



International Union of Operating Engineers

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

Training Course Schedule

Courses from May 2, 2024 - July 1, 2024

Course - Session	Date(s)
Pipeline - Excavator - Intro to pipeline excavator	Apr 29, 2024 - May 4, 2024
Pipeline - Angle Dozer - Beginner	Apr 29, 2024 - May 4, 2024
Pipeline - Introduction to Horizontal Directional Drilling	Apr 29, 2024 - May 4, 2024
Pipeline - Deckhand Pipe Lifter	Apr 29, 2024 - May 4, 2024
Pipeline - Hydro-Static Testing of Pipelines	Apr 29, 2024 - May 4, 2024
Crane Operations - Practical Testing for NCCCO Certification	Apr 29, 2024 - May 3, 2024
Excavation Operations	Apr 29, 2024 - May 3, 2024
Mechanics Training - Electronic Fundamentals	Apr 29, 2024 - May 3, 2024
Automatic Transfer Switch (ATS) for Generators	Apr 30, 2024 - May 2, 2024
GPS Training for Instructors Only	Apr 30, 2024 - May 2, 2024
Pipeline - Specific Task Sideboom Training	May 6, 2024 - May 11, 2024
Pipeline - Excavator - Mat Handling/Bridge Building Training	May 6, 2024 - May 11, 2024
Pipeline - Specific Task Excavator Training	May 6, 2024 - May 11, 2024
Pipeline - Specific Task Angle Dozer Training	May 6, 2024 - May 11, 2024
Pipeline - Introduction to Horizontal Directional Drilling	May 6, 2024 - May 11, 2024
Pipeline - Vacuworxs Pipelifter	May 6, 2024 - May 11, 2024
Pump Maintenance & Operation	May 6, 2024 - May 9, 2024
Welding	May 6, 2024 - May 10, 2024
Crane Operations - LMI Setup & Crane Operations	May 6, 2024 - May 10, 2024

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International Union of Operating Engineers

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

Training Course Schedule

Crane Operations - Liebherr 81K.1 Fast Erecting Tower Crane Assembly/Disassembly	May 6, 2024 - May 10, 2024
Generator Maintenance & Operation	May 7, 2024 - May 10, 2024
Pump Maintenance & Operation	May 10, 2024 - May 13, 2024
Pipeline - Specific Task Sideboom Training	May 13, 2024 - May 18, 2024
Pipeline - Specific Task Excavator Training	May 13, 2024 - May 18, 2024
Pipeline - Specific Task Angle Dozer Training	May 13, 2024 - May 18, 2024
Pipeline - Excavator Procedures for Existing Live Pipelines	May 13, 2024 - May 25, 2024
Boiler System Efficiency	May 13, 2024 - May 15, 2024
Pipeline - HDD/Mud System - Repair & Maintenance of HDD Equipment	May 13, 2024 - May 18, 2024
OSHA 510 Safety & Health Standards for the Construction Industry	May 14, 2024 - May 17, 2024
Mechanics Training - Intro to Diesel Laptops & Diagnostic Software	May 14, 2024 - May 17, 2024
Bulldozer Operations	May 14, 2024 - May 18, 2024
GPS Training for Instructors Only	May 14, 2024 - May 16, 2024
Crane Operations - Intro To Luffing Crawler Crane Operations	May 14, 2024 - May 18, 2024
Tractor Loader-Backhoe Operations	May 14, 2024 - May 17, 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

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International Union of Operating Engineers

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

Training Course Schedule

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
OSHA 511 Occupational Safety and Health Standards for General Industry	Jun 4, 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
OSHA 501 Safety & Health Standards for General Industry	Jun 8, 2024 - Jun 11, 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
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

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International Union of Operating Engineers

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

Training Course Schedule

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
New Organizer Training	Jun 17, 2024 - Jun 21, 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
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

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International Union of Operating Engineers

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

Training Course Schedule

Training Course Descriptions

PIPELINE - EXCAVATOR - INTRO TO PIPELINE EXCAVATOR

EXCAVATOR – BEGINNER TRAINING

This class is a one week course. The course schedule is 10 hours a day, 6 days a week, Monday-Saturday. A typical class will consist of 1 day of classroom training followed by 5 days of practical field training.

Classes are intended for less experienced operators, **oilers** and **apprentices** are encouraged to apply.

This course will introduce you to the excavator techniques utilized in the pipeline industry. The following subjects will be covered with emphasize on the Sloped Ditching Technique.

- A pipeline spread – Explain in depth each individual crew
- All the various applications of an excavator throughout the many different stages of construction
- Students will be introduced to the excavator, go over the fundamentals of the machine
- A exhibition course will be set-up, students will test there ability by carrying weights through this course while operating the travel of the machine
- How to dig a pipeline sloped ditch.
- Students will learn how to build water-breakers with an excavator.
- Understanding the pipeline terminology and vocabulary words.
- Safety

PIPELINE - ANGLE DOZER - BEGINNER ANGLE DOZER - BEGINNER

This class is a one week course. The course schedule is 10 hours a day, 6 days a week, Monday-Saturday. A typical day will consist of 10 hours of practical field training.

Classes are intended for inexperienced operators, although **apprentices** are encouraged to apply.

This course will prepare you for working in the pipeline industry. The following subjects will be covered:

- A pipeline spread – Explain in each individual crew.
- How to properly topsoil a pipeline Right-of-way.
- How to make a side hill cut in a pipeline Right-of-way.
- All the various applications of an angle dozer throughout the many different stages of the pipeline construction process.
- The angle blade, understanding the concept of why the material on a pipeline right of way is moved at 90 degrees, using the long and short corners of the blade.

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

- Understanding the pipeline terminology and vocabulary words.
- Safety.

PIPELINE - INTRODUCTION TO HORIZONTAL DIRECTIONAL DRILLING

This is a one week course consisting of 6 days total, Monday - Saturday. The course will run 10 hours a day consisting of a mix of classroom and field training. No Prior drill experience is required. Apprentices and Journeyman are encouraged to apply. Members from all industry backgrounds are also encouraged to apply.

During the class, the operator will be introduced to the HDD machine and the following subjects will be covered:

- Introduction to the Vermeer HDD system
- Introduction to the Falcon F-5 locating system
- Introduction to the latest GPS version of Vermeer Projects
- The basic functions of the drill will be covered
- Safety
- Vocabulary

PIPELINE - DECKHAND PIPE LIFTER

DECKHAND PIPELIFTER CLASS

This class is one week in length; six days total, Monday-Saturday, the class runs 10 hours a day consisting of 2 hours classroom followed by 8 hours of practical field training. The class will have one instructor and 5 students per class.

Classes are intended for experienced excavator operators. A proficiency test will be given at the

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

beginning of the course to verify abilities.

This class will prepare the operator for the pipe handling procedures used in the pipeline industry. The subjects covered will be:

- Loading and unloading a stringing truck.
- Proper procedure for racking pipe in a pipe yard.
- Proper procedure for stringing pipe down the right of way.
- How to look for proper chocking of the pipe.
- How to properly carry a joint of pipe up hills and down hills.
- How to carry pipe underneath overhead power lines.
- Overall safety
- Maintenance of the pipelifter
- Pipeline terminology

PIPELINE - HYDRO-STATIC TESTING OF PIPELINES

This is a one week class. The class will run 6 consecutive days, Monday - Saturday, 10 hours a day.

This is a brand new class offered through the National Pipeline Training Fund. The testing of pipelines is considered one of the most critical parts of the construction process. The process is also considered one of the most dangerous parts of the construction process and it is essential that IUOE operators train for the job. In this class, an operator will actually be testing a mock pipeline, just like on a jobsite. The following topics will be covered:

- Roles of the operating engineer while working in the testing crew
- Discuss the hazards of the testing crew
- Explain how to clean and clear the pipeline
- Explain the temperatures

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

- Explain the pressure recorders and how to utilize them (set-up and put charts in them)
- The operator will actually fill a pipeline with water, test the section, and then dewater the pipeline.
- Explain/utilize brass deadweights
- Explain /utilize digital deadweights
- The operator will learn the process of hanging a manifold
- The process of loading a pig
- Proper operation of an air compressors and water pumps
- Explain the head pressure and how dangerous the air/water mixture is
- How to move a frac tank
- The operator will learn about the different style of pigs and what the uses are
- Testing vocabulary
- Testing safety

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

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

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 completion of this course, the member will understand trench safety techniques and how to move dirt efficiently.

MECHANICS TRAINING - ELECTRONIC FUNDAMENTALS

Mechanics Training - Electronic Fundamentals

This course will give the student a strong foundation in 12 and 24 volt electrical systems used in mobile equipment. Upon completion, participants will be able to:

- Understand the electron flow in a circuit and how it relates to circuit troubleshooting.
- Identify and troubleshoot series, parallel, and series-parallel circuits.
- Demonstrate the use of a DVOM for troubleshooting electrical circuits.
- Identify and read the schematic symbols in a typical electrical schematic.
- Troubleshoot using a diagnostic code and understand how the code is generated.



International Union of Operating Engineers

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

Training Course Schedule

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

AUTOMATIC TRANSFER SWITCH (ATS) FOR GENERATORS

The focus of this course is on Automatic Transfer Switches & Emergency Standby Generator and how they may be applied in a variety of settings and industrial sectors. Standby generators are used primarily to provide backup power if utility power from the utility electrical distribution system is lost.

This course will discuss the operation of Automatic Transfer Switches & Generators, their application, how they are integrated into the overall electrical system, auxiliary supporting equipment and generator package maintenance. This course will cover many practical examples and will be interactive for students to gain a broad overall understanding of standby generators.

At the completion of this course, students will be able to perform startup, commissioning and maintenance activities on automatic transfer switches and controllers related to generators. Students will learn about the transfer switch equipment that is currently being used in today's industry. Hands-on activity will comprise at least half of the time spent in training activities.

GPS TRAINING FOR INSTRUCTORS ONLY

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

PIPELINE - SPECIFIC TASK SIDEBOOM TRAINING

This class will be considered open training for members who have been past attendee's of the sideboom Intermediate classes. The class will run 10 hours a day, 6 days in duration. The class will be 10 hours a day in the field. There will be no classroom time unless inclement weather occurs.



International Union of Operating Engineers

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

Training Course Schedule

The member will be able to decide which task's he/she would like to practice. The class is intended to allow the member to further enhance the skills that were taught while attending the previous intermediate class. This class is all about seat time.

There will be an Instructor available at all times.

PIPELINE - EXCAVATOR - MAT HANDLING/BRIDGE BUILDING TRAINING

This is a one week course. The course will be 6 days in length, Monday - Saturday consisting of 10 hours a day of field training. Apprentices and Journeyman are encouraged to apply. A proficiency test will be given at the beginning of the class.

During the class, the operator will be challenged with different tasks utilizing mats.

- carrying single or multiple mats
- building bridges across wetlands or creek crossings
- rip-rapping mats
- lay mats down on the ROW
- Work with multiple excavators laying down large bridge mats

PIPELINE - SPECIFIC TASK EXCAVATOR TRAINING

This class will be considered open training for members who have been past attendee's of the Intermediate Excavator classes. The class will run 10 hours a day, 6 days in duration. The class will consist of 10 hours a day in the field. There will be no classroom time unless inclement weather occurs.

The member will be able to decide which task's he/she would like to practice. The class is



International Union of Operating Engineers

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

Training Course Schedule

intended to allow the member to further enhance the skills that were taught while attending the previous intermediate class. This class is all about seat time.

There will be an instructor available at all times.

PIPELINE - SPECIFIC TASK ANGLE DOZER TRAINING

This class will be considered open training for members who have been past attendee's of the Angle Dozer Intermediate classes. The class will run 10 hours a day, 6 days in duration. The class will be 10 hours a day in the field. There will be no classroom time unless inclement weather occurs.

The member will be able to decide which task's he/she would like to practice. The class is intended to allow the member to further enhance the skills that were taught while attending the previous intermediate class. This class is all about seat time.

There will be an Instructor available at all times.

PIPELINE - VACUWORXS PIPELIFTER

VACUWORXS PIPELIFTER

This class is one week in length; six days total, Monday-Saturday, the class runs 10 hours a day consisting of 2 hours classroom followed by 8 hours of practical field training. The class will have one instructor and 5 students per class.

Classes are intended for experienced excavator operators. A proficiency test will be given at the beginning of the course to verify abilities.

This class will prepare the operator for the pipe handling procedures used in the pipeline industry. The subjects covered will be:

- Loading and unloading a stringing truck



International Union of Operating Engineers

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

Training Course Schedule

- Proper procedure for racking pipe in a pipe yard
- Proper procedure for stringing pipe down the right of way
- How to look for proper chocking of the pipe
- How to properly carry a joint of pipe up hills and down hills
- How to carry pipe underneath overhead power lines
- Overall safety
- Maintenance
- Pipeline terminology

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.

WELDING

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

CRANE OPERATIONS - LMI SETUP & CRANE OPERATIONS

LMI Set-Up & Crane Operations (Level 2) - This course is an entry level course on the set up and operations of a mobile crane. This course has classroom and hands-on exercises that cover basic crane knowledge, load charts, daily inspection, LMI set-up (for a variety of cranes), outrigger and jib set-up, crane operations, and seat time.

CRANE OPERATIONS - LIEBHERR 81K.1 FAST ERECTING TOWER CRANE ASSEMBLY/DISASSEMBLY

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

Liebherr 81K.1 Fast Erecting Tower Crane Assembly/Disassembly - This course will cover the manufacturers procedures of erection, dismantle and climbing of the Liebherr 81K.1 Fast Erecting Tower Crane. Also covered is the inspection and setting of all safety limits. Students will gain hands-on experience of the controls for operating while erecting and dismantling the crane. During the multiple erect and dismantles of the crane during the week, changes in jib configuration will be performed. Load testing and programming of operational and load limits will also be performed.

GENERATOR MAINTENANCE & OPERATION

This class is intended for Apprentice through Mid-level journeyman. It covers for both "theory and practical" knowledge on diesel generator operation.

The seminar will have three primary categories:

- 1) Diesel generator maintenance and operation
- 2) Safety with emphasis on OSHA standards, Title 29 1910 & 1926 Code of Federal Regulations
- 3) Basic electrical knowledge as per National Electrical Code guidelines Students will have hands on time with a diesel generator package.

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.



International Union of Operating Engineers

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

Training Course Schedule

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

BOILER SYSTEM EFFICIENCY

This course is designed to assist in the education and development of the individual who has the responsibilities for the day to day operation and maintenance of their boiler and the ancillary equipment. This individual will gain the knowledge and understanding of how to properly operate the equipment safely and more efficiently. This course will also provide the proper sequence of operation or timing that will assist in the troubleshooting area and reduce downtime and increase reliability. The program includes plant tours to reinforce lessons learned.

PIPELINE - HDD/MUD SYSTEM - REPAIR & MAINTENANCE OF HDD EQUIPMENT

This class is a one week course. The course schedule is 10 hours a day. A typical day will consist of minimal classroom time with maximum field time "Hands on".

This class will prepare the operator to perform the maintenance procedures of an HDD machine

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

along with the MUD system components.

The following subjects will be covered:

- Mud pump rebuilds
- screen care and maintenance
- pm maintenance
- drill rod care and maintenance
- vice care and maintenance
- mud system troubleshooting
- machine walk around
- pull swivel care and maintenance
- drill screen navigation for settings
- locator screen navigation settings
- Safety

OSHA 510 SAFETY & HEALTH STANDARDS FOR THE CONSTRUCTION INDUSTRY

OPEN TO IUOE INSTRUCTORS ONLY

This course covers OSHA policies, procedures, and standards, as well as construction safety and health principles. 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. Completion of this class is required prior to taking the OSHA 500 class.

MECHANICS TRAINING - INTRO TO DIESEL LAPTOPS &

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

DIAGNOSTIC SOFTWARE

Mechanics Training - Introduction to Diesel Laptops and Diagnostic Software -

In this course, members will be given an introduction to the diesel laptops diagnostic software and hardware, along with applications of these tools.

Topics will include:

- Introduction to the TEXA software
- Aftertreatment
- Electrical 1
- Electrical 2
- Data bus Diagnostics

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.

CRANE OPERATIONS - INTRO TO LUFFING CRAWLER CRANE OPERATIONS

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

Intro to Luffing Crawler Crane Operations - This course is for students with previous crane experience. The course will introduce operators to the procedures for raising and lowering luffing boom systems as well as their operation. It will cover what critical boom-to-luff angles are and where to find them. It will also cover how luffer charts differ from other charts.

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.

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

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

management and owners in developing an IAQ maintenance and tracking program, and explains the latest IAQ concerns such as airborne contaminants, mold, and radon mitigation.

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.

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,



International Union of Operating Engineers

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

Training Course Schedule

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.

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

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Printed on Thursday, May 2, 2024 05:09:40 AM



International Union of Operating Engineers

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

Training Course Schedule

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.

OSHA 511 OCCUPATIONAL SAFETY AND HEALTH STANDARDS FOR GENERAL INDUSTRY

OPEN TO IUOE INSTRUCTORS ONLY

This course covers OSHA Standards, policies, and procedures in general industry. Topics include scope and application of the OSHA General Industry Standards, general industry principles and special emphasis on those areas in general industry which are most hazardous.

Completion of this class is required prior to taking the OSHA 501 class.

BLUEPRINT READING FOR STATIONARY ENGINEERS

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Training Course Schedule

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.

OSHA 501 SAFETY & HEALTH STANDARDS FOR GENERAL INDUSTRY

OPEN TO IUOE INSTRUCTORS ONLY

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

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.



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Training Course Schedule

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 through 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

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Training Course Schedule

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.

ADVANCED CONTROLS & BUILDING AUTOMATION

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Training Course Schedule

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

JOB CORPS TRAINING CONFERENCE

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



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Training Course Schedule

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 devices.

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.

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.



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Training Course Schedule

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

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,

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Training Course Schedule

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.



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Training Course Schedule

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.