the process for making the necessary decisions to make safe lifts in the field. Training incorporates hands on tasks that include the following –

- Difficult Driving/Setup
- Selecting Proper Boom Modes
- Handling Jersey Barriers
- Loading/Unloading Crane on Trailer
- Pile Driving
- Tilt-up Operations
- Pick and Carry Operations
- Heavy Lift and Block Reeving
- Steel Erection
- Personnel Lifts
- Two Crane Picks

NEW ORGANIZER TRAINING

International and Local staff will conduct detailed training sessions on all aspects of organizing workers and contractors. Breakout sessions will focus on issues specific to H&P and Stationary, and general sessions will cover organizing techniques and strategies, legal issues, research and the use of social media and technology in organizing.

This training is designed for organizers with less than two years' experience, but is open to all organizers who have not previously attended. Due to the highly interactive nature of this training, class size will be limited to 30 attendees. Please note that this course is only open to current local union staff who are working as organizers/agents.

CHILLER EFFICIENCY

Chillers can be one of the largest energy users in a facility. This seminar provides an overview of the fundamentals of several types of chillers and how they function. It also reviews the controls of popular chiller interfaces and what to look for when monitoring them to help ensure they are running at their peak efficiency. Students have the opportunity to work with one of the three

chillers in the training center which include Carrier, Trane, and York chillers.

ELECTRICAL TROUBLESHOOTING & VARIABLE FREQUENCY DRIVE OPERATIONS

This four-day seminar is designed to provide the knowledge and skills required when selecting, installing, testing and troubleshooting electrical systems the motors they control, and the control circuits connected to them. In this hands-on seminar, students will build, program and test VFD, motors and control circuits.

Test instruments covered and used include digital multi-meters (DMMs), current clamps and meter attachments. Topics, circuits, and equipment covered include:

• Test instrument terminology, symbols and measurement functions for each type of instrument used is covered to learn what test instruments should and should not be used circuits.

• Learn the safe and correct way to take electrical measurements and what the measurements actually mean.

.• Learn where and how to use special meter functions like MIN/MAX, RELATIVE, LoZ, Peak, kVA, kW, and PF measurement functions.

• Learn how to test for grounding problems.

• Understanding VFD and motor nameplate data.

• Learn how to test and wire any three-phase motor without using the motors wiring diagram and what the expected readings should be before power is applied and how to troubleshoot the motor after power is applied.

• Circuits built include using, magnetic motor starters, mechanical and solid-state switches, such as, selector switches, proximity switches, photoelectric switches, analog inputs (photovoltaic and potentiometers), and other commonly used electrical devices.

• Connect, program, and test VFDs (variable frequency drives).

• Take power measurements (P.F., kVA, kW, and harmonic) to understand power quality problems.

ELECTRICAL SYSTEMS 2

This class builds off of Electrical Systems 1 so students should have taken that before this class or have comparable experience and understanding.

In this class, students will be provided a greater understanding of electrical principles and theory including series and parallel circuits and more advanced electric formulas. Students will gain the ability to read electrical prints, replace breakers, and perform troubleshooting using Fluke meters. This course includes substantial hands-on activities.

CERTIFIED POOL OPERATOR

This course will prepare the student for the Pool & Hot Tub Alliance (PHTA) (formerly National Swimming Pool Foundation (NSPF) certified pool operator exam. The test will be administered by an authorized PHTA instructor on the last day of the course. The certification is valid for five years from date of course completion. There is a cost to the student of $45.00 for the certification.

INSTRUMENTATION AND CONTROLS

Instrumentation and Controls is an introductory course covering basic skills and concepts used in the field. The curriculum will provide students with a solid foundation for various industrial applications and process operations in various stationary facilities. The course will cover instrumentation principles including pressure, flow, level and temperature, as well as safety and tools of the trade. Students will become familiar with control valves and controllers, and learn various control schemes which include transmitter calibration and system troubleshooting.

OSHA 503 UPDATE FOR GENERAL INDUSTRY OUTREACH TRAINERS

OPEN TO IUOE INSTRUCTORS ONLY

RE-AUTHORIZES INSTRUCTOR TO TEACH: 10- and 30-Hour General Industry Outreach courses.

AUTOMATED LIGHTING CONTROLS BY LUTRON ELECTRONICS

For Stationary engineers who wish to gain a better understanding of networked lighting control systems along with how to maintain and troubleshoot them.

Lutron's founder, Joel Spira, invented the first solid state electronic dimmer in 1959. Fast forward to the present day and the world of lighting controls has greatly advanced. In this class you will learn about the most popular commercial Lutron systems installed over the past decade. These products are found in hundreds of thousands of buildings across North America and the world. Commercial lighting systems will often fall under the purview of facilities management so a firm understanding of their maintenance ensures that the lighting system runs as smoothly as the rest of the building.

The duration of this course will be two days. It will act as a knowledge primer for the variety of commercial legacy Lutron systems a stationary engineer may find. We will also introduce the future of Lutron lighting controls and our newest commercial system.

Detailed topics will include:

- Online prerequisite learning plan introducing dimming technology and the Lutron story
- Instructor-led presentations relating to legacy Grafik Eye QS, Energi Savr Node, and panels
- Overview of Lutron's Vive and Quantum systems
- How to control the Quantum Vue Facilities Management software and use it in troubleshooting
- Work on a live Quantum system test wall, program and introduce faults in real-time

- Introduction to Lutron's newest cloud-connected solution, Athena
- Best Practices for Asset Management and Planning
- Update on Fluorescent to LED retrofit kits
- Tour of IUOE's Quantum Lighting Control System and software

CRANE OPERATIONS - LIEBHERR & TADANO OPERATIONS

Liebherr & Tadano Operations (Level 1) - This course is design for operators with little to no experience on Liebherr and Tadano cranes. The topics covered in this class include: proper and effective use of operation manual and other machine related documentation, driving the machine, basic set up and operation, swing away jib installation and removal, crane safety, basic machine troubleshooting, load chart reading.

OSHA 502 UPDATE FOR CONSTRUCTION

OPEN TO IUOE INSTRUCTORS ONLY.

RE-AUTHORIZES INSTRUCTOR TO TEACH: 10- and 30-Hour Construction Industry Outreach courses.

HVAC TROUBLESHOOTING & ROOFTOP UNIT MAINTENANCE

Light commercial Rooftop units are the topic of this class.. There will be extensive hands-on training for maintenance and service engineers who have had basic air conditioning training and hold the EPA Universal Certification. The focus will be on identifying various components of RTU's , charging practices , troubleshooting , repair, and maintenance.

Training Course Schedule

BOILER OPERATIONS 1

The Boiler Operation 1 course is an introductory course that will provide stationary engineers and maintenance personnel a foundational understanding of boilers, steam and heating. Students will learn how boiler systems work, gain an understanding of boiler safety and learn about various boiler fittings and accessories. Upon completing the class, students will understand basic heat and steam principles, and know how to safely perform an inspection of an operating boiler.

BULLDOZER OPERATIONS

The IUOE Training & Education Center will be offering classes in all areas of bulldozer operation from beginner through advanced.

Topics covered:

- Working on Slopes
- Slot Dozing
- Backfilling
- Cuts and Fills
- Working with Grade Control.

TRACTOR LOADER-BACKHOE OPERATIONS

The IUOE Training & Education Center will be offering classes in all areas of TLB operation from beginner through advanced.

Topics covered:

- Trenching
- Benching
- Sloping
- Trench Box Work

- Backfilling
- Layout.