

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 - 12 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.

ELECTRICIAN

(Two-Year Track)

Electricity I - 72 hours *(formerly Direct Current Electricity)*

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 *(formerly Alternating Current Electricity)*

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.