

# APPRENTICESHIP (APP)

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## APP 101 Apprenticeship Year I (6 Credits)

216 lecture, 1700 clinical/other, 6 total contact hours  
Student gains knowledge and skills through classroom and on-the-job experience. Student will receive credit for the course only after all classroom (testing) and work hours have been successfully completed and student is eligible to continue onto subsequent apprenticeship year.

## APP 102 Apprenticeship Year II (6 Credits)

216 lecture, 1700 clinical/other, 6 total contact hours  
Student gains knowledge and skills through classroom and on-the-job experience. Student will receive credit for the course only after all classroom (testing) and work hours have been successfully completed and student is eligible to continue onto subsequent apprenticeship year.

## APP 103 Apprenticeship Year III (6 Credits)

216 lecture, 1700 clinical/other, 6 total contact hours  
Student gains knowledge and skills through classroom and on-the-job experience. Student will receive credit for the course only after all classroom (testing) and work hours have been successfully completed and student is eligible to continue onto subsequent apprenticeship year.

## APP 104 Apprenticeship IV (6 Credits)

216 lecture, 1700 clinical/other, 6 total contact hours  
Student gains knowledge and skills through classroom and on-the-job experience. Student will receive credit for the course only after all classroom (testing) and work hours have been successfully completed and student is eligible to continue onto subsequent apprenticeship year.

## APP 105 Apprenticeship V (6 Credits)

216 lecture, 1700 clinical/other, 6 total contact hours  
Student gains knowledge and skills through classroom and on-the-job experience. Student will receive credit for the course only after all classroom (testing) and work hours have been successfully completed and student is eligible to become a journeyman.

## APP 111 Safety and Health for Plumbers & Pipefitters (3 Credits)

30 lecture, 30 lab, 3 total contact hours  
This course explains OSHA (Occupational Health and Safety Administration) and reviews the contractor's responsibilities versus employees' responsibilities as they relate to safety on the job. Students learn how to work safely in adverse conditions and become familiar with the "Right to Know Manual." Students also learn how to identify, use, and maintain the proper safety equipment for any given task. Upon successful completion of this course, students are able to identify hazards on the jobsite and know the appropriate responses. In addition, this class creates an awareness of the sensitive issues of harassment present in today's workplace and provides techniques for preventing it. Level I Prerequisite: COMPASS Reading = 68 or REA 070 or REA 071 may enroll concurrently and COMPASS Writing = 81 or ENG 090 or ENG 091 may enroll concurrently

## APP 112 Care and Use of Tools (3 Credits)

30 lecture, 30 lab, 3 total contact hours  
This is a course in the safe operation of power tools. Students learn methods for safe use of hand tools and proper handling of materials in the trade. Level I Prerequisite: COMPASS Reading = 68 or REA 070 or REA 071 may enroll concurrently and COMPASS Writing = 81 or ENG 090 or ENG 091 may enroll concurrently

## APP 113 Math for Pipe Trades (3 Credits)

30 lecture, 30 lab, 3 total contact hours  
Students will learn the basic knowledge of math and science that pertains to the industry. This course is only open to members in the United Association.

## APP 121 Plumbing Welding I (3 Credits)

15 lecture, 45 lab, 3 total contact hours  
This course covers techniques of shielded metal and arc welding. Applications of various welding rods are demonstrated, and students learn to plate weld in various positions and to recognize problems that occur while welding. Students learn the proper use of clothing and safety equipment. Level I Prerequisite: APP 111, APP 112, and APP 113

## APP 122 Trade Application I (3 Credits)

30 lecture, 30 lab, 3 total contact hours  
This course will teach students the proper methods of rigging material and equipment. This course will teach the proper use of come alongs. This course will teach the proper use of chain falls, snatch blocks, ropes, and pulleys. This course will teach rigging and signaling of cranes.

## APP 123 Math/Science for Plumbing & Pipefitting II (3 Credits)

30 lecture, 30 lab, 3 total contact hours  
In this course, students will apply mathematical formulas and techniques to solve plumbing and pipefitting problems. Level I Prerequisite: APP 111, APP 112, and APP 113

## APP 124 Plumbing Science I (4 Credits)

60 lecture, 4 total contact hours  
Level I Prerequisite: APP 111, APP 112, and APP 113

## APP 125 Plumbing Science II (4 Credits)

60 lecture, 4 total contact hours  
Level I Prerequisite: APP 111, APP 112, and APP 113

## APP 126 Plumbing Science III (4 Credits)

60 lecture, 4 total contact hours  
Level I Prerequisite: APP 111, APP 112, and APP 113

## APP 131 Water Supply and Drainage (3 Credits)

30 lecture, 30 lab, 3 total contact hours  
This course enables students to understand where fresh water comes from, water treatment plants and how they operate, and proper piping of potable water. This course enables students to understand pumps, gives students the knowledge of the uses of valves, and teaches the student backflow prevention, balancing and testing. It enables students to gain the knowledge of the minerals in water, and also to understand drainage (pre-code). Level I Prerequisite: APP 111, APP 112, and APP 113

## APP 132 Trade Application II (3 Credits)

30 lecture, 30 lab, 3 total contact hours  
This course covers basic pneumatics and plumbing codes. Students learn to use the builder's level and to read and understand drawings and blue prints. Level I Prerequisite: APP 111, APP 112, and APP 113

## APP 133 Hydronic Heating (3 Credits)

30 lecture, 30 lab, 3 total contact hours  
This course covers hydronic terms and the mathematics of hydronic heating and radiation. Topics include piping layout, equipment selection, piping sizing, hydronic heating, piping connection, and the installation of equipment and controls. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 141 Advanced Pipe Fitting (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

In this course, students learn to draw isometric pipe drawings and to read detailed blue prints. Students will learn to read and interpret specifications and gain a basic understanding of estimating. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 142 Installation Service (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course enables students to understand the designing and installing of a system and to do special installations. It allows students to do complete plumbing service work, connect faucets, toilets, sewage ejectors, sump pumps, water heaters and other related fixtures. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 143 Trade Application III (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 151 Medical Gas & Code (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This is an advanced course in the installation of medical gas systems in hospitals and medical labs. Topics include brazing, cleaning and advanced code training. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 152 Technical Training (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

In this course students practice for the State Exam. Topics covered include measuring, cutting, cleaning, reaming and soldering. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 153 Foreman Training (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This is a course in leadership skills. Students learn to deal with workers and management including setting up a job office, managing employees, completing paperwork on the job site, keeping track of job site materials and the lead times of all special equipment. Students learn to estimate small jobs when extra costs occur. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 221 Theory of Electrical (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course will enable students to understand what electricity is and how it works. This course will enable students to understand the study of matter and atoms. This course will instruct students on electrical fields. This course will instruct students on conductors, insulators, piezoelectricity, photo electricity by chemical action. This course will enable students to understand magnetism and the difference in potential, current resistance.

**APP 222 Heating Science (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course covers energy and heat relationships, heat transfer, insulation, measuring temperature, and the centigrade and Fahrenheit scale. This course also covers British thermal units (BTU), pressure thermal conductivity, transfer coefficient and heating fuels. Students are introduced to hydronic heating, radiant heating, forced air heating, convection heating, direct fire heating, solar heating, conduction heating, electric heating, basic combustion, and controls. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 223 Air Conditioning Thermodynamic (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 231 Electrical Temperature Controls (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course enable students to understand the theory of electrical temperature controls, compound electrical circuits, resistance, inductance, capacitance in A/C circuits, impedance in A/C circuits, the 3 phase A/C systems, the wye and delta connections. It teaches the students to understand electrical controls, hermetic circuitry, safety, advanced wiring diagrams, advanced wiring troubleshooting, and lab work at bench stations with troubleshooting. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 232 Theory and Operation of Heating Equipment (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course enables students to understand the theory and operation of heating equipment, maintaining comfort conditions. It explains how heat is delivered, heating fuels and hydronic heating components. It also enables students to understand how forced air works, its controls, how hydronic heating works, power burners, and electric coils. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 233 Air Conditioning Systems (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course enables students to gain the knowledge of different oils and refrigerants and gain the ability to trouble shoot systems. Students receive knowledge in working with compressors, condensers (water cooled and air cooled) evaporators, metering devices and A/C controls. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 238 Water Supply and Drain (4 Credits)**

60 lecture, 4 total contact hours

Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 239 Water Supply and Drain (4 Credits)**

60 lecture, 4 total contact hours

Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 241 Welding and Brazing (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course demonstrates setting up a welder properly, selecting proper welding rods, and gives students the knowledge on welding different materials. Students learn welder safety, welder maintenance, knowledge for different arc welds, how to check welds, welding practices and shows students how to successfully complete a welding project. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 242 Hydronic and Steam Heating (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course enables students to understand pressure and heating relationships. As a result of the class, students gain the knowledge to understand hydronic heating and steam heating components. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 243 Medium Temp Refrigeration (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 251 Commercial Air Conditioning (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This is a course in commercial air conditioning covering the different types of systems, system controls, and single and multiple compressor systems. Topics include constant and variable air systems, multizone systems, direct expansion, split systems, and chilled water air conditioning systems. Absorber and centrifugal chillers will be introduced. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 252 DDC Controls (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course in DDC control systems covers basic electricity and resistors in DDC systems. Students learn basic computer operation and commands for DDC controls. Fiber optic systems will be introduced. Level I Prerequisite: APP 111, APP 112, and APP 113

**APP 253 Code Preparation for State Exam (3 Credits)**

30 lecture, 30 lab, 3 total contact hours

This course enables students to gain the knowledge of boiler codes, heating codes, and mechanical codes. It teaches apprentices the approved installation of mechanical systems. The course also includes taking the state licensing exam. Level I Prerequisite: APP 111, APP 112, and APP 113