

NYS & CSEA Applied Skilled Trades Program

All participants in the Applied Skilled Trades Program (Traineeship and Certificate Program) are required to complete the refresher and core courses described below. These courses have been designed to provide the foundational skills necessary to succeed in the specialized trade courses.

Refresher Course

Math Fundamentals - 15 hours

This course introduces participants to the fundamental mathematical functions of addition, subtraction, multiplication, and division of whole numbers. It also introduces concepts involving whole numbers with heavy emphasis placed on elementary fractions, decimals, and percents. The course helps prepare participants for the *Technical Math* core course.

Required Core Courses

Technical Math - 45 hours

This course provides a thorough review of the math principles needed for employees to successfully complete the trade theory instruction required for technical occupations. It focuses on the use of whole numbers, fractions, decimals, and percents to solve practical word and story problems as they relate to various trades. The course progresses to using and interpreting graphs as well as applying the concepts of plane and solid geometry, algebra, and trigonometry to solving practical word problems.

Blueprint Reading Fundamentals - 15 hours

This course gives participants the fundamental skills necessary to read and interpret blueprints and schematic drawings. Participants will learn to use an architectural ruler to read scaled drawings, convert designs into a blueprint, comprehend basic abbreviations, symbols, and line types within a blueprint, and interpret different types of drawings (for example, architectural, electrical, plumbing, or landscaping).

Workplace Communications - 45 hours

This course provides a practical introduction to effective oral and written communication for employees working in trade occupations. The two-way nature of communication, including verbal and non-verbal expression, will be addressed. Techniques for successfully communicating with and relating to others in the workplace are an essential ingredient of the course. Emphasis is placed on basic writing skills, including principles of grammar and sentence structure in the preparation of memos, letters, and simple reports.

CARPENTER

(Two-Year Track)

Carpentry: Tools and Materials - 72 hours

This course introduces the theory and practice of carpentry with a focus on tools and materials. Topics include wood products; engineered wood products; fasteners; hand tools; stationary power tools; scaffolding and worksite safety; material calculations; and basic building codes. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Carpentry: Light Framing - 72 hours

This course covers the theory and practice of carpentry with a focus on residential light frame construction. Topics include print-reading; safety factors; material calculations; floor framing systems; wall framing; ceiling framing; roof framing; roof sheathing; roof finishes; window installation; and exterior door installation. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Carpentry: Interior - 72 hours

This course covers the theory and practice of carpentry with a focus on interior finish and trim. Topics include partition layout; insulation and ventilation; drywall installation; wall paneling and wall tile; suspended ceilings; interior door installation; interior trim; stair framing and finishing; and cabinets and countertops. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Carpentry: Special Projects - 72 hours

This course applies and builds upon skills learned in the three previous carpentry courses. Topics and projects include project planning; changing interior partitions; changing closets and shelves; institutional furniture repair; table tops and laminates; installing wall products; storage buildings and shed roofs; outdoor benches and tables; and porches and steps.

Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

ELECTRICIAN

(Two-Year Track)

Electricity I - 72 hours

This course introduces the basic concepts of direct current electricity. Topics include how electricity works; measuring electrical quantities; reading electrical prints; resistance and conductivity; Ohm's Law; series and parallel circuits; combination circuits; switches; batteries; capacitors; and inductors. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Electricity II - 72 hours

This course covers the basic concepts of alternating current electricity. Topics include the differences between DC and AC circuits; the AC sine wave; using vectors to solve AC problems; calculating impedance in circuits having inductance, capacitance, and resistance; AC power relationships in single-phase and three-phase circuits; and principles of transformer operation and maintenance. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Electrical Installation - 72 hours

This course provides participants with the principles and practices of installing electrical circuits in commercial buildings. Topics include electrical safety and codes; print-reading; load computation and layout; branch circuit installation; switches and receptacles; motor and appliance circuits; feeder circuits, panel boards, and lighting circuits; and the electrical service entrance. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Electrical Systems and Motors - 72 hours

This course covers the design, installation, troubleshooting, and repair of electric motors. Topics include motors and print-reading; split phase motors; capacitor motors; repulsion motors; universal and special motors; synchros and servos; motor installation and maintenance; motor starters, switches, and controls; and motor relays. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

MASON AND PLASTERER

(Two-Year Track)

Masonry: Concrete Flat Work - 72 hours

This course introduces the theory and practice of creating and maintaining horizontal concrete structures such as walks and slabs. Topics include concrete measurements and calculations; safety factors; properties of concrete; foundation design; concrete forms; concrete placement; and concrete finishing and curing. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Masonry: Block Work - 72 hours

This course provides the theory and practice of maintaining block walls using concrete (cement) blocks and bricks. Topics include block measures and calculations; print-reading; safety factors; block wall construction; block wall repair and maintenance; bricklaying; and brick wall maintenance and repair. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Masonry: Tile and Gypsum Products - 72 hours

This course covers the theory and practice of maintaining and repairing structures such as tile floors and walls, drywall and plaster walls, and ceilings. Topics include product measures and calculations; safety issues; and the installation, maintenance, and repair of ceramic tile, soft tile, marble, terrazzo, cultured stone, drywall, lath, and plaster. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Masonry: Special Projects - 72 hours

This course covers the theory and practice of maintaining special masonry structures such as pavers and stone walkways, retaining walls, brick and stone veneer walls, and glass block walls. Also included are topics in material measurements and job estimates, and safety issues related to the job site. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

PLUMBER AND STEAMFITTER

(Two-Year Track)

Plumbing Systems: Waste, Vent, and Drain - 72 hours

This course introduces the installation and maintenance of piping systems in office buildings. Topics include sanitary drainage and venting; storm drainage piping; plastic pipe and fittings; cast soil pipe; the plumbing trap; testing drainage systems; and installation measurements and calculations. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Plumbing Systems: Water Supply - 72 hours

This course focuses on the installation and maintenance of piping systems in office buildings and on water supply and related fixtures and equipment. Topics include copper pipe and fittings; sizing water supply piping; testing water supply piping; fixtures; valves; faucets; water heaters; pressure boosters; re-circulating systems; fixture and appliance repair; water testing; and print-reading and calculations. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Plumbing Systems: Installation - 72 hours

This course covers the installation and maintenance of piping systems in office, residential or other non-manufacturing-type buildings. The special focus of the course is on the piping system, as opposed to individual fixtures and components. Classroom instruction is devoted to system design and system troubleshooting, along with sessions devoted to estimating and to plumbing codes. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom.

Plumbing Systems: Pipefitting and Welding - 72 hours

This course deals with the techniques used to permanently join pipes used in plumbing and related systems. Also included are units on basic welding skills as they apply to pipefitting. Topics will include oxy-acetylene cutting; pipe threading and joining; arc and shielded metal arc welding; small metal arc welding (SMAW) groove welds; SMAW open v groove welds; SMAW open root pipe welds; joint fit-up and alignment; and welding safety. Instruction is supplemented with hands-on activities in a laboratory that support the concepts learned in the classroom