ELECTRICAL APPRENTICESHIP (ELAP)

ELAP 90.01 **2.0 UNITS**
Introduction to Energy Surveying
Class Hours: 2.0 Lecture / 0.5 Laboratory
Total Contact Hours: 36 Lecture / 9 Laboratory

Prerequisite: The student is a registered state indentured apprentice. This is a competency-based course designed to align with the American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) Level-1 energy auditing standards. Provides hands-on experience in residential and commercial energy auditing. Emphasis on principles and sources of energy, detailed facilities evaluation techniques, data collection for energy auditing, establishing baselines, and conducting accurate inventories, Includes workplace safety policies and practices to comply with OSHA guidelines.

ELAP 90.02 **2.0 UNITS**
Basic Electricity and Wiring Fundamentals
Class Hours: 1.5 Lecture / 1.5 Laboratory
Total Contact Hours: 27 Lecture / 27 Laboratory

Prerequisite: Student must be a registered state indentured apprentice. This comprehensive introduction to electrical wiring provides a well-rounded understanding of the fundamentals of basic electricity, electrical safety, electrical circuitry, and the processes and procedures of the electrical wiring trades. Includes relevant electrical codes.

ELAP 90.03 **2.0 UNITS**
Introduction to Lighting Retrofits
Class Hours: 1.5 Lecture / 1.5 Laboratory
Total Contact Hours: 27 Lecture / 27 Laboratory

Prerequisite: Student is a registered state indentured apprentice. This course provides well-rounded competency-based understanding of lighting retrofit trade fundamentals through hands-on experience in commercial retrofit procedures and skills. Includes electrical safety, policies, and practices as related to retrofit work.

ELAP 90.08 **3.0 UNITS**
Solar Energy
Class Hours: 2.5 Lecture / 2.5 Laboratory
Total Contact Hours: 45 Lecture / 45 Laboratory

Prerequisite: Student is a registered state indentured apprentice. This course is designed to prepare an individual for entry-level employment within the alternative energy industry as an integrator, designer, or as a maintenance or repair worker.

ELAP 90.09 **3.0 UNITS**
Solar Panel Installation
Class Hours: 2.5 Lecture / 2.5 Laboratory
Total Contact Hours: 45 Lecture / 45 Laboratory

Prerequisite: Student is a registered state indentured apprentice. In this second level, lecture/laboratory course students build upon skills learned in Solar Energy. This course ties the design and implements a cost-effective stand-alone photovoltaic (PV) system with battery backup. Student will learn how to evaluate the electrical status of the job site, how to acquire the logistical paperwork required for panel installation. Student will learn the steps in choosing and ordering material. Student will learn step by step in solar panel installation. Finally, the student will learn how to get approval interconnection of the panels and inverters needed for the job.

ELAP 90.10 **2.0 UNITS**
Cerritos Student Orientation Motivation Education and Training (COMET)
Class Hours: 0.1 Lecture / 1.5 Laboratory
Total Contact Hours: 2 Lecture / 27 Laboratory

Prerequisite: Student is a registered state indentured apprentice. This course is the introductory or beginning course for "first-period" apprentices in a series of specialty courses for electrical apprentices involved in the construction industry. Emphasis will placed on safety and the overall aspects of this specialty industry.

ELAP 90.11 **2.0 UNITS**
Introduction to Electrical Vehicles
Class Hours: 1.5 Lecture / 1.5 Laboratory
Total Contact Hours: 27 Lecture / 27 Laboratory

Prerequisite: The student is a registered state indentured apprentice. The Electric Vehicles and Fuel Cell Technology course is designed to introduce students to electric vehicles and prepare them to tackle the challenges presented by the emerging field of diagnosing and servicing electric vehicles. The course covers the various types of electric cars, their costs, emissions, and charging infrastructure.

ELAP 90.12 **1.0 UNITS**
Electrical Theory
Class Hours: 1.0 Lecture
Total Contact Hours: 18 Lecture

Prerequisite: Student is a registered state indentured apprentice. This introductory course is designed for first-period electrical apprentices in the construction industry. The curriculum focuses on safety and fundamental aspects of the industry. (Formerly AED 80.12)

ELAP 90.13 **0.5 UNITS**
Code Requirements
Class Hours: 0.5 Lecture
Total Contact Hours: 9 Lecture

Prerequisite: Student is a registered state indentured apprentice. This course provides a road map for using the NEC. It introduces the layout of the NEC and the types of information found within the code book. It will allow a trainee to practice finding information using an easy-to-follow procedure.

ELAP 90.14 **1.5 UNITS**
Conduit, Raceways, Panelboards and Switchboards
Class Hours: 1.5 Lecture / 0.5 Laboratory
Total Contact Hours: 27 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice. This course will teach us the correct methods for calculating, laying out, and bending Electrical Metallic Tubing (EMT) and Rigid Metal Conduit (RMC) according to industry and National Electrical Code standards. The course will cover using hand-bending tools and mechanical and machine-type bending equipment.

ELAP 90.15 **1.0 UNITS**
Overcurrent Devices
Class Hours: 1.0 Lecture
Total Contact Hours: 18 Lecture

Prerequisite: Student is a registered state indentured apprentice. This course is the fourth in a series of specialty courses designed for electrical apprentices working in the construction industry. The course will focus on conductor terminations and splices, installation of electrical services, circuit breakers and fuses, contractors and relays, and electric lighting. The objective is to provide a comprehensive understanding of these topics to help apprentices become proficient.

ELAP 90.16 **1.0 UNITS**
Grounding Systems
Class Hours: 1.0 Lecture / 0.5 Laboratory
Total Contact Hours: 18 Lecture / 9 Laboratory

Prerequisite: The student is a registered state indentured apprentice. The grounding system is crucial in the electrical system as it safeguards life and equipment against potential electrical faults. Additionally, it guides the sizing of the leading and system bonding jumpers alongside the grounding electrode conductor for various AC systems.

ELAP 90.17 **0.5 UNITS**
Prints & Specifications
Class Hours: 0.5 Lecture / 0.5 Laboratory
Total Contact Hours: 9 Lecture / 9 Laboratory

Prerequisite: The student is a registered state indentured apprentice. This is the second course in a series of specialty courses designed for electrical apprentices who are involved in the electrical trades. The course will focus on electrical prints, drawings, and symbols, and provide a detailed understanding of the types of information that can be found on schematics and one-line wiring diagrams.

ELAP 90.18 **1.5 UNITS**
Motors, Motor Controllers and Process-Controllers
Class Hours: 1.5 Lecture / 0.5 Laboratory
Total Contact Hours: 27 Lecture / 9 Laboratory

Prerequisite: The student is a registered state indentured apprentice. This course is the fifteenth in a series of specialty courses for apprentices in the electrical industry. The course will focus on essential motor calculations, maintenance, and controls.

ELAP 90.19 **1.0 UNITS**
Generators and Power Supplies
Class Hours: 1.0 Lecture
Total Contact Hours: 18 Lecture

The course covers the theory and practices of transformers, generators, and power supplies. According to NEC, it explains the installation requirements for electric generators and storage batteries.

ELAP 90.20 **1.0 UNITS**
Jobsite Management
Class Hours: 1.0 Lecture / 0.5 Laboratory
Total Contact Hours: 18 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice. This course will teach you the necessary skills to become an effective crew leader. This module will help you learn more about the requirements and skills needed to succeed.

ELAP 90.21 **1.0 UNITS**
Specialty Systems
Class Hours: 1.0 Lecture / 0.5 Laboratory
Total Contact Hours: 18 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice.
The course provides a comprehensive overview of the grounding and bonding requirements per the National Electrical Code (NEC). It covers the complete electrical design of commercial and industrial facilities, including fire alarm systems, television, signaling, heating and air conditioning, and refrigeration systems. Throughout the course, students will work according to the relevant NEC requirements.

ELAP 90.22 **1.5 UNITS**
OSHA-10/30 General Training
Class Hours: 1.5 Lecture / 0.5 Laboratory
Total Contact Hours: 27 Lecture / 9 Laboratory

Prerequisite: Student is a registered state indentured apprentice. This course aims to provide OSHA standards to people in different fields. It will cover the topics that OSHA requires for a 10 or 30-hour course, and upon completion, students will receive an OSHA 10 or 30-hour certificate. This is a beginner-level course; no previous experience or knowledge about regulations or industry is required.