FIELD IRONWORKERS (IWAP)

IWAP 40.05 **2.5 UNITS**
IW-Welding III
Class Hours: 2.5 Lecture / 0.5 Laboratory
Total Contact Hours: 45 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice.
The apprentice will be trained in metal-arc and gas metal-arc welding with emphasis on skill development in both processes of ferrous and nonferrous metals in the flat, vertical and overhead positions, and for all types of joints.

IWAP 40.05CPL **2.5 UNITS**
IW-Welding III
Prerequisite: Student is a registered state indentured apprentice.
The apprentice will be trained in metal-arc and gas metal-arc welding with emphasis on skill development in both processes of ferrous and nonferrous metals in the flat, vertical and overhead positions, and for all types of joints.

IWAP 40.05CRX **1.0 UNITS**
IW-Advanced Welding III
Prerequisite: Student is a registered state indentured apprentice.
The apprentice will be trained in metal-arc and gas metal-arc welding with emphasis on skill development in both processes of ferrous and nonferrous metals in the flat, vertical and overhead positions, and for all types of joints.

IWAP 40.07 **4.0 UNITS**
FIW-Orientation
Class Hours: 4.0 Lecture / 0.5 Laboratory
Total Contact Hours: 72 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course provides an overview of the skill and knowledge needed to become a safe and productive working apprentice. It will provide a hands-on approach to general rigging, structural steel, welding and burning, and reinforcing iron.

IWAP 40.07CPL **3.0 UNITS**
FIW-Orientation
Prerequisite: Student is a registered state indentured apprentice This course provides an overview of the skill and knowledge needed to become a safe and productive working apprentice. It will provide a hands-on approach to general rigging, structural steel, welding and burning, and reinforcing iron.

IWAP 40.07CRX **3.0 UNITS**
FIW-Orientation
Prerequisite: Student is a registered state indentured apprentice This course provides an overview of the skill and knowledge needed to become a safe and productive working apprentice. It will provide a hands-on approach to general rigging, structural steel, welding and burning, and reinforcing iron.

IWAP 40.09 **2.0 UNITS**
IW-Gen Rigging
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Prerequisite: Student is a registered state indentured apprentice. This course introduces the proper application of fiber line, steel cable, and chain in various tackle and lever combinations used in raising, transporting, and storing heavy loads. It provides instruction and manipulative experience with the various types of rigging equipment and procedures used in the ironworkers' trade.

IWAP 40.09CPL **2.0 UNITS**
IW-Gen Rigging
Prerequisite: Student is a registered state indentured apprentice. This course introduces the proper application of fiber line, steel cable, and chain in various tackle and lever combinations used in raising, transporting, and storing heavy loads. It provides instruction and manipulative experience with the various types of rigging equipment and procedures used in the ironworkers' trade.

IWAP 40.10 **2.5 UNITS**
Welding I-Reinforcing
Class Hours: 2.0 Lecture / 1.5 Laboratory
Total Contact Hours: 36 Lecture / 27 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course introduces basic understanding of the structure of ferrous metals and their reactions to heat. This course also provides knowledge of the equipment and materials employed in the use of shielded metal-arc, gas shielded-arc, and oxy-acetylene welding.

IWAP 40.11 **2.5 UNITS**
Welding II-Reinforcing
Class Hours: 2.5 Lecture / 0.5 Laboratory
Total Contact Hours: 45 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course will introduce the apprentice to a basic understanding of the structure of ferrous metals and their reactions to heat. It provides knowledge and basic skills in the equipment and materials employed in the use of shielded metal-arc, gas shielded-arc, and oxy-acetylene welding.

IWAP 40.11CPL **2.5 UNITS**
Welding II-Reinforcing
Prerequisite: Student is a registered state indentured apprentice This course will introduce the apprentice to a basic understanding of the structure of ferrous metals and their reactions to heat. It provides knowledge and basic skills in the equipment and materials employed in the use of shielded metal-arc, gas shielded-arc, and oxy-acetylene welding.

IWAP 40.11CRX **1.0 UNITS**
IW-Welding II-Reinforcing
Class Hours: 0.2 Laboratory
Total Contact Hours: 4 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course will introduce the apprentice to a basic understanding of the structure of ferrous metals and their reactions to heat. It provides knowledge and basic skills in the equipment and materials employed in the use of shielded metal-arc, gas shielded-arc, and oxy-acetylene welding.

IWAP 40.12 **2.0 UNITS**
IW-Reinforcing Iron I
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course will provide the ironworker with the ability to interpret the standard codes, code classifications, plans, schedules, charts, and specifications in common use by the ironworker. The apprentice will become familiar with the contraction techniques used in reinforcing concrete members with steel. They will become familiar with the use of bar supports, placement of reinforcing iron in the structural members of buildings, and in structures other than buildings, general principles of gap splicing and welding, post tensioning and pre-stressing.

IWAP 40.12CPL **2.0 UNITS**
IW-Reinforcing Iron I
Prerequisite: Student is a registered state indentured apprentice This course will provide the ironworker with the ability to interpret the standard codes, code classifications, plans, schedules, charts, and specifications in common use by the ironworker. The apprentice will become familiar with the contraction techniques used in reinforcing concrete members with steel. They will become familiar with the use of bar supports, placement of reinforcing iron in the structural members of buildings, and in structures other than buildings, general principles of gap splicing and welding, post tensioning and pre-stressing.

IWAP 40.15 **2.0 UNITS**
IW-Post Tension I
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course will train students in the installation of multi-strand post-tension bar systems, including stressing, grouting, and inspection. Students will become familiar with related topics to post-tension bar systems, which share many of the same procedures and characteristics. This course will cover various types of structures, including bridges, buildings, and storage tanks.

IWAP 40.21 **2.5 UNITS**
Structural Steel I
Class Hours: 2.5 Lecture / 0.5 Laboratory
Total Contact Hours: 45 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course promotes understanding of both theory and practice built around the study of blueprint reading, structural erection procedures, and proper construction of various steel structures.

IWAP 40.21CPL **2.0 UNITS**
IW-Structural Steel I
Requisite: Student is a registered state indentured apprentice This course promotes understanding of both theory and practice built around the study of blueprint reading, structural erection procedures, and proper construction of various steel structures.

IWAP 40.22 **2.0 UNITS**
IW-Cranes
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Requisite: Student is a registered state indentured apprentice This course continues to develop understanding of both theory and practice built around the study of blueprint reading and the structural erection procedures and proper construction of various steel structures.

IWAP 40.22CPL **2.0 UNITS**
IW-Cranes
Requisite: Student is a registered state indentured apprentice This course continues to develop understanding of both theory and practice built around the study of blueprint reading and the structural erection procedures and proper construction of various steel structures.

IWAP 40.26 **2.5 UNITS**
Metal Building Erection I/Foreman Training
Class Hours: 2.5 Lecture / 0.5 Laboratory
Total Contact Hours: 45 Lecture / 9 Laboratory

Requisite: Student is a registered state indentured apprentice This class provides the Apprentice with hands-on experience in erecting a pre-engineered metal building. The course will provide the Apprentice with necessary time to perform the tests needed in interpreting charts and tables, blueprint, assembly of prefabricated buildings.

IWAP 40.26CPL **2.0 UNITS**
IW-Metal Building Erection I/Foreman Training
Requisite: Student is a registered state indentured apprentice This class provides the Apprentice with hands-on experience in erecting a pre-engineered metal building. The course will provide the Apprentice with necessary time to perform the tests needed in interpreting charts and tables, blueprint, assembly of prefabricated buildings.

IWAP 40.50 **2.0 UNITS**
IW-Mixed Base-Reinforcing
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Student is a registered state indentured apprentice The course will acquaint the apprentice with specifications that constitute a safe and healthy working environment under OSHA. It provides an introduction to the rights and obligations that this act imposes. The apprentice will have an overview of construction blueprints commonly used with emphasis on its function and interpretation. This course offers a brief review of the basic math skill and the opportunity to apply these skills in solving typical problems that are apt to arise in the construction trades.

IWAP 40.50CPL **2.0 UNITS**
IW-Mixed Base-Reinforcing
Student is a registered state indentured apprentice The course will acquaint the apprentice with specifications that constitute a safe and healthy working environment under OSHA. It provides an introduction to the rights and obligations that this act imposes. The apprentice will have an overview of construction blueprints commonly used with emphasis on its function and interpretation. This course offers a brief review of the basic math skill and the opportunity to apply these skills in solving typical problems that are apt to arise in the construction trades.

IWAP 40.50CRX **2.0 UNITS**
IW-Mixed Base-Reinforcing
Student is a registered state indentured apprentice The course will acquaint the apprentice with specifications that constitute a safe and healthy working environment under OSHA. It provides an introduction to the rights and obligations that this act imposes. The apprentice will have an overview of construction blueprints commonly used with emphasis on its function and interpretation. This course offers a brief review of the basic math skill and the opportunity to apply these skills in solving typical problems that are apt to arise in the construction trades.

IWAP 40.53 **2.0 UNITS**
IW-Detailing/Reinforcing Iron
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Prerequisite: Student is a registered state indentured apprentice
This course will provide insight into the job performed by the detailer of reinforcing iron. Content includes reading and interpreting the communication instruments that are the products of the detailer's skills such as placing drawings, the bar lists, the bar schedules. These are the instruments that guide the fabrication of reinforcing bars in the shop and their proper placement in the field. This class show how these documents are assembled and from what sources information is derived. Mechanical drawings, math computation skills, and blue prints are covered.

IWAP 40.55 **2.0 UNITS**
IWS-Reinforcing Foreman Training
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course is designed to heighten the construction worker's awareness regarding on-the-job hazards. The student will receive training in accordance with OSHA standards and the many aspects of safety, compliance, scheduling, jurisdiction, and the labor law. The student will receive instruction regarding the duties of the ironworker foreman, general foreman, superintendent, and forklift operation.

IWAP 40.56 **2.0 UNITS**
IW-Ironworker History Reinforcing
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course instructs the apprenticeship student about the history of the Ironworker union from its birth in 1896 to the present.

IWAP 40.56CPL **2.0 UNITS**
IW-Ironworker History Reinforcing
Prerequisite: Student is a registered state indentured apprentice This course instructs the apprenticeship student about the history of the Ironworker union from its birth in 1896 to the present.

IWAP 40.60 **2.5 UNITS**
Structural Arch Orn I
Class Hours: 2.0 Lecture / 1.5 Laboratory
Total Contact Hours: 36 Lecture / 27 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course is designed primarily for ironworker apprentices and will provide a detailed understanding of procedures and practices employed by the ironworker in architectural and ornamental ironworking. Special emphasis is placed on the tools, anchors, and fasteners in construction curtain walls and window walls.

IWAP 40.61 **2.0 UNITS**
IW-Structural Precast Concrete
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Prerequisite: Student is a registered state indentured apprentice The course provides knowledge, coordination task elements and skill needed in the staging and economical erection of a precast concrete building, placing particular emphasis on the rigging, handling and installing of the precast concrete members themselves.

IWAP 40.61CPL **2.0 UNITS**
IW-Structural Precast Concrete
Prerequisite: Student is a registered state indentured apprentice The course provides knowledge, coordination task elements and skill needed in the staging and economical erection of a precast concrete building, placing particular emphasis on the rigging, handling and installing of the precast concrete members themselves.

IWAP 40.63 **2.0 UNITS**
IW-Structural Lead Hazard
Class Hours: 2.0 Lecture / 1.0 Laboratory
Total Contact Hours: 36 Lecture / 18 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course will teach ironworkers to recognize and reduce hazards related to lead when repairing and renovation of bridges or steel structures, or in the demolition of buildings and other structures. It will stress the health effects caused by lead exposure, OSHA regulations in this regard, sampling methods, legal rights of workers and the use of proper protective equipment and work methods.

IWAP 41.03 **1.0 UNITS**
IW-Reinforcing II
Class Hours: 0.6 Lecture / 2.2 Laboratory
Total Contact Hours: 10 Lecture / 40 Laboratory

Prerequisite: Student is a registered state indentured apprentice
This course provides students with training in reinforcing concrete, including manufacturing, safety, reinforcing forms, bridge, and highway construction, bending, tagging, marking, and fabricating. This course delineates as precisely as possible the industry practices for reinforcing steel and provides a convenient reference source for the architect/engineer, the inspector, the detailer, fabricator, and ironworker.

IWAP 41.03CPL **1.0 UNITS**
IW-Reinforcing II
Prerequisite: Student is a registered state indentured apprentice
This course provides students with training in reinforcing concrete, including manufacturing, safety, reinforcing forms, bridge, and highway construction, bending, tagging, marking, and fabricating. This course delineates as precisely as possible the industry practices for reinforcing steel and provides a convenient reference source for the architect/engineer, the inspector, the detailer, fabricator, and ironworker.

IWAP 41.04 **2.5 UNITS**
IW-Architectural III
Class Hours: 2.0 Lecture / 1.5 Laboratory
Total Contact Hours: 36 Lecture / 27 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course teaches the ironworker on how to erect storefronts and entrance ways and how to install the various types for doors commonly found in today's modern structures. The student will be introduced to the various types of materials used and the installation procedures recommended. This course will also cover installing revolving doors, swinging doors and closers, sliding fronts and doors, hollow metal doors, and balanced doors. The student will learn how to erect a wide variety of doors, stairs, handrails, and ladders, toilet partitions, vanity supports, relief angles, and flagpoles and how to install chain link fences.

IWAP 41.05 **2.5 UNITS**
IW-Architectural II
Class Hours: 2.5 Lecture / 0.5 Laboratory
Total Contact Hours: 45 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice
This course will teach the ironworker the many tasks involved in the construction of window wall and curtain wall systems. The student will be introduced to the many techniques used to provide a functioning yet, aesthetically pleasing structure. The student will learn about new construction techniques regarding designs of exterior facing structure enclosure and protection. This class will provide information on building sealants and the effects of weathering.

IWAP 41.06 **2.0 UNITS**
IW-Structural Steel II
Class Hours: 2.0 Lecture / 1.0 Laboratory
Total Contact Hours: 36 Lecture / 18 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course provides the student with training in structural steel erection including history, safety, planning and scheduling, handling materials, and erecting structural steel members.

IWAP 41.06CPL **1.5 UNITS**
IW-Structural Steel II
Prerequisite: Student is a registered state indentured apprentice This course provides the student with training in structural steel erection including history, safety, planning and scheduling, handling materials, and erecting structural steel members.

IWAP 41.07 **2.5 UNITS**
Post-Tension II
Class Hours: 2.5 Lecture / 1.0 Laboratory
Total Contact Hours: 45 Lecture / 18 Laboratory

Prerequisite: Student is a registered state indentured apprentice This course is designed to provide the ironworker student with training in post-tension reinforcing, including single-strand unbounded systems and bar post-tensioning. This course is structured to prepare the student for the Post-Tensioning Installation (PTI) certification, which will enable workmen to install single-strand unbounded tendons on superstructures. Students will learn the principles and theories of post-tensioning and identify the components of single-strand unbounded tendon systems and bar post-tensioning systems. Students also learn the use of tools, equipment, and procedures to unload, handle, layout, install, stress, grout, and finish each type of post-tensioning system.

IWAP 41.08 **2.0 UNITS**
IW-Post Tension III
Class Hours: 2.2 Lecture / 0.6 Laboratory
Total Contact Hours: 40 Lecture / 10 Laboratory

Student is a registered state indentured apprentice This course provides the ironworker student with training in post-tensioned reinforcing, including single-strand unbonded systems and bar post-tensioning. This course is structured to prepare the student for the Post-Tensioning Installation (PTI) certification, which will enable workmen to install single-strand unbonded tendons on superstructures. Students will learn the proper procedures for detensioning and perform lift-offs on post-tensioning systems. Students will learn the use of tools, equipment, and procedures to unload, handle, layout, install, stress, grout, and finish each type of post-tensioning system.

IWAP 41.09 **1.5 UNITS**
IW-Welding III-Reinforcing
Class Hours: 1.0 Lecture / 2.5 Laboratory
Total Contact Hours: 18 Lecture / 45 Laboratory

Student is registered state indentured apprentice This course will introduce the apprentice to shop safety in welding and burning. It provides a basic understanding of the structure of ferrous metals and their reactions to heat. It provides knowledge of the equipment and materials employed in the use of oxy-acetylene burning and welding. Students will learn the symbols used in welding. This course will prepare the student for the Los Angeles City written welding exam.