NW COLLEGE OF CONSTRUCTION

College Catalog

2018-2019

Northwest College of Construction is proudly founded and supported by the following organizations

ABC Associated Builders and Contractors, Inc.

AGC Oregon Columbia Chapter ASSOCIATED GENERAL CONTRACTORS

HBA Home Builders Association of Metropolitan Portland

NWUCA

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Welcome

Northwest College of Construction (NWCOC) is an apprenticeship training center and open enrollment educational institution that offers programs that combine lecture, group interaction, and hands-on craft training for life-long learning and successful career advancement in the construction industry. NWCOC offers a wide range of quality courses, from entry-level construction craft training to advanced technical, supervisory, and management education taught by experienced tradesman and industry experts. Upon successful completion of the requirements within a specialty area, students receive a Certificate of Completion from NWCOC, as well as portable credentials through the Automated National Registry of the National Center for Construction Education and Research (NCCER) for applicable courses.

At NWCOC, workers, employers and construction associations come together to foster a learning environment that produces quality construction professionals with the necessary skills to meet the ever-increasing job demands of today's construction industry.

Whether you are an employer looking for qualified workers, a construction worker searching for career advancement through craft and leadership training, or a member of a trade association in need of more cost-effective training, NWCOC has a solution for you.

NWCOC is in the business of building successful careers in construction. Be sure to look at our course selections in this catalog, or at our website (www.nwcoc.com), and contact us today for more information.

About NWCOC

Mission

Northwest College of Construction is a privately funded, non-profit technical facility promoting life-long learning by delivering craft, supervisory, management education, and career placement services to the construction industry.

Vision

The Northwest College of Construction envisions a learning resource where:

- Workers at all levels of their career ladder obtain high-performance skills.
- Employers gain the skilled workers needed to compete in the construction marketplace.
- Employer associations, sponsors and partners reflect the full range of the industry.
- Partnering organizations can maintain their individual identities.
- We reach out to economically and socially disadvantaged youth to encourage them to be knowledgeable of career advancement opportunities in the construction industry.
- We work with government and private agencies or foundations to help mentor disadvantaged individuals.
- We explore opportunities to partner with public school districts in order to leverage resources for the delivery of professional-technical education.

- We serve as the best resource for matching employers' needs with workers' career aspirations.

Values

- **PERFORMANCE** – We believe in setting standards that encourages everyone to perform at their best thus allowing them to excel in a competitive marketplace.
- **TEAMWORK** – We believe that working together fosters productivity and allows students to have input in their career paths. We encourage collaboration to create new ideas and better services.
- **QUALITY** – We are committed to continually improving our programs, services, and our organization as a whole.
- **PARTNERSHIP** – We realize the benefits of joining forces within the industry and in the business community to accomplish shared goals.
- **INNOVATION** – We believe in being an innovator of life-long learning processes.

Culture

- Efficiency of operation and confidence in our ability to perform.
- A stable, growing, orientation striving for continued improvement.
- Staff and instructors that believe every student can succeed.
- Employers get real value for their educational investment.
- A dedication to educating those willing to learn.

Legal Structure

The Northwest College of Construction (NWCOC) is a 501(c)(3) non-profit corporation formed under the laws of the State of Oregon.

Accreditation

NWCOC, accredited through the National Center for Construction Education and Research (NCCER) (www.nccer.org), was created to develop industry driven standardized craft training programs with portable credentials and to assist the construction industry with workforce development.

The NCCER Mission is to assure that industry clients receive quality services and industry workers have rewarding, progressive careers. The NCCER provides excellent craft training materials, opportunities for leadership growth, and effective safety training that will enhance productivity, cost-effectiveness, and the image of the construction industry.

The quality and standardization of NCCER's Contren® Learning Series and Skills Assessments are accomplished through a formal accreditation process. Through this process, participants receive quality training based on uniform standards and criteria. These standards are presented as policies in the NCCER Accreditation Guidelines.

NCCER is a not-for-profit 501(c)(3) education foundation created in 1996 as The National Center for Construction Education and Research. It was developed with the support of more than 125 construction CEOs and various association and academic leaders who united to revolutionize training for the construction industry. Sharing the common goal of developing a safe and productive workforce, these companies created a standardized training and credentialing program for the industry. This progressive program has evolved into curricula for more than 70 craft areas and a complete series of more than 70 assessments offered in over 4,000 NCCER-accredited training and assessment locations across the United States. NCCER develops standardized construction and maintenance curricula and assessments with portable credentials. These credentials are tracked through NCCER's National Registry. This registry allows organizations and companies to track the qualifications of their craft professionals and/or check the qualifications of possible new hires. The National Registry also assists craft professionals by maintaining their records in a secure database.

NCCER's workforce development process of accreditation, instructor certification, standardized curriculum, national registry, assessment, and certification is a key component in the industry's workforce development efforts. NCCER also drives multiple initiatives to enhance career development and recruitment efforts for the industry.

NCCER is headquartered in Alachua, Fla., and is affiliated with the University of Florida's M.E. Rinker, Sr. School of Building Construction. They may be contacted at:

13614 Progress Blvd.
Alachua, FL 32615
Main: 386.518.6500
Toll-free: 888.622.3720
www.nccer.org

National Registry

In an effort to provide students and craft professionals with industry recognized credentials and assure national portability of skills, NCCER maintains a National Registry. The National Registry provides transcripts, certificates of completion, and wallet cards when training is delivered through an NCCER Accredited Sponsor. These valuable industry credentials benefit students as they seek employment and build their careers.

NCCER organizes its course curriculum into a series of modules. The National Registry is a record of every module successfully completed by every student enrolled in an NCCER accredited institution such as NWCOC. All students who receive training delivered by an NCCER Accredited Sponsor and Certified Instructors are eligible to receive transcripts and documentation of their training accomplishments through the National Registry.

Certified Instructors

Instructors at NWCOC are journey-level in their craft and are certified by NCCER upon successful completion of the Instructor Certification Training Program (ICTP). The ICTP is a stringent teacher-training course delivered by an NCCER Master Trainer providing expert crafts people a formalized training and

practicum in the art and science of teaching. Certified teachers also allow NWCOC to maintain good standing with NCCER and to utilize the NCCER National Registry service for our graduates.

Licensing

NWCOC is licensed with the Oregon Department of Education (ODE) as a Private Career School for the following craft training programs:

- Carpentry
- Concrete Finishing
- Construction Craft Laborers
- Heating, Ventilation and Air Conditioning
- Heavy Equipment Operations
- Masonry
- Residential Carpentry
- Sheet Metal

Courses outside the scope of those currently licensed by Oregon Department of Education are attended by individuals currently employed in the industry and are taken for career advancement or professional development and, therefore, are not subject to licensure requirements. OAR 581-045-0019(e). For more information about Private Career School Licensing, contact the Higher Education Coordinating Commission:

Higher Education Coordinating Commission
255 Capitol Street NE, Third Floor
Salem, OR 97310
Phone: 503-378-5156

Sponsorship

The Northwest College of Construction is a private, not-for-profit 501(c)(3) corporation, with four founding sponsors:

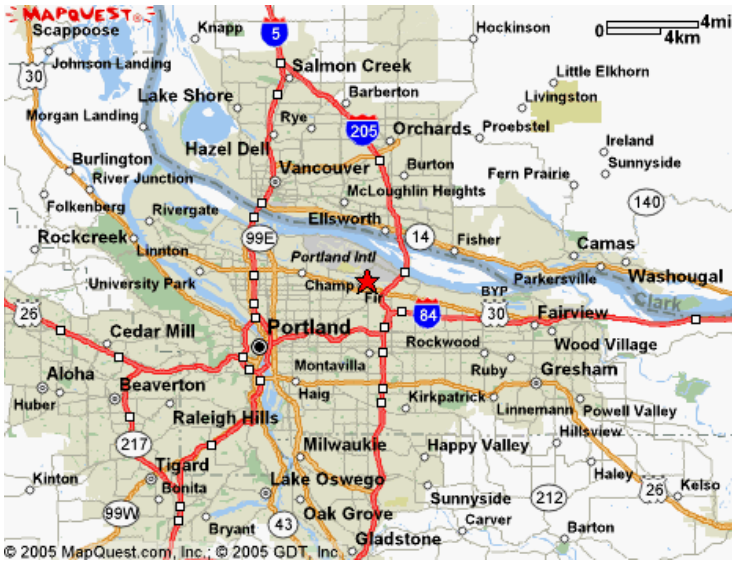
- Associated General Contractors-Oregon Columbia Chapter (AGC)
- Associated Builders and Contractors-Pacific Northwest Chapter (ABC)
- Northwest Utility Contractors Association-Southwest Washington & Oregon Chapter (NWUCA)
- Home Builders Association of Metropolitan Portland (HBA)

Governance

Governance of NWCOC is by a board of directors populated form members of the four business associations that sponsor the school.

Facility

The NWCOC campus is centrally located to serve Portland metro and Clark County residents and businesses. It is located at 8111 N.E. Holman Street, Portland, Oregon 97218, near the Portland Airport.



The facility is ideally suited to the college's purpose as it was designed and used over the years as an apprenticeship training center. The building is segmented into office space, classrooms, and multiple indoor and outdoor shop areas. Necessary hand and power tools are available for student checkout and use, as well as stationary industrial equipment used within the various specialty areas. The facility has ample free parking.

Administration

Bob Strader, President	bobs@nwcoc.com
James Reyes, Director of Education	jamesr@nwcoc.com
Jennifer Boes, Registrar	jenniferb@nwcoc.com
Katrina Cloud, Director of Apprenticeship and Student Administration	katrinac@nwcoc.com
Laurie Emery, Director of Human Resources and Operations	lauriee@nwcoc.com
Montie Boyer, Craft Training and Facilities Manager	montieb@nwcoc.com
Sarah Oancea, Director of Student Affairs	saraho@nwcoc.com
Terry Cline, Controller	terryc@nwcoc.com

Contact Information

Mailing Address	**Telephone**		**Office Hours**
NW College of Construction	Main Office:	503-256-7300	Monday-Thursday
8111 N.W. Holman St.	Toll Free:	1-800-309-1442	8:00am-6:00pm
Portland OR 97218	Fax:	503-252-9560	Friday, 8:00am-5:00pm
E-mail: info@nwcoc.com			

Academic Calendar

	Classes Begin	Final Exams	Classes End
Fall 2018	Sept. 24	Dec. 17-22	Dec. 22
Winter 2018	Jan. 7	Mar. 15-30	Mar. 30
Spring 2019	April 8	June 24-29	June 29
Summer 2019	July 8	Sept. 16-21	Sept. 21

The Registration Deadline is one week prior to the first day of class.

Observed Holidays

NWCOC Observes the Following Holidays:

- New Year's Day
- Memorial Day
- Independence Day
- Labor Day
- Thanksgiving week
- Christmas week

Admissions

Students who wish to register for classes must be at least 16 years of age and must register by the due date for the given term. Students are subject to refund penalties if courses are not completed, as stated on the Registration Form and elsewhere in NWCOC printed literature. NWCOC does not charge an admissions fee.

Individuals who wish to apply for apprenticeship and contractors wishing to become state registered Training Agents may contact the NWCOC Offices for further information at 503-256-7300.

Only registered apprentices receive credit for classes taken toward a state-issued Journeyman card. An apprenticeship committee will determine which courses, if any, will be applied to the individual's related training requirement.

Equal Opportunity Pledge

The admissions, registration, employment, and training of students during their tenure at NWCOC shall be without discrimination due to sex, age, race, color, religion, ethnic origin, or sexual orientation. The college shall take affirmative action to provide equal opportunity in apprenticeship and will operate the apprenticeship program as required by the rules of the Oregon State Apprenticeship and Training Council and Title 29, part 30 of the Code of Federal Labor Standards.

Admissions Process

Registration Forms

Students must register no later than one week before the first day of class via a Registration Form or by registering online. Registration forms are available at the NWCOC administrative offices. Space is limited

and is filled on a first come, first served basis. Tuition is due and payable prior to the first class session. For further information, call NWCOC Registrar at 503-256-7300. All registrations must be accompanied with payment. Registrations may be submitted any of the following ways:

In Person

The NWCOC Office located at 8111 N.E. Holman Street, Portland Oregon is open 8:00am – 6:00pm Monday through Thursday and 8:00am – 5:00pm on Friday.

By Mail

To register by mail, students may request a Registration Form from Northwest College of Construction. Mail your registration form with payment to:

Northwest College of Construction
Attn: Admissions
8111 N.E. Holman St.
Portland OR 97218

By Fax

You may register by faxing your Registration Form with credit card information to 503-252-9560. NWCOC accepts VISA & MasterCard. Payment must accompany all registrations.

By Computer

You may register and pay online at www.nwcoc.com.

Registration for an NWCOC apprenticeship Program

Registrations for NWCOC apprenticeship programs are only accepted by applying online at www.nwcoc.com

Veterans

Registered apprentices attending classes may be eligible to draw benefits from the Veteran's Administration under their Education Bill. This is only available to those who qualify. To receive more information call the NWCOC apprenticeship department.

Fee Schedules & Descriptions

Tuition

Tuition rates for non-apprenticeship courses are listed on the NWCOC website, www.nwcoc.com and are available upon request from NWCOC. Apprenticeship program tuition rates are available upon request.

Books

Books are assigned per program or course. Book fees cover the cost of the book, shipping, handling and processing. NWCOC does not sell used books and does not have a book buy-back program.

Registration Fee

$10.00 or $30.00 per term, depending on the course or program.

Lab Fees

Actual lab fees vary depending on course and are applied to courses that require lab space or materials. Lab fees cover tool maintenance, materials and Tool Room personnel. This fee does not apply to all programs or courses.

Discounts

Students who are affiliated with one of the founding sponsor trade associations of the school, either as members or employees of members, are eligible for a 30% discount on book and lab fees for non-apprenticeship classes. Sponsor trade associations include the local chapters of The Associated Builders and Contractors (ABC), Associated General Contractors (AGC), Home Builders Association (HBA), and National Utility Contractors Association (NWUCA).

Current Fees

Current fees for all non-apprenticeship classes and training programs, including tuition, books and lab fees may be found on the NWCOC website www.nwcoc.com.

Transfer Credit

NWCOC recognizes credit transferred from NCCER Accredited Institutions as verified on the NCCER Automated National Registry. Transfer Credit is only accepted within five (5) years of the date that the program or module(s) was originally completed.

Financial Aid

Northwest College of Construction offers scholarships and payment plans for some of our programs and courses as alternatives for students in need of financial assistance. Federal Financial Aid (Title IV funding) is not available at NWCOC and there is no requirement to determine Ability to Benefit (ATB). For further questions about Financial Aid options or scholarship applications and criteria please contact the school office.

Student Services

Students enrolling in the Residential Carpentry Program are automatically enrolled in the NWCOC Employment Services Program. Students are referred to Contractors based on the nature of work and student skills and/or aspirations. NWCOC does not and cannot guarantee employment.

Student Code of Conduct

The College reserves the right to take necessary and appropriate action to protect the safety and well-being of the campus community and property. The College President has delegated matters of discipline to the Disciplinary Committee. The Committee is responsible for the development and implementation of policy related to adjudication of issues related to student conduct. However, the College President retains the right to impose discipline and to change, delete, or add to the policies developed by the Committee.

Disciplinary procedures have been established to guide the fair and uniform enforcement of the Code of Conduct. These procedures are applicable to any student or program participant charged with a violation of the Code of Conduct.

The following are prohibited:

1. Use or threat of physical violence.
2. Verbal abuse, threats, intimidation, harassment, coercion, and/or other conduct that threatens or endangers the health, safety, physical, or emotional well-being of any person or interferes with student studies or programs.
3. Sexual assault, which is defined as deliberate physical contact of a sexual nature (or threats or attempts thereof) which is against the victim's will, with or without their consent.
4. Sexual harassment, which is defined as unwelcome sexual advances, requests for sexual favors, and any other verbal or physical conduct of a sexual nature.
5. Conduct that is lewd, disorderly, indecent or otherwise disruptive.
6. Intentionally or recklessly interfering with College activities.
7. Endangering the safety of persons or property through tampering with fire safety equipment, improper possession or use of flammable or hazardous substances, or improper use of emergency equipment.
8. Use or possession of any weapon, firearm, fireworks, or projectile-impelling device of any kind on College property.
9. Theft or possession of stolen property.
10. Intentionally or recklessly destroying, damaging, or defacing College property or personal property.
11. Intentionally furnishing false information to the College or any of its employees.
12. Unauthorized presence in, or use of, College premises, facilities, or equipment.
13. Failure to comply with directions of any College official or employee.
14. Failure to submit to and pass required urinalysis.
15. Failure to attend classes or any other mandatory College activities.
16. Consumption of illegal or non-prescribed drugs or alcohol on College property, except consumption of alcohol at College-sponsored events.

Violations of the Student Code of Conduct may result in a variety of disciplinary actions by the College President and/or its Administrators and instructors including, but not limited to, probation, suspension, and/or permanent termination of eligibility to participate in College activities and prohibition from entering onto College property.

Disciplinary decisions may be subject to review by the Disciplinary Committee, upon request of the student, within two (2) working days of initial disciplinary action.

The Disciplinary Committee will consist of no less than two of the following College Administrators:

- Director of Apprenticeship and Student Services
- Director of Human Resources
- Director of Operations
- Director of Education
- President

Upon review, the Disciplinary Committee may choose to forgive, lessen, or increase the level of disciplinary action. Decisions will be made at the discretion of the Disciplinary Committee, and all decisions by the Disciplinary Committee will be final.

Training Programs

Overview

NWCOC provides open enrollment and admits students of any race, color, national origin, and ethnic origin to all the rights, privileges, programs, and activities generally accorded or made available to students at the school. It does not discriminate based on race, color, national origin, and ethnic origin in administration of its educational policies, admission policies, scholarship and loan programs, and other school-administered programs. NWCOC delivers courses for students seeking education to fulfill the following career needs: career training, personal development, and career advancement.

NOTE: Individuals taking Professional Development classes do so with the understanding that little remediation will be possible and all pre-requisites must be met. Refund and withdrawal policies apply to all students.

Curriculum

Resources and curriculum utilized by NWCOC are published by leading industry publishers including National Center for Construction Education and Research (NCCER) through Pearson Publications, Associated General Contractors (Supervisory Training Program) along with the best curricula available through our sponsors and/o other materials promoting best practices and industry standards.

All students who receive training delivered by an NCCER Accredited Sponsor are eligible to receive transcripts and documentation of their training accomplishments through NCCER's National Registry.

Craft Training

Craft Training Programs offered at NWCOC are apprenticeship programs. The programs are offered as open enrollment to those who wish to take the classes without applying to the apprenticeship programs. NWCOC also offers a Sign Hangers apprenticeship program that is not offered as open enrollment. Contact the school office for more information.

Carpentry

NWCOC Certificate of Completion: Residential Carpentry (1 Yr.)
NWCOC Certificate of Completion: Commercial Carpentry (4 Yr.)
NCCER National Registry

Clock Hours of Instruction:	144 hours per year
Program duration:	Residential carpentry 1 years / Commercial carpentry 4 years
time allowed for completion	residential carpentry 2 years / commercial carpentry 5 years

Non-apprenticeship residential carpentry

Clock Hours of Instruction:	340 hours per year
Program duration:	1 year
time allowed for completion	2 years

The Carpentry program is a series of training modules divided into four levels. Curriculum is modular in format, competency-based and include written and performance evaluations. Students who seek the full range of carpentry skills will begin with an orientation to the trade, moving to an introduction to the tools and materials of the trade and progress through all phases of form-building, frame-construction, and finish carpentry. In addition, students will also learn to measure accurately, read blueprints, and master the mathematical skills needed to calculate dimensions, determine material quantities plus stair and rafter layouts.

Commercial Carpentry students who complete the four levels of this curriculum and who obtain roughly four years of on-the-job experience will qualify as a journey-level Carpenter anywhere in the nation.

REQUIREMENTS FOR COMPLETION:

Residential Carpentry

1. Complete all the modules prescribed in Core and Carpentry Level 1 and Level 2
2. Complete and pass a written exam and performance exam, if applicable, for each module with a minimum score of 70%
3. Maintain Satisfactory Academic and Attendance Progress

Commercial Carpentry

1. Complete all the modules prescribed in Core and Carpentry Level 1, Level 2, Level 3, and Level 4
2. Complete and pass a written exam and performance exam, if applicable, for each module with a minimum score of 70%
3. Maintain Satisfactory Academic and Attendance Progress

Carpentry Level 1

Basic Safety
(Module ID 00101-15) Presents basic jobsite safety information to prepare workers for the construction environment. Describes the common causes of workplace incidents and accidents and how to avoid them. Introduces common PPE, including equipment required for work at height, and its proper use. Information related to safety in several specific environments, including welding areas and confined spaces, is also provided.

Introduction to Construction Math
(Module ID 00102-15) Reviews basic math skills related to the construction trades and demonstrates how they apply to the trades. Covers multiple systems of measurement, decimals, fractions, and basic geometry.

Introduction to Hand Tools
(Module ID 00103-15) Introduces common hand tools used in a variety of construction crafts. Identifies tools and how to safely use them. Proper hand tool maintenance is also presented.

Introduction to Power Tools
(Module ID 00104-15) Identifies and describes the operation of many power tools common in the construction environment. Provides instruction on proper use, as well as on safe-handling guidelines and basic maintenance.

Introduction to Construction Drawings

(Module ID 00105-15) Introduces the basic elements of construction drawings. The common components of drawings are presented, as well as the most common drawing types. The use of drawing scales and how to measure drawings is also covered.

Introduction to Basic Rigging
(Module ID 00106-15) Provides basic information related to rigging and rigging hardware, such as slings, rigging hitches, and hoists. Emphasizes safe working habits in the vicinity of rigging operations.

Basic Communication Skills
(Module ID 00107-15) Provides good techniques for effective communication on the job. Includes examples that emphasize the importance of both written and verbal communication skills. Describes the importance of reading skills in the construction industry and covers proper techniques to use in a variety of different written communication formats.

Basic Employability Skills
(Module ID 00108-15) Describes the opportunities offered by the construction trades. Discusses critical thinking and essential problem-solving skills for the construction industry. Also identifies and discusses positive social skills and their value in the workplace.

Introduction to Material Handling
(Module ID 00109-15) Describes the hazards associated with handling materials and provides techniques to avoid both injury and property damage. Common material-handling equipment is also introduced.

Orientation to the Trade
(Module ID 27101-13) Reviews the history of the trade, describes the apprentice program, identifies career opportunities for carpentry and construction workers, and lists the skills, responsibilities, and characteristics a worker should possess. Emphasizes the importance of safety in the construction industry.

Building Materials, Fasteners, and Adhesives
(Module ID 27102-13) Introduces the building materials used in construction work, including lumber, sheet materials, engineered wood products, structural concrete, and structural steel. Also describes the fasteners and adhesives used in construction work. Discusses the methods of squaring a building.

Hand and Power Tools
(Module ID 27103-13) Provides descriptions of hand tools and power tools used by carpenters. Emphasizes safe and proper operation, as well as care and maintenance.

Introduction to Construction Drawings, Specifications, and Layout
(Module ID 27104-13) Covers the techniques for reading and using construction drawings and specifications with an emphasis on drawings and information relevant to the carpentry trade. Introduces quantity takeoffs.

Floor Systems
(Module ID 27105-13) Covers framing basics and the procedures for laying out and constructing a wood floor using common lumber, as well as engineered building materials.

Wall Systems
(Module ID 27111-13) Describes procedures for laying out and framing walls, including roughing-in door and window openings, constructing corners, partition Ts, and bracing walls. Includes the procedure to estimate the materials required to frame walls.

Ceiling Joist and Roof Framing

(Module ID 27112-13) Describes types of roofs and provides instructions for laying out rafters for gable roofs, hip roofs, and valley intersections. Covers stick-built and truss-built roofs. Includes the basics of roof sheathing installation.

Basic Stair Layout
(Module ID 27110-13) Introduces types of stairs and common building code requirements related to stairs. Focuses on techniques for measuring and calculating rise, run, and stairwell openings, laying out stringers, and fabricating basic stairways.

Introduction to Building Envelope Systems
(Module ID 27109-13) Introduces the concept of the building envelope and explains its components. Describes types of windows, skylights, and exterior doors, and provides instructions for installation

Carpentry Level 2

Commercial Drawings
(Module ID 27201-13) Describes how to read and interpret a set of commercial drawings and specifications.

Roofing Applications
(Module ID 27202-13) Describes how to properly prepare the roof deck and install roofing for residential and commercial buildings.

Thermal and Moisture Protection
(Module ID 27203-13) Covers the selection and installation of various types of insulating materials in walls, floors, and attics. Also covers the uses and installation practices for vapor barriers and waterproofing materials.

Exterior Finishing
(Module ID 27204-13) Covers the various types of exterior finish materials and their installation procedures, including wood, metal, vinyl, and fiber-cement siding.

Cold-Formed Steel Framing
(Module ID 27205-13) Describes the types and grades of steel framing materials, and includes instructions for selecting and installing metal framing for interior and exterior walls, loadbearing and nonbearing walls, partitions, and other applications.

Drywall Installation
(Module ID 27206-13) Describes the various types of gypsum drywall, their uses, and the fastening devices and methods used to install them. Also contains detailed instructions for installing drywall on walls and ceilings using nails, drywall screws, and adhesives. A discussion of fire- and sound-rated walls is also presented.

Drywall Finishing
(Module ID 27207-13) Describes the materials, tools, and methods used to finish and patch gypsum drywall. A discussion of both automatic and manual taping and finishing tools is presented.

Doors and Door Hardware
(Module ID 27208-13) Describes the installation of metal doors and related hardware in steel-framed, wood-framed, and masonry walls, along with their related hardware, such as locksets and door closers. A discussion on the installation of wood doors, folding doors, and pocket doors is also presented.

Suspended Ceilings
(Module ID 27209-13) Describes the materials, layout, and installation procedures for many types of suspended ceilings used in commercial construction, as well as ceiling tiles, drywall suspension systems, and pan-type ceilings

Window, Door, Floor, and Ceiling Trim
(Module ID 27210-13) Describes the different types of trim used in finish work and focuses on the proper methods for selecting, cutting, and fastening trim to provide a professional finished appearance.

Cabinet Installation
(Module ID 27211-13) Provides detailed instructions for the selection and installation of base and wall cabinets and countertops.

Carpentry Level 3

Properties of Concrete
(Module ID 27303-14) Describes the properties, characteristics, and uses of cement, aggregates, and other materials used in different types of concrete. Covers procedures for estimating concrete volume and testing freshly mixed concrete, as well as methods and materials for curing concrete.

Rigging Equipment
(Module ID 38101-11) Describes the use and inspection of basic equipment and hardware used in rigging, including slings, wire rope, chains, and attaching hardware such as shackles, eyebolts, and hooks, as well as rigging knots. Explains sling angles. Covers tuggers, jacks, hoists, and ratchet-lever hoists.

Rigging Practices
(Module ID 38102-11) Describes basic rigging and crane hazards as well as safety practices related to general rigging activities, working around power lines, and emergency response. Covers procedures for using slings and rigging pipes and valves.

Trenching and Excavating
(Module ID 27306-14) Provides an introduction to working in and around excavations, particularly in preparing building foundations. Describes types and bearing capacities of soils; procedures used in shoring, shielding, and sloping trenches and excavations; trenching safety requirements, including recognition of unsafe conditions; and mitigation of groundwater and rock when excavating foundations.

Reinforcing Concrete
(Module ID 27304-14) Explains the selection and uses of different types of reinforcing materials. Describes requirements for bending, cutting, splicing, and tying reinforcing steel and the placement of steel in footings and foundations, walls, columns, and beams and girders.

Foundations and Slab-on-Grade
(Module ID 27307-14) Covers basic site layout safety, tools, and methods; layout and construction of deep and shallow foundations; types of foundation forms; layout and formation of slabs-on-grade; and forms used for curbing and paving.

Vertical Formwork
(Module ID 27308-14) Covers the applications and construction methods for types of forming and form hardware systems for walls, columns, and stairs, as well as slip and climbing forms. Provides an overview of the assembly, erection, and stripping of gang forms.

Horizontal Formwork
(Module ID 27309-14) Describes elevated decks and formwork systems and methods used in their construction. Covers joist, pan, beam and slab, flat slab, composite slab, and specialty form systems and provides instructions for the use of flying decks, as well as shoring and reshoring systems.

Handling and Placing Concrete
(Module ID 27305-14) Covers tools, equipment, and procedures for safely handling, placing, and finishing concrete. Describes joints made in concrete structures and the use of joint sealants.

Tilt-up Wall Panels
(Module ID 27310-14) Describes how tilt-up concrete construction is used and how tilt-up panels are formed, erected and braced. Covers the installation of rebar and types of embedments used to lift and brace the panels. Also covers methods used to create architectural and decorative treatments.

Carpentry Level 4

Site Layout One—Differential Leveling
(Module ID 27401-14) Covers the principles, equipment, and methods used to perform differential leveling. Also covers the layout responsibilities of surveyors, field engineers, and carpenters; interpretation and use of site/plot plan drawings; the use of laser instruments; and methods used for on-site communication.

Site Layout Two—Angular and Distance Measurement
(Module ID 27402-14) Covers the principles, equipment, and methods used to perform site layout tasks that require angular and distance measurements. Tasks include laying out building lines and determining elevations by trigonometric leveling. The use of transits, theodolites, electronic distance measurement, and total stations are covered. Reviews trade mathematics needed to perform calculations related to angular measurements.

Advanced Roof Systems
(Module ID 27403-14) Covers commercial roofing materials and structures and describes the procedures for installing commercial roofing such as lap seam, standing seam, and built-up roofs.

Advanced Wall Systems
(Module ID 27404-14) Covers installation of a variety of finishing materials, including concrete masonry units and brick. Also covers installation of curtain walls and fire-rated commercial construction.

Advanced Stair Systems
(Module ID 27405-14) Provides extensive coverage of the materials and techniques used in finishing wooden staircases. Also covers a variety of stair systems used in commercial construction.

Introduction to Construction Equipment
(Module ID 27406-14) Introduces construction equipment, including the aerial lift, skid steer loader, electric power generator, compressor, compactor, and forklift. An overview of general safety, operation, and maintenance procedures is provided.

Introduction to Oxyfuel Cutting and Arc Welding
(Module 27407-14) Introduces the equipment, procedures, and safety practices used in cutting steel with oxyfuel equipment, as well as shielded metal arc welding, gas-tungsten arc welding, and gas metal arc welding. Labs include practice in cutting and welding techniques.

Site Preparation
(Module ID 27409-14) Covers the planning process that precedes the start of work on a construction site, including environmental considerations, personnel issues, access roads, traffic control, permits, site safety, utilities, and crane-related concerns.

Fundamentals of Crew Leadership
(Module ID 46101-11) While this module has been designed to assist the recently promoted crew leader, it is beneficial for anyone in management. The course covers basic leadership skills and explains different leadership styles, communication, delegating, and problem solving. Job-site safety and the crew leader's role in safety are also

discussed. This edition goes into detail on project planning, scheduling, and estimating with new performance tasks to assist the learning process.

Concrete Finishing

NWCOC CERTIFICATE OF COMPLETION: CONCRETE FINISHING
NCCER NATIONAL REGISTRY

CLOCK HOURS OF INSTRUCTION:	144 HOURS PER YEAR
PROGRAM DURATION:	3 YEARS
TIME ALLOWED FOR COMPLETION	4 YEARS

The Concrete Finishing program is a series of training modules divided into three levels. Curriculum is modular in format and include written and performance evaluations. After an introduction to concrete finishing and safety, students will learn the properties of concrete, its proper placement and finishing, and how it cures. Level 2 and Level 3 includes modules on forming, quantity estimating, and a variety of finishes and surface treatments as well as quality control and making repairs.

Students who complete the three levels of this curriculum and who obtain roughly three of on-the-job experience will qualify as a journey-level Concrete Finisher anywhere in the nation.

REQUIREMENTS FOR COMPLETION:

1. Complete all the modules prescribed in Core and Concrete Finishing Level 1 and Level 2
2. Complete and pass a written exam and performance exam, if applicable, for each module with a minimum score of 70%
3. Maintain Satisfactory Academic and Attendance Progress

Concrete Finishing Level 1

Introduction to Concrete Construction and Finishing
(Module ID 23101) Provides an introduction to the methods and procedures used in concrete finishing. Introduces terms of the trade and tools and equipment used to place, finish, and cure concrete. Explains methods and techniques for constructing concrete structures.

Safety Requirements
(Module ID 23102) Explains safety requirements for concrete construction and finishing. Provides information on OSHA requirements with regard to hazard communication, fall protection, and use of personal protective equipment. Covers topics such as general work site safety, use of chemicals, and safe use of hand and power tools.

Properties of Concrete
(Module ID 23103) Introduces the properties of concrete and the components that make up the concrete mixture. Describes chemical and physical properties of cement, aggregate, and admixtures. Explains basic tests used to determine properties such as slump and ultimate strength.

Tools and Equipment
(Module ID 23104) Describes tools and equipment used in the production, placing, and curing of concrete. Explains safe operation and maintenance requirements. Provides the trainee the opportunity to operate each hand tool and allows the demonstration of larger pieces of power equipment.

Preparing for Placement
(Module ID 23105) Details the methods and procedures used in preparing for placing concrete. Includes background information about site layout, forms requirements, and subgrade preparation. Describes requirements for various types of joints and reinforcement. Presents information regarding the ordering of concrete from a mixing or batch plant.

Placing Concrete
(Module ID 23106) Presents requirements and methods for properly placing concrete. Includes information on conveying and placing fresh concrete using various types of equipment, such as wheel-barrows, pumps and conveyors. Describes techniques for spreading, consolidating, and striking off concrete.

Finishing, Part One
(Module ID 23107) Describes basic finishing techniques for slabs and other horizontal structures. Explains proper use of floats, trowels, edgers, and groovers and demonstrates their uses. Discusses requirements for cutting joints using different types of saws. Provides hands-on practice for finishing concrete slabs.

Curing and Protecting Concrete
(Module ID 23108) Introduces the trainee to the methods and procedures used in curing and protecting concrete. Covers the types of curing commonly performed for both horizontal and vertical placement. Describes techniques for protecting concrete during hot and cold weather.

Introduction to Troubleshooting
(Module ID 23109) Describes basic problems for the processes of placing, finishing, and curing. Defines symptoms of each type of problem and discusses their causes. Presents ways to reduce or eliminate these problems.

Concrete Finishing Level 2

Properties of Concrete, Part Two
(Module ID 23201) Describes the physical and chemical properties of various materials used in a concrete mix. Includes the description of chemical and mineral admixtures, lightweight concrete, high strength concrete, flowable fill, and various types of paving materials. Discusses expected results of the use of admixtures.

Estimating Concrete Quantities
(Module ID 23202) Covers the methods and techniques used in estimating materials quantities for concrete construction. Provides background for use of plans and drawings as well as math calculations. Gives example calculations for estimating quantities of concrete for curb and gutter, stairs, slab, wall
footings, and columns.

Forming
(Module ID 23203) Describes forming requirements. Includes types of forms, forming materials, use of release agents, form accessories, placement of anchors and embedments, and form removal. Highlights safety requirements with emphasis on reshoring precautions and procedures.

Site Concrete
(Module ID 23204) Includes descriptions and techniques for forming, constructing, and finishing various types of site work. Focuses on the construction of steps and stairs, curbs and gutters, sidewalks and driveways, and low vertical structures. Describes different finishing techniques.

Architectural Finishes
(Module ID 23205) Introduces architectural concrete and architectural finishes. Provides information on the surface classes of architectural concrete and the treatments commonly specified to make them attractive. Includes special surface treatments, special forms, and form liners.

Industrial Floors
(Module ID 23206) Presents construction and finishing of this special class of concrete work. Describes the use of special tools and finishing techniques. Explains procedures for preparation, joint layout, placing, finishing, and curing.

Superflat Floors
(Module ID 23207) Presents requirements for constructing superflat floors and techniques used to achieve required results. Explains procedures for preparation, placing, finishing, and curing. Describes techniques for measuring tolerances of slabs and methods for troubleshooting during placement and finishing. Explains repair procedures.

Surface Treatments
(Module ID 23208) Provides an overview of the various types of surface treatments that can be applied to concrete structures. Includes the requirements for and application of dry shakes, self-leveling topping, epoxies, and shotcrete.

Quality Control
(Module ID 23209) Introduces the ideas and tasks related to sampling, testing, and inspecting concrete and its component materials. Describes various types of specifications, along with the standard procedures for sampling and testing concrete mix. Covers inspection procedures for forms, construction methods, and finishing.

Making Repairs
(Module ID 23210) Explains the requirements for making repairs to concrete based on specific problems. Explains and demonstrates repair methods. Describes the use of special tools and materials.

Construction Craft Laborers

NWCOC CERTIFICATE OF COMPLETION: CONSTRUCTION CRAFT LABORER
NCCER NATIONAL REGISTRY

CLOCK HOURS OF INSTRUCTION:	144 HOURS PER YEAR
PROGRAM DURATION:	2 YEARS
TIME ALLOWED FOR COMPLETION	3 YEARS

Construction Craft Laborers assist Heavy Equipment Operators, Carpenters and other tradesmen with day-to-day job-site operations. NWCOC's Construction Craft Laborer program is a series of training modules divided into 2-levels. Curriculum is modular in format, competency-based and includes written and performance evaluations. This series of courses is designed to prepare Laborers to perform a wide-range of tasks in all types of construction including building, heavy/highway, and utility installation. Students who complete the two levels of this curriculum and who obtain roughly two years of on-the-job experience will qualify as a journey-level laborer anywhere in the nation.

1. Complete all the modules prescribed in Core and Construction Craft Laborers Level 1 and Level 2.
2. Complete and pass a written exam and performance exam, if applicable, for each module with a minimum score of 70%
3. Maintain Satisfactory Academic and Attendance Progress

Construction Craft Laborers Level 1

Basic Safety
(Module ID 00101-15) Presents basic jobsite safety information to prepare workers for the construction environment. Describes the common causes of workplace incidents and accidents and how to avoid them.

Introduces common PPE, including equipment required for work at height, and its proper use. Information related to safety in several specific environments, including welding areas and confined spaces, is also provided.

Introduction to Construction Math
(Module ID 00102-15) Reviews basic math skills related to the construction trades and demonstrates how they apply to the trades. Covers multiple systems of measurement, decimals, fractions, and basic geometry.

Introduction to Hand Tools
(Module ID 00103-15) Introduces common hand tools used in a variety of construction crafts. Identifies tools and how to safely use them. Proper hand tool maintenance is also presented.

Introduction to Power Tools
(Module ID 00104-15) Identifies and describes the operation of many power tools common in the construction environment. Provides instruction on proper use, as well as on safe-handling guidelines and basic maintenance.

Introduction to Construction Drawings
(Module ID 00105-15) Introduces the basic elements of construction drawings. The common components of drawings are presented, as well as the most common drawing types. The use of drawing scales and how to measure drawings is also covered.

Introduction to Basic Rigging
(Module ID 00106-15) Provides basic information related to rigging and rigging hardware, such as slings, rigging hitches, and hoists. Emphasizes safe working habits in the vicinity of rigging operations.

Basic Communication Skills
(Module ID 00107-15) Provides good techniques for effective communication on the job. Includes examples that emphasize the importance of both written and verbal communication skills. Describes the importance of reading skills in the construction industry and covers proper techniques to use in a variety of different written communication formats.

Basic Employability Skills
(Module ID 00108-15) Describes the opportunities offered by the construction trades. Discusses critical thinking and essential problem-solving skills for the construction industry. Also identifies and discusses positive social skills and their value in the workplace.

Introduction to Material Handling
(Module ID 00109-15) Describes the hazards associated with handling materials and provides techniques to avoid both injury and property damage. Common material-handling equipment is also introduced.

Orientation to the Trade
(Module ID 27101-13) Reviews the history of the trade, describes the apprentice program, identifies career opportunities for carpentry and construction workers, and lists the skills, responsibilities, and characteristics a worker should possess. Emphasizes the importance of safety in the construction industry.

Building Materials, Fasteners, and Adhesives
(Module ID 27102-13) Introduces the building materials used in construction work, including lumber, sheet materials, engineered wood products, structural concrete, and structural steel. Also describes the fasteners and adhesives used in construction work. Discusses the methods of squaring a building.

Fall Protection
(Class ID FP24) Teaches the role the employee has in preventing falls, how to identify, recognize and evaluate fall hazards, use appropriate systems and methods to prevent falls, inspect and maintain fall-protection equipment, use

suspended access properly, prevent and controlling falls. Also describes how to test fall protection equipment, become familiar with Oregon OSHA's fall protection rules, eliminate fall hazards and fall arrest rescue systems,

Grades, Part One
(Module ID 22106-12) Introduces the concept of preparing graded surfaces using heavy equipment. Covers identification of construction stakes and interpretation of marks on each type of stake. Describes process for grading slopes.

Rough Terrain Forklifts
(Module ID 22206-13) Covers the uses of forklifts on construction sites. Includes instructions for lifting, transporting, and placing various types of loads, as well as safety, operation, and maintenance procedures.

Rigging Practices
(Module ID 38102-18) Describes basic rigging and crane hazards as well as safety practices related to general rigging activities, working around power lines, and emergency response. Covers procedures for using slings and rigging pipes and valves.

Basic Principles of Cranes
(Module ID 21102-18) Offers trainees an introduction to mobile crane equipment with an in-depth discussion of terminology and nomenclature. Explains the basic scientific principles associated with mobile crane operation.

Site Layout One—Differential Leveling
(Module ID 27401-14) Covers the principles, equipment, and methods used to perform differential leveling. Also covers the layout responsibilities of surveyors, field engineers, and carpenters; interpretation and use of site/plot plan drawings; the use of laser instruments; and methods used for on-site communication.

Site Preparation
(Module ID 27409-14) Covers the planning process that precedes the start of work on a construction site, including environmental considerations, personnel issues, access roads, traffic control, permits, site safety, utilities, and crane-related concerns.

Introduction to Oxyfuel Cutting and Arc Welding
(Module 27407-14) Introduces the equipment, procedures, and safety practices used in cutting steel with oxyfuel equipment, as well as shielded metal arc welding, gas-tungsten arc welding, and gas metal arc welding. Labs include practice in cutting and welding techniques.

Communication
(Module ID 53101-11) Describes the communication process between the rigger and the crane operator. Covers electronic communication as well as ASME hand signals for mobile, tower, and overhead cranes.

Crane Safety
(Module ID 21104-04**)** Introduces various safety aspects of mobile crane operation, including equipment inspection, site hazard identification, and required personal protection equipment. Discusses how to work with site plans and specifications.

Construction Craft Laborers Level 2

Job Site Safety
(Module ID 24101) Describes the appropriate personal protective equipment most commonly used on the job site and addresses the impact of housekeeping on safety and project completion. Explains the most common indicators of existing utilities and recommends safe methods for locating and working around existing utilities.

Tools and Equipment

(Module ID 24102) Describes the safe use, care, and maintenance of the most common pipelayer hand and power tools. Discusses methods for operating and maintaining dewatering equipment, generators, and compressors. Contains an introduction to drilling and tapping machines.

Rigging and Delivering Pipe and Associated Structures
(Module ID 24103) Describes the most common methods for receipt inspection, storage, and delivery to the trench of PVC, ductile iron, corrugated steel, and concrete pipe. Identifies the hand signals used by pipelayers when rigging pipe, and piping components, including manholes and appurtenances.

Cutting Pipe
(Module ID 24104) Discusses the safest, most practical methods for cutting common pipe materials. Also describes common pipe materials and standard sizes for thermoplastic, concrete, ductile iron, and corrugated steel pipe.

Gaskets, Joints, and Fittings
(Module ID 24105) Describes the most common methods for joining PVC, ductile iron, and concrete pipe, including O-ring pipe, slip joints, mechanical joints, and restraint joints. Discusses common methods for joining pipe to pipe, pipe to appurtenances, and pipe to manhole connections, including transition couplings.

Introduction to Elevations
(Module ID 24106) Discusses the use, care, and maintenance of the optical level, transit, and the pipe laser. Contains a brief introduction to elevations as it relates to the setup of these instruments. Describes common causes and solutions to laser problems in the field.

Trench Safety
(Module ID 24107) Discusses soil behavior as it relates to trench failures, including common indications of an unstable trench. Introduces typical shoring, shielding, and sloping methods. Identifies characteristics that may make a trench a confined space and describes the safety measures needed to work in the trench.

Foundation Stabilization, Bedding, and Dewatering
(Module ID 24108) Discusses common methods for preparing the trench for pipe installation, including stabilization, bedding, and initial backfill. Describes effective methods for dewatering a trench and includes a section on troubleshooting dewatering equipment.

Testing Pipe
(Module ID 24109) Discusses methods for preparing pressure and gravity systems for testing, including cleaning and inspecting pipe systems. Describes methods for testing pressure and gravity systems, including vacuum testing of concrete manholes.

Introduction to Concrete Construction and Finishing
(Module ID 23101) Provides an introduction to the methods and procedures used in concrete finishing. Introduces terms of the trade and tools and equipment used to place, finish, and cure concrete. Explains methods and techniques for constructing concrete structures.

Safety Requirements
(Module ID 23102) Explains safety requirements for concrete construction and finishing. Provides information on OSHA requirements with regard to hazard communication, fall protection, and use of personal protective equipment. Covers topics such as general work site safety, use of chemicals, and safe use of hand and power tools.

Forming
(Module ID 23203) Describes forming requirements. Includes types of forms, forming materials, use of release agents, form accessories, placement of anchors and embedments, and form removal. Highlights safety requirements with emphasis on reshoring precautions and procedures.

Competent Person: Trenching and Excavating and Confined Space Entry
(Class ID OSHA-CPT and OSHA-CSE) Introduces the hazards and safeguards associated with confined-space work. Describes proper on-site safety and emergency response procedures related to confined spaces, trenching, and excavation. Discusses the difference between permit-required and non-permit-required confined spaces. Teaches participants to recognize unsafe conditions; the signs and causes of unstable trenches: procedures used in shoring, sloping, and shielding safety methods; and how to differentiate between soil types as they relate to excavation work.

HAZMAT Emergency Response
(Class ID OSHA-HAZ) Participants will learn how to recognize a hazardous materials release and the risks involved. They will also learn how to identify the released material; how to use available resources; and how to notify the proper authorities in the event of a hazardous material emergency.

Fundamentals of Crew Leadership
(Module 46101-11) While this module has been designed to assist the recently promoted crew leader, it is beneficial for anyone in management. The course covers basic leadership skills and explains different leadership styles, communication, delegating, and problem solving. Job-site safety and the crew leader's role in safety are also discussed. This edition goes into detail on project planning, scheduling, and estimating with new performance tasks to assist the learning process.

Heavy Equipment Operators

NWCOC CERTIFICATE OF COMPLETION: HEAVY EQUIPMENT OPERATIONS
NCCER NATIONAL REGISTRY

CLOCK HOURS OF INSTRUCTION:	160 HOURS PER YEAR
PROGRAM DURATION:	4 YEARS
TIME ALLOWED FOR COMPLETION	5 YEARS

The Heavy Equipment Operations program is a series of training modules divided into 4-levels. Curriculum is modular in format, competency-based and include written and performance evaluations. Students who seek the full range of operator skills will begin with an orientation to the trade and safety, moving to identification of equipment, preventative maintenance, soil identification, and grade preparation. Students will receive extensive hands-on instruction in the safe operation of all the major kinds of heavy equipment. Students who complete all four levels of this curriculum and who obtain roughly three to four years of on-the-job experience will qualify as a journey-level heavy equipment operator anywhere in the nation.

REQUIREMENTS FOR COMPLETION:

1. Complete all the modules prescribed in Core and Heavy Equipment Operations Level 1, Level 2, Level 3 and Level 4
2. Complete and pass a written exam and performance exam, if applicable, for each module with a minimum score of 70%
3. Maintain Satisfactory Academic and Attendance Progress

Heavy Equipment Operations Level 1

Basic Safety
(Module ID 00101-15) Presents basic jobsite safety information to prepare workers for the construction environment. Describes the common causes of workplace incidents and accidents and how to avoid them.

Introduces common PPE, including equipment required for work at height, and its proper use. Information related to safety in several specific environments, including welding areas and confined spaces, is also provided.

Introduction to Construction Math
(Module ID 00102-15) Reviews basic math skills related to the construction trades and demonstrates how they apply to the trades. Covers multiple systems of measurement, decimals, fractions, and basic geometry.

Introduction to Hand Tools
(Module ID 00103-15) Introduces common hand tools used in a variety of construction crafts. Identifies tools and how to safely use them. Proper hand tool maintenance is also presented.

Introduction to Power Tools
(Module ID 00104-15) Identifies and describes the operation of many power tools common in the construction environment. Provides instruction on proper use, as well as on safe-handling guidelines and basic maintenance.

Introduction to Construction Drawings
(Module ID 00105-15) Introduces the basic elements of construction drawings. The common components of drawings are presented, as well as the most common drawing types. The use of drawing scales and how to measure drawings is also covered.

Introduction to Basic Rigging
(Module ID 00106-15) Provides basic information related to rigging and rigging hardware, such as slings, rigging hitches, and hoists. Emphasizes safe working habits in the vicinity of rigging operations.

Basic Communication Skills
(Module ID 00107-15) Provides good techniques for effective communication on the job. Includes examples that emphasize the importance of both written and verbal communication skills. Describes the importance of reading skills in the construction industry and covers proper techniques to use in a variety of different written communication formats.

Basic Employability Skills
(Module ID 00108-15) Describes the opportunities offered by the construction trades. Discusses critical thinking and essential problem-solving skills for the construction industry. Also identifies and discusses positive social skills and their value in the workplace.

Introduction to Material Handling
(Module ID 00109-15) Describes the hazards associated with handling materials and provides techniques to avoid both injury and property damage. Common material-handling equipment is also introduced.

Orientation to the Trade
(Module ID 22101-12) Provides an overview of heavy equipment terminology, operations, operator responsibilities, career opportunities, and basic principles of safety.

Heavy Equipment Safety
(Module ID 22102-12) Provides a comprehensive overview of safety requirements on job sites with emphasis on OSHA, MSHA, and NIOSH requirements. Presents basic requirements for personal protection, safe equipment operations and maintenance, and HAZCOM.

Identification of Heavy Equipment
(Module ID 22103-12) Introduces the eleven most used pieces of heavy equipment. Describes the functional operation and uses for each piece of equipment, along with a general description of heavy equipment drive and hydraulic systems.

Basic Operational Techniques
(Module ID 22104-12) Covers prestart checks of a machine's hardware (frame, body panels, tires or tracks, and safety equipment), driveline components, hydraulic system components, electrical components and controls. Reviews machine safety issues. Explains how to safely start, move, steer, stop, and shut down different types of machines.

Utility Tractors
(Module ID 22105-12) Covers operation of general utility tractors in the construction industry. Describes duties and responsibilities of the operator, safety rules for operation, the attachment of implements, and basic preventive maintenance practices.

Introduction to Earth Moving
(Module ID 22201-12) This module provides a broad introduction to the process of planning and executing earth moving activities on various types of construction projects. The use of heavy equipment such as bulldozers, scrapers, excavators, and loaders is explained.

Grades, Part One
(Module ID 22106-12) Introduces the concept of preparing graded surfaces using heavy equipment. Covers identification of construction stakes and interpretation of marks on each type of stake. Describes process for grading slopes.

Heavy Equipment Operations Level 2

On-road Dump Trucks
(Module ID 22203-13) Covers uses, inspection, startup, shutdown, operator maintenance, and operation of dump trucks used to carry loads on public highways. Includes operation of dump trucks in normal and emergency situations.

Scrapers
(Module ID 22204-13) Describes the types of scrapers used in site preparation, as well as the safe practices associated with the operation of scrapers. Covers operator inspection and maintenance requirements, along with startup, shutdown, and operating techniques.

Loaders
(Module ID 22205-13) Covers the uses of wheel and track loaders, as well as operator maintenance, loader safety, and operating procedures. Includes procedures for using loaders in excavation, grading, and demolition work.

Rough Terrain Forklifts
(Module ID 22206-13) Covers the uses of forklifts on construction sites. Includes instructions for lifting, transporting, and placing various types of loads, as well as safety, operation, and maintenance procedures.

Excavation Math
(Module ID 22207-13) Covers basic math skills required for site excavation work. Includes methods and practice in calculating the areas and volumes of various geometric shapes, as well as formulas and methods used to calculate cut and fill requirements on a job.

Soils
(Module ID 22208-13) Describes soil classification systems and explains how shrink and swell factors affect equipment selection. Discusses how soil conditions affect equipment performance and explains techniques for working with various types of soils.

Interpreting Civil Drawings

(Module ID 22209-13) Explains how to read site plans to calculate cut and fill requirements. Provides instruction and practice in interpreting both roadway and construction site drawings used for excavation and grading work.

Site Work
(Module ID 22210-13) Expands on information covered in Level 1 in relation to setting and interpreting grade stakes. Also provides information and instructions on controlling surface water and ground water on a job site, as well as the layout of foundations and laying of pipe.

Skid Steers
(Module ID 22212-13) Describes the many uses of skid steers and the attachments available for these machines. Covers safety practices, as well as inspection, startup, shutdown, and operation of skid steers.

Soils
(Module ID 22208-13) Describes soil classification systems and explains how shrink and swell factors affect equipment selection. Discusses how soil conditions affect equipment performance and explains techniques for working with various types of soils.

Heavy Equipment Operations Level 3

Finishing and Grading
(Module ID 22307-14) Provides training on common types of equipment and instruments used for finish grading, materials and methods used to stabilize soils and control soil erosion, and finishing and grading methods used for various applications.

Compaction Equipment
(Module ID 22203-14) Provides training on common types of compaction equipment; the primary instruments, controls, and attachments of a roller; safety guidelines associated with compaction equipment; and prestart inspections, preventive maintenance, and proper operating procedures. Factors involved in work activities associated with a roller are also presented.

Backhoes
(Module ID 22303-14) Identifies and describes the common uses, types, components, instruments, controls, and attachments of backhoes. Safety guidelines, prestart inspection procedures, and preventive maintenance requirements are presented. Basic startup and operation are described, and common work activities associated with backhoes are covered.

Off-Road Dump Trucks
(Module ID 22310-14) Identifies and describes the common types, uses, and components of off-road dump trucks. Safety guidelines, prestart inspection procedures, and preventive maintenance requirements are presented. Basic startup, driving maneuvers, loading, and dumping procedures for off-road dump trucks are covered.

Dozers
(Module ID 22302-14) Identifies and describes the common uses, types, and components of dozers. Safety guidelines, prestart inspection procedures, and preventive maintenance requirements are presented. Basic startup and operation are described, and common work activities associated with dozers are covered.

Excavators
(Module ID 22304-14) Identifies and describes the common types, uses, and components of excavators. Safety guidelines, prestart inspection procedures, and preventive maintenance requirements are presented. Basic startup

and operation are described, and common work activities associated with excavators are covered.

Motor Graders
(Module ID 22305-13) Identifies and describes the common uses and types of motor graders. Safety guidelines, prestart inspection procedures, and preventive maintenance requirements are presented. Basic startup and operation are described, and common work activities associated with motor graders are covered.

Heavy Equipment Operations Level 4

Orientation to the Trade
(Module ID 36101-17) Introduces the trainees to careers, equipment, and processes used in the construction of highways and bridges.

Identification of Equipment Used in Heavy Highway Construction
(Module ID 36111-17) Describes the types of heavy equipment, utility equipment, and cranes used in the construction of bridges and highways. Trainees will be expected to recognize the equipment and describe its use.

Heavy Highway Construction Safety
(Module ID 36110-17) Reviews the safety hazards and precautions associated with construction of highways and bridges. It also emphasizes the importance of following safety procedures in order to prevent accidents and injuries associated with working in hazardous places/conditions.

Work-Zone Safety
(Module ID 75104-13) Explains how to recognize and use the signs, signals, and barricades commonly found on a job site. Also describes the hazards and safeguards associated with highway work zones.

Rigging Practices
(Module ID 38102-18) Describes basic rigging and crane hazards as well as safety practices related to general rigging activities, working around power lines, and emergency response. Covers procedures for using slings and rigging pipes and valves.

Crane Safety and Emergency Procedures
(Module ID 21106-18) Introduces various safety aspects of mobile crane operation, including equipment inspection, site hazard identification, and required personal protection equipment. Discusses how to work with site plans and specifications.

Basic Principles of Cranes
(Module ID 21102-18) Offers trainees an introduction to mobile crane equipment with an in-depth discussion of terminology and nomenclature. Explains the basic scientific principles associated with mobile crane operation.

Crane Communications
(Module ID 53101-18) Describes the communication process between the rigger and the crane operator. Covers electronic communication as well as ASME hand signals for mobile, tower, and overhead cranes.

Plant Operations
(Module ID 36107-17) Explains the operation of plants used to manufacture concrete and asphalt paving and describes the different types aggregates.

Paving
(Module ID 36108-17) Describes paving operations, paving equipment, recycling processes, and quality control requirements for both concrete and hot-mix asphalt paving.

Horizontal Formwork
(Module ID 27309-14) Describes elevated decks and formwork systems and methods used in their construction. Covers joist, pan, beam and slab, flat slab, composite slab, and specialty form systems and provides instructions for the use of flying decks, as well as shoring and reshoring systems

Vertical Formwork
(Module ID 27308-14) Covers the applications and construction methods for types of forming and form hardware systems for walls, columns, and stairs, as well as slip and climbing forms. Provides an overview of the assembly, erection, and stripping of gang forms.

Reinforcing Concrete
(Module ID 27304-14) Explains the selection and uses of different types of reinforcing materials. Describes requirements for bending, cutting, splicing, and tying reinforcing steel and the placement of steel in footings and foundations, walls, columns, and beams and girders.

Working with Concrete
(Module ID 36112-17) Introduces the trainees to the safety concerns associated with concrete, as well as concrete testing, concrete admixtures, and the proper procedure for placing concrete.

Trade Drawings One
(Module ID 30108-11) Identifies the materials used in steel-framed buildings. Explains how to read basic structural blueprints.

Structural Ironworking One
(Module ID 30109-11) Identifies the types of construction that utilize structural steel, the components of the structures, and the process involved in erecting a steel structure. Explains the principles of structural stresses and the requirements of bolted connections

Bridge Construction
(Module ID 36201-17) Describes the common types of bridges, along with the components that make up the substructure and superstructure of a bridge. The module also discusses the types of materials used in bridge construction, presents basic surveying equipment and practices, and explains how to interpret bridge drawings.

Bridge Foundations
(Module ID 36202-17) Describes the types of footings used to support bridges, as well as various types of piles and pile- driving methods. Safety practices associated with pile driving on land and in marine environments are also covered, along with environmental protection issues.

Bridge Formwork
(Module ID 36203-17) Describes the forms used to fabricate concrete walls, columns, footings, pile caps, and other bridge structures. This module covers site-built and manufactured forming systems and includes instructions for cleaning and storing forms.

Heating, Ventilation, Air Conditioning and Refrigeration (HVAC)

NWCOC CERTIFICATE OF COMPLETION: HVAC-R
NCCER NATIONAL REGISTRY

CLOCK HOURS OF INSTRUCTION:	144 HOURS PER YEAR
PROGRAM DURATION:	4 YEARS
TIME ALLOWED FOR COMPLETION	5 YEARS

The HVAC program is a series of training modules divided into 4-levels. Curriculum is modular in format, competency-based and include written and performance evaluations. Students who seek the full range of HVAC skills will gain instruction in equipment replacement, heating equipment adjustment and repair, air conditioning, repair and replacement, building control systems, testing and balancing of water air distribution, hot water, chilled water condenser water system replacement load calculation, and system designs. Students who complete the four levels of this curriculum and who obtain roughly four years of on-the-job experience will qualify as a journey-level HVAC Technician anywhere in the nation. The HVAC apprenticeship program is administered by Associated Builders and Contractors-Pacific Northwest Chapter.

Students who complete all four levels of this curriculum and who obtain roughly four years of on-the-job experience will qualify as a journey-level HVAC worker anywhere in the nation.

NATE CERTIFICATION: NCCER is an officially recognized training provider for North American Technician Excellence (NATE), an independent, third-party certification body for HVAC/R technicians. NATE-certified technicians can use module completions through NCCER-accredited training providers for the continuing education hours required for recertification through NATE.

REQUIREMENTS FOR COMPLETION:

4. Complete all the modules prescribed in HVAC Level 1, Level 2, Level 3 and Level 4
5. Complete and pass a written exam and performance exam, if applicable, for each module with a minimum score of 70%
6. Maintain Satisfactory Academic and Attendance Progress

HVAC Level 1

Basic Safety
(Module ID 00101-15) Presents basic jobsite safety information to prepare workers for the construction environment. Describes the common causes of workplace incidents and accidents and how to avoid them. Introduces common PPE, including equipment required for work at height, and its proper use. Information related to safety in several specific environments, including welding areas and confined spaces, is also provided.

Introduction to Construction Math
(Module ID 00102-15) Reviews basic math skills related to the construction trades and demonstrates how they apply to the trades. Covers multiple systems of measurement, decimals, fractions, and basic geometry.

Introduction to Hand Tools
(Module ID 00103-15) Introduces common hand tools used in a variety of construction crafts. Identifies tools and how to safely use them. Proper hand tool maintenance is also presented.

Introduction to Power Tools
(Module ID 00104-15) Identifies and describes the operation of many power tools common in the construction environment. Provides instruction on proper use, as well as on safe-handling guidelines and basic maintenance.

Introduction to Construction Drawings
(Module ID 00105-15) Introduces the basic elements of construction drawings. The common components of drawings are presented, as well as the most common drawing types. The use of drawing scales and how to measure drawings is also covered.

Introduction to Basic Rigging

(Module ID 00106-15) Provides basic information related to rigging and rigging hardware, such as slings, rigging hitches, and hoists. Emphasizes safe working habits in the vicinity of rigging operations.

Basic Communication Skills
(Module ID 00107-15) Provides good techniques for effective communication on the job. Includes examples that emphasize the importance of both written and verbal communication skills. Describes the importance of reading skills in the construction industry and covers proper techniques to use in a variety of different written communication formats.

Basic Employability Skills
(Module ID 00108-15) Describes the opportunities offered by the construction trades. Discusses critical thinking and essential problem-solving skills for the construction industry. Also identifies and discusses positive social skills and their value in the workplace.

Introduction to Material Handling
(Module ID 00109-15) Describes the hazards associated with handling materials and provides techniques to avoid both injury and property damage. Common material-handling equipment is also introduced.

Introduction to HVAC
(Module ID 03101-13) Covers the basic principles of heating, ventilating, and air conditioning, career opportunities in HVAC, and how apprenticeship programs are constructed. Basic safety principles, as well as trade licensure and EPA guidelines, are also introduced.

Trade Mathematics
(Module ID 03102-13) Explains how to solve HVAC/R trade related problems involving the measurement of lines, area, volume, weights, angles, pressure, vacuum, and temperature. Also includes a review of scientific notation, powers, roots, and basic algebra and geometry.

Basic Electricity
(Module ID 03106-13) Introduces the concept of power generation and distribution, common electrical components, AC and DC circuits, and electrical safety as it relates to the HVAC field. Introduces reading and interpreting wiring diagrams.

Introduction to Heating
(Module ID 03108-13) Covers the fundamentals of heating systems and the combustion process. The different types and designs of gas furnaces and their components, as well as basic procedures for their installation and service, is provided.

Introduction to Cooling
(Module ID 03107-13) Explains the fundamental operating concepts of the refrigeration cycle and identifies both primary and secondary components found in typical HVAC/R systems. Common refrigerants are introduced as well. Describes the principles of heat transfer and the essential pressure temperature relationships of refrigerants. Basic control concepts for simple systems are also introduced.

Introduction to Air Distribution Systems
(Module ID 03109-13) Describes the factors related to air movement and its measurement in common air distribution systems. The required mechanical equipment and materials used to create air distribution systems are also presented. Basic system design principles for both hot and cold climates are introduced.

Basic Copper and Plastic Piping Practices
(Module ID 03103-13) Explains how to identify types of copper tubing and fittings used in the HVAC/R industry and how they are mechanically joined. The identification and application of various types of plastic piping, along with their common assembly and installation practices, are also presented.

Soldering and Brazing
(Module ID 03104-13) Introduces the equipment, techniques, and materials used to safely join copper tubing through both soldering and brazing. The required PPE, preparation, and work processes are covered in detail. The procedures for brazing copper to dissimilar materials are also provided.

Basic Carbon Steel Piping Practices
(Module ID 03105-13) Explains how to identify various carbon steel piping materials and fittings. The joining and installation of threaded and grooved carbon steel piping systems is covered, with detailed coverage of threading and grooving techniques included.

HVAC Level 2

Alternating Current
(Module ID 03206-13) Covers transformers, single-phase and three-phase power distribution, capacitors, the theory and operation of induction motors, and the instruments and techniques used in testing AC circuits and components. Also reviews electrical safety.

Compressors
(Module ID 03302-13) Explains operating principles of compressors used in comfort air conditioning and refrigeration systems. Includes installation, service, and repair procedures.

Refrigerants and Oils
(Module ID 03301-13) Covers characteristics and applications of pure and blended refrigerants, and provides extensive coverage of lubricating oils used in refrigeration systems.

Leak Detection, Evacuation, Recovery, and Charging
(Module ID 03205-13) Covers refrigerant handling and equipment servicing procedures for HVAC systems in an environmentally safe manner.

Metering Devices
(Module ID 03303-13) Covers the operating principles, applications, installation, and adjustment of fixed and adjustable expansion devices used in air conditioning equipment.

Heat Pumps
(Module ID 03211-13) Covers the principles of reverse cycle heating. Describes the operation of heat pumps and explains how to analyze heat pump control circuits. Includes heat pump installation and service procedures.

Basic Maintenance
(Module ID 03215-13) Covers information related to maintenance-oriented materials, as well as guidelines for the inspection and periodic maintenance of various systems and accessories. Also covers the application of gaskets and seals, as well as the adjustment of different types of belt drives. Includes information on inspection and maintenance requirements for selected equipment.

Chimneys, Vents, and Flues
(Module ID 03202-13) Covers the principles of venting fossil fuel furnaces and methods for selecting and installing vent systems for gas-fired heating equipment.

Sheet Metal Duct Systems
(Module ID 03213-13) Covers layout, fabrication, installation, and insulation of sheet metal ductwork. Also includes selection and installation of registers, diffusers, dampers, and other duct accessories.

Fiberglass and Flexible Duct Systems
(Module ID 03214-13) Covers the layout, fabrication, installation, and joining of fiberglass ductwork and fittings. Describes the proper methods for attaching and supporting flex duct.

Commercial Airside Systems
(Module ID 03201-13) Describes the systems, equipment, and operating sequences commercial airside system configurations such as constant volume single-zone and multi-zone, VVT, VAV, and dual-duct VAV.

Air Quality Equipment
(Module ID 03204-13) Covers principles, processes, and devices used to control humidity and air cleanliness, as well as devices used to conserve energy in HVAC systems.

Introduction to Hydronic Systems
(Module ID 03203-13) Introduces hot water heating systems, focusing on safe operation of the low-pressure boilers and piping systems in residential applications.

HVAC Level 3

Fasteners, Hardware, and Wiring
(Module ID 03313-13) Covers a variety of fasteners, hardware, and wiring terminations used in HVAC systems including the installation of these components.

Control Circuit and Motor Troubleshooting
(Module ID 03314-13) Provides information and skills to troubleshoot control circuits and electric motors found in heating and cooling equipment.

Troubleshooting Cooling
(Module ID 03210-13) Provides guidance related to troubleshooting cooling systems.

Troubleshooting Heat Pumps
(Module ID 03311-13) Provides a thorough review of heat pump systems, operating cycle and troubleshooting procedures for components.

Troubleshooting Gas Heating
(Module ID 03209-13) Covers information and skills needed to troubleshoot gas-fired furnaces and boilers.

Troubleshooting Oil Heating
(Module ID 03310-13) Describes the construction and operation of oil-fired heating systems and their components. Includes servicing and testing of oil furnaces and procedures for isolating and correcting oil furnace malfunctions.

Troubleshooting Accessories
(Module ID 03312-13) Delivers information and skills needed to troubleshoot various air treatment accessories used with heating and cooling equipment.

Zoning, Ductless, and Variable Refrigerant Flow Systems
(Module ID 03315-13) Introduces the information and skills needed to troubleshoot and repair zoned, ductless, and variable refrigerant flow systems.

Commercial Hydronic Systems
(Module ID 03305-13) Reviews basic properties of water and describes how water pressure is related to the

movement of water through piping systems. Describes various types and components of commercial hot-water heating and chilled-water cooling systems, and examines how those systems function.

Steam Systems
(Module ID 03306-13) Focuses on the use of steam for storing and moving energy in HVAC systems. Reviews the fundamentals of water that relate to steam and describes the basic steam system cycle. Discusses a steam system's operational components–steam boilers and their accessories and controls; steam system loads, including heat exchangers/converters and terminal devices. Steam system valves and piping are covered in detail, including common types of piping arrangements, the components of a condensate return/ feedwater system, steam and condensate pipe sizing; and pressure-reducing valves and thermostatic valves.

Retail Refrigeration System
(Module ID 03304-13) Covers the applications, principles, and troubleshooting of retail refrigeration systems.

Customer Relations
(Module ID 03316-13) Presents the importance of establishing good relations with customers and provides guidance on how to achieve that goal. Focuses on ways for a technician to make a good first impression and describes how to communicate in a positive manner with customers. The elements of a service call and dealing with different types of problem customers are also covered.

HVAC Level 4

Water Treatment
(Module ID 03308-13) Explains water problems encountered in heating and cooling systems and identifies water treatment methods and equipment. Covers basic water testing procedures and chemistry.

Indoor Air Quality
(Module ID 03403-13) Defines the issues associated with indoor air quality and its effect on the health and comfort of building occupants. Provides guidelines for performing an IAQ survey and covers the equipment and methods used to monitor and control indoor air quality.

Energy Conservation Equipment
(Module ID 03404-13) Covers heat recovery/reclaim devices, as well as other energy recovery equipment used to reduce energy consumption in HVAC systems.

Building Management Systems
(Module ID 03405-13) Explains how computers and microprocessors are used to manage zoned HVAC systems. Provides coverage of various network protocols and systems controllers, and introduces trainees to the various means of connection and system interface.

System Air Balancing
(Module ID 03402-13) Covers air properties and gas laws, as well as the use of psychrometric charts. Describes the tools, instruments, and procedures used to balance an air distribution system.

System Startup and Shutdown
(Module ID 03406-13) Presents the procedures for the startup and shutdown of hot water, steam heating, chilled water, and air handling systems. Also covers the start-up and shutdown of typical cooling towers and packaged HVAC units. The procedures for both short- and long-term shutdowns are included.

Construction Drawings and Specifications

(Module ID 03401-13) Teaches how to interpret drawings used in commercial construction, including mechanical drawings, specifications, shop drawings, and as-builts. Explains how to perform takeoff procedures for equipment, fittings, ductwork, and other components.

Heating and Cooling System Design
(Module ID 03407-13) Identifies factors that affect heating and cooling loads. Explains the process by which heating and cooling loads are calculated, and how load calculations are used in the selection of heating and cooling equipment. Covers basic types of duct systems and their selection, sizing, and installation requirements.

Commercial and Industrial Refrigeration Systems
(Module ID 03408-13) Expands on the study of product and process refrigeration equipment by describing systems used in cold storage and food processing applications, as well as transportation refrigeration. Various types of defrost systems are covered in detail.

Alternative and Specialized Heating and Cooling Systems
(Module ID 03409-13) Describes alternative devices used to reduce energy consumption, including wood, coal, and pellet fired systems, waste-oil heaters, geothermal heat pumps, solar heating, in-floor radiant heating, and direct-fired makeup units. Also introduces application-specific computer room environmental and air turnover systems.

Fundamentals of Crew Leadership (20 Hours)
(Module ID 46101-11) While this module has been designed to assist the recently promoted crew leader, it is beneficial for anyone in management. The course covers basic leadership skills and explains different leadership styles, communication, delegating, and problem solving. Job-site safety and the crew leader's role in safety are also discussed. This edition goes into detail on project planning, scheduling, and estimating with new performance tasks to assist the learning process.

JumpStart

Jump Start is a one-week (7-day) intensive course designed for individuals with little or no background in construction. JumpStart provides an opportunity to jump-start their entry into the industry by experiencing some of the academic and physical demands of the profession. Successful completion of JumpStart will provide three industry recognized certifications, including the OSHA 10-Hour, Flagging, and First-Aid/CPR. Students are introduced to construction math, hand and power tools, and blueprint reading as well as hands-on experience at a construction site. This class is not available to open-enrollment students.

CLOCK HOURS OF INSTRUCTION:	50 HOURS PER YEAR
PROGRAM DURATION:	7 DAYS
TIME ALLOWED FOR COMPLETION	2 MONTHS

Masonry

NWCOC CERTIFICATE OF COMPLETION: MASONRY
NCCER NATIONAL REGISTRY

CLOCK HOURS OF INSTRUCTION:	144 HOURS PER YEAR
PROGRAM DURATION:	3 YEARS
TIME ALLOWED FOR COMPLETION	4 YEARS

The masonry program is a series of training modules divided into three levels. Curriculum is modular in format and includes written and performance evaluations. Students will be trained in the proper use of masonry tools and equipment, layout and setup, spreading mortar, cutting brick and block, laying to the line, making corners and tooling joints in residential and commercial applications.

Students who complete all three levels of this curriculum and who obtain roughly three years of on-the-job experience will qualify as a journey-level mason anywhere in the nation.

REQUIREMENTS FOR COMPLETION:

1. Complete all the modules prescribed in Core and Masonry Level 1, Level 2, and Level 3.
2. Complete and pass a written exam and performance exam, if applicable, for each module with a minimum score of 70%
3. Maintain Satisfactory Academic and Attendance Progress

Masonry Level 1

Basic Safety
(Module ID 00101-15) Presents basic jobsite safety information to prepare workers for the construction environment. Describes the common causes of workplace incidents and accidents and how to avoid them. Introduces common PPE, including equipment required for work at height, and its proper use. Information related to safety in several specific environments, including welding areas and confined spaces, is also provided.

Introduction to Construction Math
(Module ID 00102-15) Reviews basic math skills related to the construction trades and demonstrates how they apply to the trades. Covers multiple systems of measurement, decimals, fractions, and basic geometry.

Introduction to Hand Tools
(Module ID 00103-15) Introduces common hand tools used in a variety of construction crafts. Identifies tools and how to safely use them. Proper hand tool maintenance is also presented.

Introduction to Power Tools
(Module ID 00104-15) Identifies and describes the operation of many power tools common in the construction environment. Provides instruction on proper use, as well as on safe-handling guidelines and basic maintenance.

Introduction to Construction Drawings
(Module ID 00105-15) Introduces the basic elements of construction drawings. The common components of drawings are presented, as well as the most common drawing types. The use of drawing scales and how to measure drawings is also covered.

Introduction to Basic Rigging
(Module ID 00106-15) Provides basic information related to rigging and rigging hardware, such as slings, rigging hitches, and hoists. Emphasizes safe working habits in the vicinity of rigging operations.

Basic Communication Skills
(Module ID 00107-15) Provides good techniques for effective communication on the job. Includes examples that emphasize the importance of both written and verbal communication skills. Describes the importance of reading skills in the construction industry and covers proper techniques to use in a variety of different written communication formats.

Basic Employability Skills

(Module ID 00108-15) Describes the opportunities offered by the construction trades. Discusses critical thinking and essential problem-solving skills for the construction industry. Also identifies and discusses positive social skills and their value in the workplace.

Introduction to Material Handling
(Module ID 00109-15) Describes the hazards associated with handling materials and provides techniques to avoid both injury and property damage. Common material-handling equipment is also introduced.

Introduction to Masonry
(Module 28101-13) Provides information about basic masonry materials, tools, techniques, and safety precautions; explains how to mix mortar by hand and lay masonry units; and describes the skills, attitudes, and abilities of successful masons.

Masonry Safety
(Module 28106-13) Describes how to identify the common causes of accidents and the hazards associated with masonry tools, equipment, mortar, and concrete. Provides information on using personal protective equipment, working safely from elevated surfaces, properly using masonry tools and equipment, and handling masonry materials safely.

Masonry Tools & Equipment
(Module 28102-13) Describes a variety of hand tools, measuring tools, mortar equipment, power tools and equipment, and lifting equipment that masons use on the job, and explains how to use these tools correctly and safely. Provides instructions for assembling and disassembling scaffolds.

Measurements, Drawings, and Specifications
(Module 28103-13) Reviews the calculation of distances and areas common in masonry work, describes the information found on residential construction drawings, and explains the role of specifications, standards, and codes.
Mortar
(Module 28104-13) Explains the types and properties of mortar and the materials used in the mixture, including admixtures; provides instructions for mixing mortar by machine; and describes how to properly apply and store mortar.

Masonry Units and Installation Techniques
(Module 28105-13) Describes characteristics of block and brick; how to set up, lay out, and bond block and brick; how to cut block and brick; how to lay and tool block and brick; and how to clean block and brick once they have been laid. Provides information about masonry reinforcements and accessories used to lay block and brick professionally and safely.

Masonry Level 2

Residential Plans and Drawing Interpretation
(Module ID 28201-14) Explains how to work with residential plans and construction drawings and convert that information into action on the job. Describes the organization and format of plans, dimensioning and scaling, and estimating materials quantities from information on the plans.

Residential Masonry
(Module ID 28202-14) Covers the construction techniques for residential and small structure foundations, steps, patios, decks, chimneys, and fireplaces. Describes work activities that the mason must perform, as well as those that tie into the masonry work

Reinforced Masonry
(Module ID 28203-14) Focuses on the use of grout and other types of reinforcement, such as reinforcing steel, to strengthen and support masonry structures. Describes the locations where grout can be used and the techniques for placement. Discusses the use and application of various types of reinforced masonry elements, such as rebar and bond beam lintels.

Masonry Openings and Metalwork
(Module ID 28204-14) Introduces types of metal components, including metal rods, joint reinforcements, plates, anchors, fasteners, and hollow metal frames for doors and windows, and explains how they are installed.

Advanced Laying Techniques
(Module ID 28205-14) Describes the construction of masonry wall systems, weep vents, and joints. Includes safety requirements and interaction with structural components.

Effect of Climate on Masonry
(Module ID 28206-14) Describes materials and techniques used to apply insulation and methods of moisture control as they relate to the mason's trade. Includes hot- and cold- weather considerations.

Construction Inspection and Quality Control
(Module ID 28207-14) Introduces the quality control requirements for masonry construction. Presents procedures for inspection and testing of masonry materials and finished masonry construction

Masonry Level 3

Elevated Masonry
(Module ID 28301-14) Describes activities involved in organizing and implementing the construction of high-rise buildings. Focuses on masonry construction techniques used in high-rise construction. Emphasizes safety and logistics.

Specialized Materials and Techniques
(Module ID 28302-14) Describes specialized materials and techniques used in the masonry trade. Covers properties and work requirements for such materials as natural and cultured stone, acid brick, refractory brick, structural tile, and glass block. Presents techniques for working under cold- and hot-weather conditions and explains construction of masonry sound barriers.

Repair and Restoration
(Module ID 28303-14) Explains problems that appear in masonry structures and describes techniques used to repair them, including tuckpointing, brick replacement, crack sealing, waterproofing, and stain removal.

Commercial Drawings
(Module ID 28304-14) Describes the format and content of commercial drawings and their use in conveying specific construction requirements. Explains the standard format for specifications.

Estimating
(Module ID 28305-14) Covers procedures for takeoffs and estimating quantities of masonry material and accessories. Several methods are described, including coursing, square foot, rule of thumb, and table methods. Introduces computer-based estimating aids.

Site Layout—Distance Measurement and Leveling
(Module ID 28306-14) Covers the principles, equipment, and methods used to perform distance measurement and differential leveling. Presents the layout responsibilities of surveyors, field engineers, and masons; how to understand and use site/plot plan drawings; and methods used for on-site communication.

Fundamentals of Crew Leadership
(Module 46101-11) While this module has been designed to assist the recently promoted crew leader, it is beneficial for anyone in management. The course covers basic leadership skills and explains different leadership styles, communication, delegating, and problem solving. Job-site safety and the crew leader's role in safety are also discussed. This edition goes into detail on project planning, scheduling, and estimating with new performance tasks to assist the learning process.

Sheet Metal

NWCOC CERTIFICATE OF COMPLETION; SHEET METAL
NCCER NATIONAL REGISTRY

CLOCK HOURS OF INSTRUCTION:	189 HOURS PER YEAR
PROGRAM DURATION:	4 YEARS
TIME ALLOWED FOR COMPLETION	5 YEARS

The sheet metal program is a series of training modules divided into 4-levels. Curriculum is modular in format, competency-based and include written and performance evaluations. Students who seek the full range of sheet metal skills will gain instruction on fabrication, installation and service of heating, venting and air conditioning systems, blowpipe and industrial systems, metal roofing, coping and flashing, stainless steel, duct board and installation and pipe wrapping. The Sheet Metal apprenticeship programs is administered by Associated Builders and Contractors-Pacific Northwest Chapter.

Students who complete all four levels of this curriculum and who obtain roughly four years of on-the-job experience will qualify as a journey-level sheet metal worker anywhere in the nation.

NATE CERTIFICATION: NCCER is an officially recognized training provider for North American Technician Excellence (NATE), an independent, third-party certification body for Sheet Metal technicians. NATE-certified technicians can use module completions through NCCER-accredited training providers for the continuing education hours required for recertification through NATE.

REQUIREMENTS FOR COMPLETION:

1. Complete all the modules prescribed in Core and Sheet Metal Level 1, Level 2, Level 3 and Level 4
2. Complete and pass a written exam for each module with a minimum score of 70%.
3. Maintain Satisfactory Academic and Attendance Progress

Sheet Metal Level 1

Basic Safety
(Module ID 00101-15) Presents basic jobsite safety information to prepare workers for the construction environment. Describes the common causes of workplace incidents and accidents and how to avoid them. Introduces common PPE, including equipment required for work at height, and its proper use. Information related to safety in several specific environments, including welding areas and confined spaces, is also provided.

Introduction to Construction Math
(Module ID 00102-15) Reviews basic math skills related to the construction trades and demonstrates how they apply to the trades. Covers multiple systems of measurement, decimals, fractions, and basic geometry.

Introduction to Hand Tools

(Module ID 00103-15) Introduces common hand tools used in a variety of construction crafts. Identifies tools and how to safely use them. Proper hand tool maintenance is also presented.

Introduction to Power Tools
(Module ID 00104-15) Identifies and describes the operation of many power tools common in the construction environment. Provides instruction on proper use, as well as on safe-handling guidelines and basic maintenance.

Introduction to Construction Drawings
(Module ID 00105-15) Introduces the basic elements of construction drawings. The common components of drawings are presented, as well as the most common drawing types. The use of drawing scales and how to measure drawings is also covered.

Introduction to Basic Rigging
(Module ID 00106-15) Provides basic information related to rigging and rigging hardware, such as slings, rigging hitches, and hoists. Emphasizes safe working habits in the vicinity of rigging operations.

Basic Communication Skills
(Module ID 00107-15) Provides good techniques for effective communication on the job. Includes examples that emphasize the importance of both written and verbal communication skills. Describes the importance of reading skills in the construction industry and covers proper techniques to use in a variety of different written communication formats.

Basic Employability Skills
(Module ID 00108-15) Describes the opportunities offered by the construction trades. Discusses critical thinking and essential problem-solving skills for the construction industry. Also identifies and discusses positive social skills and their value in the workplace.

Introduction to Material Handling
(Module ID 00109-15) Describes the hazards associated with handling materials and provides techniques to avoid both injury and property damage. Common material-handling equipment is also introduced.

Introduction to the Sheet Metal Trade
(Module ID 04102-08**)** Summarizes the history and development of the sheet metal trade, explains the benefits of apprenticeship training, and identifies career opportunities in the trade.

Tools of the Trade
(Module ID 04103-08**)** Describes the hand and power tools used in the sheet metal trade, including layout tools and cutting, bending, and forming machines. Includes safety and maintenance guidelines.

Introduction to Sheet Metal Layout and Processes
(Module ID 04103-08**)** Introduces parallel line development, radial line development, and triangulation. Covers selection and use of layout, hand, and machine tools. Discusses how to transfer patterns, and how to cut, form, and assemble parts.

Trade Math One
(Module ID 04104-08**)** Builds on trainees' basic math skills to solve trade-reproblems. Covers calculations using denomiand volume calculations, English-metric system convers basic geometry, and calculation of stretchouts.

Fabrication One – Parallel Line Development
(Module ID 04105-08**) C**overs the steps involved in using the parallel line development method to lay out fittings and includes step-by-step procedures for selected fittings.

Installation of Ductwork
(Module ID 04106-08**)** Addresses ductwork assembly, use of different types of sealants, using lifts, and installation of ductwork. Describes the types of fasteners (screws, nuts, bolts, and rivets), and supports used in an air distribution system. Discusses proper spacing of hangers, load ratings, and installation of hangers and support systems.

Installation of Air Distribution Accessories
(Module ID 04107-08**)** Describes how air distribution accessories, such as louvers, dampers, and access doors, function as part of an air distribution system. Includes installation guidelines and checklists.

Insulation
(Module ID 04108-08**)** Describes how to install fiberglass blanket, foam, and pipe insulation using approved adhesives and fastening techniques. Also includes the fabrication and installation of fitting covers and preformed fitting covers.

Architectural Sheet Metal
(Module ID 04109-08**)** Provides instruction in how to lay out and fabricate sheet metal components of a roof drainage system. Includes flashing, gutters, and downspouts.

Sheet Metal Level 2

Trade Math Two
(Module ID 04201-08**)** Demonstrates how to apply formulas to solve a variety of mathematical problems. Covers linear, area, volume, and angle measurement and percentage, ratio, and proportion. Provides practical instruction in using protractors, vernier calipers, and micrometers and in solving field measuring problems.

Plans and Specifications
(Module ID 04202-08**)** Reviews how to read and interpret section, elevation, and detail drawings. Also covers other specifications and other sources of project information. Includes 17 construction drawings.

Fabrication Two – Radial Line Development
(Module ID 04203-08) Introduces trainees to radial line development principles that are used to determine layouts for sheet metal fittings. Includes practice layout and fabrication tasks that allow trainees to develop and demonstrate their skills.

Sheet Metal Duct Fabrication Standards
(Module ID 04204-08**)** Explains how to determine the various requirements for a duct system, including operating pressures, metal gauges, connectors, reinforcements, tie rods, and seams. Also reviews how to use standards, codes, and ordinances to design a duct system.

Air Properties and Distribution
(Module ID 04205-08**)** Explains the properties of air and how these properties relate to one another. Teaches how to use the gas laws, psychrometric charts, and measuring instruments to evaluate air properties in an air distribution system.

Bend Allowances
(Module ID 04206-08**)** Provides instruction and practice in determining proper bend allowances in sheet metal. Also reviews the interplay of different factors that affect the amount of bend allowance needed and the methods for calculating allowance.

Soldering
(Module ID 04207-08**)** Identifies soldering tools, materials, and techniques. Also provides trainees with a wide range of soldering tasks for practice.

Basic Piping Practices
(Module ID 04208-08**)** Reviews the methods for measuring, cutting, and joining selected types of pipe using fittings, hangers, and supports. Also reviews pipe materials and applications.

Fiberglass Duct
(Module ID 04209-08**)** Reviews fiberglass duct as well as layout and fabrication methods. Also discusses closure, hanging, and support methods and how to repair major and minor damage to fiberglass duct.

Sheet Metal Level 3

Trade Math Three — Field Measuring and Fitting
(Module ID 04301-08**)** Describes the techniques used for field measuring and layout of ductruns and fittings. Also provides practice in solving field measuring problems.

Air Systems
(Module ID 04302-08**)** Reviews the operating principles, components, and applications of common air systems. Discusses constant volume systems, variable volume systems, variable temperature (VVT) systems, variable air volume (VAV) systems, and dual VAV systems.

Principles of Airflow
(Module ID 04303-08**)** Explains the basic principles of airflow and reviews how airflow is affected by duct size, shape, and fittings. Also reviews the components of an air distribution system.

04304-09 Louvers, Dampers, and Access Doors
(Module ID 04304-08**)** Discusses the different types of louvers, dampers, and access doors used in air distribution systems and reviews the standards that apply to them.

Comprehensive Plan and Specification Reading
(Module ID 04305-08**)** Provides a case-study approach to learning how to use building plans and specifications to layout, fabricate, and install HVAC systems. Allows trainees to proceed through the module as if they were working on an actual building project. Includes construction drawings.

Fabrication Three — Triangulation
(Module ID 04306-08**)** (Describes the principles of triangulation and how it can be used to measure ductrun fittings. Provides trainees with a variety of tasks to practice developing, laying out, and fabricating selected ductrun fittings.

Advanced Architectural Sheet Metal
(Module ID 04307-08**)** Provides the opportunity to practice layout, fabrication, and installation of various architectural pieces. Makes use of items built in Fabrication Three—Radial Line Development.

Sheet Metal Level 4

Shop Production and Organization
(Module ID 04401-08**)** Introduces trainees to the important production, organization, planning, and control functions that occur in a sheet metal shop. Emphasizes optimization of processes and accurate estimating for competitive

bidding. Discusses project planning techniques, principles of efficient shop layout and materials flow, the critical path method, and the roles and relationships of shop personnel.

Air Testing and Balancing
(Module ID 04402-08**)** Trainees learn how to balance an air distribution system so that the right amount of air is correctly distributed at the proper velocities and returned to the heating and cooling units. Reviews the tools and techniques used for adjusting fans, volume dampers, registers, and grilles. Provides proper techniques for duct leakage testing.

Introduction to Welding, Brazing and Cutting
(Module ID 04403-08**)** Introduces trainees to the important techniques and proper operation of equipment used for welding, brazing, and cutting. Emphasizes safety and awareness of hazards involved. Students practice welds in a variety of positions and perform a basic braze.

Fume and Exhaust System Design
(Module ID 04404-08**)** Reviews the codes and specifications pertaining to fume and exhaust system design for safe workspaces. Instructs trainees in selecting the appropriate materials for fume or exhaust system components and to identify the different types of hoods and applications for each.

Fabrication Four — Comprehensive Review
(Module ID 04405-08**)** Provides a comprehensive review of parallel line, radial line, and triangulation development methods for laying out sheet metal patterns. Trainees practice laying out and fabricating selected sheet metal fittings using these methods.

Introductory Supervisory Skills
(Module ID 04406-08) Teaches the basic skills required to supervise personnel, including leadership, team building, communication and motivation. Discusses gender and cultural issues. Emphasizes principles of project planning and management, including problem solving and decision making. Presents case studies for student participation.

Professional Development

The Professional Development classes at NWCOC are offered for self-improvement and are open to those already in the construction industry.

Leadership Development

Fundamentals of Crew Leadership

NWCOC CERTIFICATE OF COMPLETION: FUNDAMENTALS OF CREW LEADERSHIP
NCCER NATIONAL REGISTRY

CLOCK HOURS OF INSTRUCTION:	16 HOURS
PROGRAM DURATION:	2 DAYS
TIME ALLOWED FOR COMPLETION	1 YEAR

While this module has been designed to assist the recently promoted crew leader, it is beneficial for anyone in management. The course covers basic leadership skills and explains different leadership styles, communication, delegating, and problem solving. Job-site safety and the crew leader's role in safety are also discussed. This edition goes into detail on project planning, scheduling, and estimating with new performance tasks to assist the learning process.

REQUIREMENTS FOR COMPLETION:

1. Complete all the modules prescribed in Fundamentals of Crew Leadership
2. Complete and pass a written exam for each module with a minimum score of 70%.
3. Maintain Satisfactory Academic and Attendance Progress

Project Management

NWCOC CERTIFICATE OF COMPLETION: PROJECT MANAGEMENT
NCCER NATIONAL REGISTRY

CLOCK HOURS OF INSTRUCTION:	72 HOURS
PROGRAM DURATION:	12 WEEKS
TIME ALLOWED FOR COMPLETION	1 YEAR

Management skills directly affect every company's bottom line. Each day key decisions made by project managers are crucial to the success of every construction project and the company's bottom line. This course focuses on the knowledge and skills needed to be an effective manager of people, schedules, equipment and materials and is recommended for construction supervisors with at least five (5) years of front-line supervisory experience.

TOPICS COVERED INCLUDE:

- Introduction to Project Management
- Safety
- Interpersonal Skills
- Issues and Resolutions
- Construction Documents
- Construction Planning
- Estimating and Cost Control
- Scheduling
- Resource Control
- Quality Control
- Continuous Improvement

REQUIREMENTS FOR COMPLETION:

1. Complete all the modules prescribed in Project Management
2. Complete and pass a written exam for each module with a minimum score of 70%.
3. Maintain Satisfactory Academic and Attendance Progress

Supervisory Training Program

NWCOC CERTIFICATE OF COMPLETION: SUPERVISORY TRAINING PROGRAM
AGC CERTIFICATE OF COMPLETION

CLOCK HOURS OF INSTRUCTION: 20-30 HOURS PER UNIT
PROGRAM DURATION: 2-3 DAYS PER UNIT
TIME ALLOWED FOR COMPLETION 1 YEAR

Supervisory and management skills directly affect every company's bottom line. The Supervisory Training Program (STP) is developed, updated and field-tested by and for contractors. The 6-unit certification program focuses on the knowledge and skills needed to be an effective front-line manager of people, schedules, equipment and materials. Developed by the Associated General Contractors, these seminars are offered in a two day format on Friday and Saturday, with the exception of Unit 5 which requires three days to complete and will be offered Thursday, Friday and Saturday. The seminars are open to new and experienced superintendents, project engineers, project managers, contract administrators, safety officers and anyone who is interested in improving their supervisory skills in the construction industry.

STP Units:

- Unit-1: Leadership and Motivation
  Unit-2: Communication
- Unit-3: Planning and Scheduling
- Unit-4: Contract Documents
- Unit-5: Improving Productivity and Managing Project Costs
- Unit-6: Risk Management and Problem Solving

REQUIREMENTS FOR COMPLETION:

1. Complete all the units in the Supervisory Training Program series
2. Maintain Satisfactory Academic and Attendance Progress

Safety

Confined Space and Trench Safety

NWCOC CERTIFICATE OF COMPLETION: CONFINED SPACE AND TRENCH SAFETY

CLOCK HOURS OF INSTRUCTION: 8 HOURS
PROGRAM DURATION: 8 HOURS

Introduces the hazards and safeguards associated with confined-space work. Describes proper on-site safety and emergency response procedures related to confined spaces, trenching, and excavation. Discusses the difference between permit-required and non-permit-required confined spaces. Teaches participants to recognize unsafe conditions; the signs and causes of unstable trenches; procedures used in shoring, sloping, and shielding safety methods; and how to differentiate between soil types as they relate to excavation work.

Flagging

FLAGGING CARD FROM CHEMEKETAH COLLEGE

CLOCK HOURS OF INSTRUCTION: 4 HOURS
PROGRAM DURATION: 4 HOURS

Students taking the Traffic Control/Flagger Certification course will learn the basic visual flagging signals, appropriate two-way radio usage, as well as signing and sign setting regulations. By making the worksite safe and keeping traffic moving safely, you minimize liability and road user inconvenience. Successful participants of the flagging training class receive a Flagging Certification.

First Aid/CPR

MEDIC ONE FIRST AID/CPR 2 YEAR CARD

CLOCK HOURS OF INSTRUCTION: 4 HOURS
PROGRAM DURATION: 4 HOURS

The MEDIC FIRST AID Training Program covers first aid, CPR, AED, blood-borne pathogens, emergency oxygen, and OSHA safety compliance. Successful participants receive basic First Aid/CPR Certification.

OSHA 10-Hour (English or Spanish)

NCCER NATIONAL REGISTRY
OSHA 10-HOUR CARD

CLOCK HOURS OF INSTRUCTION: 10 HOURS
PROGRAM DURATION: 10 HOURS

This program complies with OSHA-10 training requirements. It explains the safety obligations of workers, supervisors, and managers to ensure a safe workplace, discusses the causes and results of accidents and the impact of accident costs, defines safe work procedures, proper use of personal protective equipment, and working with hazardous chemicals and identifies other potential construction hazards, including hazardous material exposures, welding and cutting hazards and confined spaces.

OSHA 30-Hour (English or Spanish)

OSHA 30-HOUR CARD

CLOCK HOURS OF INSTRUCTION: 30 HOURS
PROGRAM DURATION: 30 HOURS

This class meets OSHA's requirements for a 30-Hour construction industry training program. Course content provides necessary safety task training recommended for all field personnel.

Technical Training

Advanced Commercial Estimating

NWCOC CERTIFICATE OF COMPLETION: ADVANCED COMMERCIAL ESTIMATING

CLOCK HOURS OF INSTRUCTION: 24 HOURS
PROGRAM DURATION: 24 HOURS

This course is designed to assist students who have basic estimating skills to understand all phases of the estimating process, from identifying bidding opportunities to transferring a successful bid to the project management team. The class explores in detail several significant areas of importance, such as a company's estimating capabilities, identifying bid opportunities, evaluating potential project success, and recognizing hidden costs in bid documents. In addition, students participate in a mock bid to demonstrate actual bid day procedures and conditions learned during the coursework.

Basic Commercial Estimating

NWCOC CERTIFICATE OF COMPLETION: BASIC COMMERCIAL ESTIMATING

CLOCK HOURS OF INSTRUCTION: 36 HOURS
PROGRAM DURATION: 36 HOURS

This course builds a foundation of knowledge that the student will use while estimating virtually any construction assembly or project type. The estimating course is designed to teach the "art" of estimating commercial construction projects using MS Excel. Students will become proficient and productive estimators by focusing on proven estimating techniques and concepts that emphasize takeoff detail and accuracy.

Commercial Plan Reading

NWCOC CERTIFICATE OF COMPLETION: COMMERCIAL PLAN READING

CLOCK HOURS OF INSTRUCTION: 24 HOURS
PROGRAM DURATION: 24 HOURS

The Commercial Plan Reading course provides students with the basic knowledge and skills necessary to interpret commercial construction drawings and specifications in order to make well-informed decisions regarding new construction and renovation projects. The curriculum focuses on the standard arrangement and organization of commercial construction drawings, including drawing formats, symbols, notes, legends, and other information that assists in conveying specific construction material characteristics, applications, requirements, and assembly. The instructor will concentrate on construction categories such as: Site Work, Structural, Mechanical, Electrical and Plumbing Systems, and Finish Construction.

Equipment Training and Certification

ORACCA Brazing

ORACCA BRAZING CERTIFICATION

CLOCK HOURS OF INSTRUCTION: 8 HOURS
PROGRAM DURATION: 8 HOURS

This class prepares students for the ORACCA Brazing Certification test. Students will study and prepare for the exam during the first part of class and will take the Brazing Certification tests, written and practical,

during the second part of class Successful participants will receive brazing certification from ORACCA.

Commercial Driver's License

CDL CERTIFICATION PROVIDED BY ELITE TRUCKING

CLOCK HOURS OF INSTRUCTION: 160 HOURS
PROGRAM DURATION: 160 HOURS

The Northwest College of Construction has teamed up with Elite Truck School to provide this training. Elite is a Licensed Private Career School in the state of Oregon and Certified Approved Facility with the Washington Department of Licensing. This course provides 160 hours of training over a four-week period, which is designed to prepare individuals to be professional truck drivers. During this course, students will learn all Department of Transportation and Federal Motor Carrier rules and regulations as they pertain to a professional driver. They will also learn all the necessary functions as it relates to the safe operation of a tractor/trailer combination. This will include actual driving as well as all accident procedures. The course also teaches driving techniques such as defensive driving and driving in inclement weather. At the end of training, a licensed third-party tester provides successful students documentation that may be exchanged in Oregon or Washington for a Class A Commercial Driver's License. Note: Contractors sending employees in for this training, to be utilized on company equipment are strongly encouraged to verify employees' insurability on company equipment.

CFC Certification

EPA CFC CERTIFICATION

CLOCK HOURS OF INSTRUCTION: 160 HOURS
PROGRAM DURATION: 160 HOURS

NWCOC offers the EPA 608 TYPE I, II, III and Universal Certification Exams as required by the EPA for all refrigerant technicians handling or purchasing refrigerants. The cost of the proctored exam includes a self-study guide to assist students during their exam preparation.

Forklift Training

NWCOC CERTIFICATE OF COMPLETION: FORKLIFT TRAINING

CLOCK HOURS OF INSTRUCTION: 8 HOURS
PROGRAM DURATION: 8 HOURS

NWCOC offers forklift training which includes accident prevention, inspection checklists, load handling capacity and stability, maintenance, operating principles and safety. Participants must complete a performance of skills to receive the certificate.

Limited Energy Class B (LEB) License Exam Preparation

CLOCK HOURS OF INSTRUCTION: 12 HOURS
PROGRAM DURATION: 12 HOURS

Students will learn how to utilize the 2017 National Electrical Code (NEC) book when taking the Limited Energy Class B (LEB) License Exam. The class will include Key Word Look Up, Practice Tests to increase speed and accuracy and familiarization of all approved reference materials.

Policies

Non-Discrimination and Non-harassment Policy

NWCOC believes that every employee and student has the right to work in surroundings that are free from all forms of discrimination, including harassment. It is this College's policy that employees and students will not be subjected to discrimination based on race, color, sex, religion, age, marital status, national origin, the presence of any sensory, mental or physical disability, veteran status, or any other basis prohibited by applicable Federal, State or local laws. Respect for the dignity and worth of others should be the guiding principle for our relations with each other.

Harassment includes unsolicited remarks, gestures or physical contact, display or circulation of written materials or pictures derogatory to either gender or to racial, ethnic or religious groups, or basing personnel decisions on an employee's response to a sexually oriented request. Harassment also includes conduct that creates an intimidating, hostile or offensive working environment and that is directed at a person because of that person's gender, religion, race or ethnic background or any other reason.

The policy prohibits any verbal, visual or physical conduct directed by a supervisor to a subordinate, subordinate to supervisor or co-worker-to-co-worker, student to student. With respect to sexual harassment, it includes unwelcome sexual advances, requests for sexual favors, physical touching, or the granting or withholding of benefits (e.g., pay, promotion, time off, grades) in response to sexual conduct. More subtle forms of behavior, such as offensive posters, cartoons, caricatures, comments and jokes of a sexual nature are also prohibited.

The College will take immediate corrective action when an employee or student is determined to have acted in violation of this policy. Corrective action may include a range of disciplinary measures up to and including termination of employment or dismissal.

Any student who believes they have been discriminated against are encouraged to file a grievance with the school. The procedures for filing a grievance are outlined below (See "Grievance Procedure/Appeals Process.). Any person unlawfully discriminated against, as described in ORS 345.240, may file a complaint under ORS 659A.820 with the Commissioner of the Bureau of Labor and Industries.

Sexual Harassment

Sexual harassment is defined as unwelcome sexual advances, requests for sexual favors, or conduct of a sexual nature (verbal, physical, or visual) that is directed toward an individual because of gender. It can also include conduct that is not sexual in nature but is gender-related. Sexual harassment includes the harassment of the same or of the opposite sex. Examples include: repeated sexual flirtations, advances or propositions, continued or repeated language of a sexual nature, graphic or degrading comments about an individual or his or her appearance, the display of sexually suggestive objects or pictures, or any unwelcome or abusive physical contact of a sexual nature. Sexual harassment also includes situations in which employment benefits are conditioned upon sexual favors (quid pro quo –or- "this for that"); or in

which the conduct has the effect or purpose of creating a hostile, intimidating, or offensive working environment (must be sufficiently pervasive or severe to create a hostile environment).

The college is committed to maintaining an environment free of sexual harassment. Sexual harassment is a form of unlawful discriminatory behavior and will not be tolerated. When a student is sexually harassed by another student or school personnel, the harassing conduct creates a hostile environment if the conduct is sufficiently serious that it interferes with or limits a student's ability to participate in or benefit from the school's program. In such cases, school officials are responsible for taking prompt and effective action to stop the harassment and prevent its recurrence.

Any student who believes they have been sexually harassed is encouraged to file a grievance with the school. The procedures for filing a grievance are outlined below (See "Grievance Procedure/Appeals Process.).

Grievance Procedure/Appeals Process

In the instance that a student has a grievance, the following procedure is to be followed:

The student must submit the grievance, in writing, to the Director of Human Resources within 48 hours of the incident in question. Immediate action will be taken to review and investigate the grievance and notify and consult with the NWCOC Grievance Committee in order to provide a prompt and equitable resolution to the complaint.
The Grievance Committee will consist of no less than two of the following college administrators:

- Director of Apprenticeship and Student Services
- Director of Human Resources
- Director of Operations
- Director of Education
- President

If the action above does not resolve the problem, the grievance committee will present the grievance to the NWCOC President. The President has ultimate authority to resolve issues and make the decision final.

If a student believes that their grievance was not satisfactorily resolved the student may contact the Oregon Department of Education, Public Service Building, 255 Capital Street NE, Salem, Oregon 97310-0230, or by calling (503) 378-3600 ext. 2671.

Facility Policies and Safety Regulations

1. Safety is our first concern! There is no tolerance for unsafe conditions, improper use of hazardous materials, tools and equipment. Report any safety concerns to your instructor or school officials.
2. All students must wear required protective equipment when working with tools or materials. Anyone not adhering to this policy will be asked to leave.
3. At the end of class or lab, each student will be expected to allow enough time for clean up or workspace.
4. All items will be put back in their proper places.
5. All lab areas will be swept clean each evening.
6. This is a NO SMOKING facility. There will be no smoking inside any buildings or near entrances.
7. Instructors are to confirm if they are the last to leave the building and ensure that all doors are secured and locked and that the alarm is set.

8. Instructors and students alike will refrain from recruiting individuals or dispensing literature for causes other than those sanctioned in writing by NWCOC Administrators.
9. All hand tools and power tools shall be maintained in a safe condition and used only for their intended purpose.
10. Theft, defacement, damage, or misuse of College property may result in dismissal.

Attendance Policy

NWCOC believes a student's success depends on regular attendance, and students are expected to attend every class meeting and to arrive on time to avoid being a disruption to the rest of the class. Instructors may deduct points for tardies and absences. Students will excessive absences may receive a failing grade unless the missed classes are made up. A make-up class must be discussed and arranged through the instructor. In some cases, a make-up class will need to be scheduled the following year. Contact your instructor to make arrangements.

NWCOC Apprentices with excessive absences will be placed on corrective action. Excessive absences are defined as two (2) absences in any one term or four (4) absences in an academic year. Excessive absences will result in an automatic Notice to Appear before the committee, during which time the apprentice will be placed on rerate hold. Class time missed due to tardiness must be made up.

Grading Policy

Grades: At the beginning of each course, the instructor will provide every student with the grading criteria for that course. The quality of a student's performance in a course is recognized by a grade. NWCOC Instructors use the following grading scale: A = 90-100% B = 80 – 89% C = 70 – 79% (Pass); F= 0-69% (Fail).

Incompletes: In the event that a student is performing at a passing level but does not complete all requirements of a course during the scheduled term a grade of "Incomplete" may be given. The student must complete and submit the missing work, as directed by the Instructor, within twelve months of the end of the class.

Drops/Withdrawals: Students are responsible to initiate the withdrawal process by contacting the NWCOC Registrar. A student who stops attending without withdrawing will receive a failing grade in the class and will not be eligible for any refund.

Make-up Work: Make-up work will be at the discretion of each instructor. Students are to make arrangements directly with the instructor for make-up work. Work made up within the term of study is allowed without penalty by the school, but is subject to the instructors discretion. If work is not made up within a term of study, the student will receive an Incomplete and is subject to the standards stated above.

Retesting Policy: Students may retake a failed exam after a minimum 48-hour waiting period. Students will be allowed 12 months and two attempts from the date of the initial failed exam to pass the exam. Retests are to be proctored by the student's instructor and scheduled at the instructor's convenience. If the student fails the exam three times (initial test and two re-tests), the student will be

required to re-take the class or module training before they may take the test again. Students may be invoiced for any costs associated with this, including tuition, lab and books fees.

No Show Policy: Students who miss an entire module are considered a "No Show." "No Show" students may not complete the exam or Performance Profile until the training requirement has been met. A "No Show" student is responsible for enrolling in the missed module when it is next offered, which may not be until the next school year. It is the student's responsibility to determine when the module will be next offered. Students may be invoiced for any costs associated with this, including tuition, lab and books fees.

Academic and Attendance Progress Standards

Satisfactory progress is required for apprenticeship programs. Non-apprenticeship programs with fewer hours are typically rewarded with certifications or credentials that are inherently valuable in the industry, thus carrying their own incentives for students.

Satisfactory Progress is determined by a combination of student's attendance and cumulative Grade Point Average (GPA). Students falling below minimum standards, determined as Unsatisfactory Progress, will be notified in writing of the concern and the corrective action necessary to maintain good standing.

Satisfactory Progress is maintained when students receiving an incomplete grade, per the definitions above, make up the Incompletes according to the criteria above. Students who do not make up an incomplete grade will be ineligible for a Certificate of Completion from NWCOC. An incomplete grade will also disqualify an apprentice from recognition by the National Center for Education and Research (NCCER).

If a second infraction occurs in the same year of study, the matter will be submitted by the school to the Joint Apprenticeship Training Committee for corrective action. Students enrolled in non-apprentice courses who have unsatisfactory progress will be reviewed by the NWCOC Education department. If it is determined that the student is failing to benefit from the learning experience at NWCOC, the Education department will determine course of action, up to and including termination of the relationship.

Satisfactory Progress includes:

1. Maintain a minimum 70% score on modular exams.
2. Two, or fewer, absences per term and four or fewer absences per school year.

Unsatisfactory Progress includes:

1. Two or more modular exams receiving less than a 70% score.
2. Two or more absences per term or four or more absences in a school year.

Progress Reports and Transcripts

Students enrolled in long-term courses (those at 144 hours or more in an academic year) at NWCOC are given login information to the NWCOC Portal where they can review their attendance and grades at any time. Students may ask the Registrar to provide an unofficial transcript of completed courses at any time.

If a student believes an error has been made on their transcript they may challenge the contents by submitted a signed letter to the NWCOC Registrar within thirty days of the date printed on the report. The letter should include the class and grade in question and why the student believes it is incorrect.

Academic Progress

We are committed to your success and completion of the program you started. To assist in this process, NWCOC has developed a system for monitoring students' academic progress in courses that are 144 hours or more in an academic year. Four levels of academic standing have been developed against the academic and attendance standards outlined above, specifically the maintenance of a 2.0 GPA and two or fewer absences per term or four absences per year.

Students who are apprentices at NWCOC follow Academic Progress requirements as determined by the Joint Apprenticeship Training Committee for their program and are not subject to the NWCOC Academic Progress requirements.

Good Standing: Students are in Good Standing, if they meet the minimum standards of academic progress.

1. Maintain a minimum 70% score on modular exams.
2. Two, or fewer, absences per term and four or fewer absences per school year.

Academic Warning: Students are considered on Academic Warning if they receive two modular exam scores of less than 70%, or they reach a third absence in one term. Students will receive an e-mail or letter in the mail when the second failing score is noted, or immediately after a third absence is noted. The e-mail will direct you to resources to resolve issue.

Good Standing is regained when module exams are retaken and a satisfactory score achieved. When acceptable standards of attendance are met in the next quarter, Good standing is reestablished.

Probation: Students will be assigned to probation if two unacceptable modular exams are not satisfactorily made up by the end of the term they were originally assigned, or a third modular exam is failed. Students are also considered on probation if they miss a fourth day of class in one term.

Students on probation will not be allowed to register for the next terms classes until exams are made up. Students will receive an e-mail to this effect and that explains the means of reinstatement. Students reaching a probationary state will establish a written performance contract with their instructor, which will be shared with program director. Good standing will be regained when exams are satisfactorily made up. Probation has no bearing on student financial considerations.

Suspension: Students on probation that do not satisfactorily complete modular exams by the end of the assigned term, or who have not completed a fourth modular exam, will be suspended from the program. Students intending to reinstate must meet with program director to establish criteria for re-entry. Students suspended from the program may consider the date of the last class attended when considering a possible 'refund after entering classes', as determined below.

Termination: Suspended students will be terminated from the program if obligations of suspension are not met by the end of the year of initial enrollment.

Reinstatement: For suspension due to attendance issues, students must fill out an Appeal for Exception from Academic Suspension and return to NWCOC. The program director will consider the request and notify the applicant accordingly. Application for reinstatement for those terminated due to lack of academic progress must write a letter to the program director outlining the reason for lack of academic

progress and a strategic outline successful completion. The program director will consider the request and notify the applicant accordingly.

Payment Requirements

The total amount for tuition, book, lab and registration fees are due no later than the first day of class.

Cancellation, Rescheduling and Refund Policy

YOU MAY CANCEL THE CONTRACT BY PROVIDING WRITTEN NOTICE OF SUCH CANCELLATION TO THE SCHOOL AT ITS ADDRESS SHOWN ON THE CONTRACT, WHICH NOTICE SHALL BE POSTMARKED NOT LATER THAN MIDNIGHT OF THE FIFTH DAY (EXCLUDING SUNDAYS AND HOLIDAYS) FOLLOWING YOUR SIGNING THIS CONTRACT OR THE WRITTEN NOTICE MAY BE PERSONALLY OR OTHERWISE DELIVERED TO THE SCHOOL WITHIN THAT TIME. IN EVENT OF DISPUTE OVER TIMELY NOTICE, THE BURDEN TO PROVE RESTS ON THE SENDER.

REFUND BEFORE ENTERING CLASSES: You will receive a full refund of all money paid if you are not accepted by the school. You will receive a full refund of tuition and fees paid if you withdraw not later than midnight of the fifth day (excluding Sundays and holidays) after signing the contract or making an initial payment, provided you have not commenced training.

After five business days (excluding Sundays and holidays) of the date of registration and prior to the commencement of classes, the school may retain only the published registration fee as per OAR 581-045-0026(1) (b).

REFUND AFTER ENTERING CLASSES: Unless the school has discontinued the program of instruction, the student is financially obligated to the school according to the following formulas or maximum charges:

The student shall be entitled to a pro rata refund of the tuition charged and paid for such instructional program, less registration fees, lab fees, and any other legitimate charges owed by the student. (The term “Pro rata refund” means a refund of tuition paid for that portion of the program beyond the last recorded date of attendance. The date for determining that portion shall be the published class schedule and the last recorded date of attendance by the student.)

CALCULATING CHARGES: The portion of the enrollment period for which the student will be charged is determined by dividing the total clock hours into the number of clock hours accrued according to the published class schedule as of the last recorded day of attendance by the student

If the school discontinues instruction in any program after students enter training, including circumstances where the school changes its location, students must be notified in writing of such events and are entitled to a pro-rata refund of all tuition and fees paid unless comparable training is arranged for by the school and agreed upon, in writing, by the student.

Students entitled to refunds must apply in writing to the school within 90 calendar days of the discontinuance or relocation and any earned refund must be disbursed by the school within 30 calendar days after receipt of a request. THERE WILL BE NO REFUND ON TEXTBOOKS.

NON-O.D.E. REGISTERED CLASSES/SEMINARS: Students registered in classes/seminars that are not registered with the Department of Education must give 48 hours' notice of cancellation prior to the start of the class or will be subjected to a cancellation fee.

OFFICIAL TERMINATION DATE: The official date of termination of a student shall be the last date of recorded attendance when withdrawal occurs in any of the following manners:

1. When the school receives notice of the student's intention to discontinue the training.
2. When the student is terminated for a violation of a published school policy that provides for termination.
3. When a student, without notice to the institution, fails to attend one third of the classes in the course.

TERMINATION BY THE SCHOOL: Admission to NWCOC assumes the student will conduct him or herself as a responsible member of the college community. Any student in violation of the following may be subject to immediate termination:

1. Violation of the Student Code of Conduct.
2. Violation of NWCOC Facility Policies and Safety Regulations
3. Violation of State and Federal Laws while on campus or Training Sites.
4. Termination due to Lack of Academic Progress
5. Failure to maintain satisfactory progress
6.

CANCELLATION OF CLASSES: The school reserves the right to cancel a class if the number of students enrolled is deemed insufficient. Such cancellation will be considered a rejection by the school and the student is entitled to a full refund of all money paid. Students will be made aware of classes concurrently offered to the same class and given the opportunity to join the class if space is available.

CHANGES IN AGREEMENT: Any changes in this agreement shall not be binding to either the student or the school unless such changes have been approved in writing by the chief administrator or an authorized representative of the school and by the student or the student's parent or guardian if a minor.

UNFAIR PRACTICES: It is unfair business practice for the school to sell, discount or otherwise transfer this contract without the signed written consent of the student or his/her financial sponsors and a written statement notifying all parties that the cancellation and refund policy continues to apply.

Release of Student Information:

Generally, NWCOC will require written permission from the parent or eligible student in order to release any information from a student's education record. However, NWCOC may disclose a student's records without consent, to the following parties or under the following conditions:

- School officials with legitimate education interest
- Other schools to which a student is transferring
- Specified officials for audit or evaluation
- Appropriate parties in connection with financial aid to a student
- Organizations conducting certain studies for or on behalf of the school
- Accrediting organizations
- To comply with a judicial order or lawfully issued subpoena

- Appropriate officials in cases of health and safety emergencies; and
- State and local authorities, within a juvenile justice system, pursuant to specific State law.
- If a student is an apprentice student information is released to the Training Agent and/or Program Administrator of the apprentice

Students may obtain an official transcript by submitting a completed Transcript Request Form, available by contacting the Registrar, at any time.

Inclement Weather Policy:

The President may determine that the weather conditions dictate that the school will open late, close early or close for the entire day. Every effort will be made to notify instructors who are scheduled to teach on that day. Notice will be posted to local media, the NWCOC website and the NWCOC Facebook. Students may also register at www.flashalert.net to receive email updates when information is posted.

Every effort will be made to reschedule cancelled classes. Instructors will notify students of date and time of rescheduled class during the next class session.