

AP DL 718 Automatic Finishing Tools (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Advanced instruction in blueprints, finish schedules, and machine parts identification, as well as proper use, assembly and breakdown of tools.

AP DL 720 Drywall Installation/Finish Trims (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in the basics of gypsum board application and finish trims.

AP DL 721 Advanced Hand Finishing (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

In depth instruction in hand tool use. The different operations, phases, and materials to be used in order to have information of what a finished product should look like.

AP DL 722 Advanced Automatic Finishing Tools (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Instruction in the proper methods and sequences of the "bazooka," flat boxes, nail spotters and angle boxes.

AP DL 723 Advanced Lathing (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

This course will distinguish advance lathing methods and styles from basic application techniques for lath and trim products used on exterior-interior metal framing. Metal framing elements, various bead styles, lathing types and substrates will be covered in both discussions and lab activities. Proper leveling and finishing methods will be demonstrated. Students will apply lath and trim using the techniques presented to complete course projects.

AP DL 724 Ceiling and Soffit Finishing (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Designed to provide an advanced level of finishing skill for applications with architecturally detailed ceilings and soffits. Guided practice with a combination of hand and automatic tool techniques will promote the level of manipulative ability required for a successful result. A variety of finish trims will be integrated into each method of finish. Training will conclude with inspection criteria for evaluating finish levels.

AP DL 725 Wet Wall Finishes (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Presents the industry use, application methods, and product mediums typically used for wet wall finishes. The techniques and procedures used to achieve a level five finish to industry standards requires base and top coating of interior surfaces for inspection purposes. Selection and use of painting equipment and coatings will be included in the training.

AP DL 726 Reinforced Substrate Installations (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Presents the applications techniques and product considerations typical of reinforced substrate installations. The training will focus on Glass Fiber Reinforced Gypsum and Glass Fiber Reinforced Concrete (GFRG) & (GFRC) products. The lab project will include layout, cutting and handling practices, attachment methods, alignment and various related installation methods.

AP DL 727 Decorative Trims and Textures (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Provides advanced hand and automatic tool finishing techniques used in the application of decorative trims and special surface textures. Training includes product information for metal, paper, plastics and art beads. Special attention will be given to coating and sanding sequence of field and butt joints for selected surface textures.

AP DL 728 Drywall Applications (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Focus on the skills to properly handle and install drywall used in specialized applications including fire resistance, sound control, and life safety. Layout, cutting, attachment procedures and productivity techniques will be discussed and practiced under jobsite conditions. Drywall finishing methods will be incorporated into the hands-on activity.

AP DL 729 Advanced Metal Framing (1.5)

1 hour lecture - 1 1/2 hours laboratory

Note: May be taken 2 times

Review of basic metal framing and detailed procedures for framing curved, serpentine, and elliptical non load bearing partitions.

AP DL 797 Drywall/Lather Topics (.5 - 4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture and/or laboratory may be scheduled by the department. Refer to Class Schedule.

Prerequisite: Indentured apprentice to the Carpenters Joint Apprenticeship and Training Committee for Southern California**Note:** May be taken 4 times

Topics in Drywall/Lather. See Class Schedule for specific topic offered. Course title will designate subject covered.

Electrician (AP E)

A five-year apprenticeship program. Applications for Riverside/San Bernardino/Mono/Inyo counties should apply to the Riverside and San Bernardino Joint Electrical Apprenticeship Training. Committees, 1855 Business Center Drive, San Bernardino, CA 92408. Telephone: (909) 890-1703.

**A.A. DEGREE MAJOR OR
CERTIFICATE OF ACHIEVEMENT**

Program Requirements	Units
AP E 701 Electrical Trade/Industry/DC/Conduit	4
AP E 702 Electrical Theory/Practice/Blueprint Reading	4
AP E 703 Inductance/Capacitance Theory	4
AP E 704 Transformers/Code Calculations/Conduit	4
AP E 705 Electronic/Industrial Blueprints	4
AP E 706 Grounding/Electrical Services/Connection	4
AP E 707 Motor Control/Pilot Devices/Starters	4
AP E 708 Digital Electronics	4
AP E 709 Mgmt/Alarms/Testing/Wiring	4
AP E 710 Programmable Logic Controllers	4
AP WE 713 Electrician Work Experience	16
TOTAL UNITS	56

COURSE OFFERINGS**AP E 701 Introduction to the Electrical Trade and Industry, DC Theory and Conduit Bending (4)**

3 hours lecture - 3 hours laboratory

Prerequisite: Completion of the following: (1) One semester of Algebra I with a grade of 'C' or better; (2) Designated tests with a passing grade determined by the appropriate committee; (3) Indentured apprentice to the San Diego Electrical Joint Apprenticeship and Training Committee or the Riverside and San Bernardino Joint Electrical Apprenticeship Training Committee.**Note:** May be taken 2 times

Orientation to the electrical industry; introduction to the electrical code fundamentals of wiring methods, fastening devices, electrical conductors, circuits, and voltage.

AP E 702 Electrical Theory, Practice and Blueprint Reading (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 701**Note:** May be taken 2 times

Study of floor and plot plan; basic blueprint reading and circuit drawing; theory of magnetism; DC and AC generators; motors and transformers; on-the-job safety and first aid, and the electrical code.

AP E 703 Inductance and Capacitance Theory and Codeology (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 702**Note:** May be taken 2 times

Review of the International Brotherhood of Electrical Workers constitution and local union by-laws. Study of the effects of inductance and capacitance on current and voltage. Application of phase angle calculation and the National Electric Code. Overview of workplace problems due to drug abuse.

AP E 704 Transformers and Code Calculations, Conduit Bending and Blueprints (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 703**Note:** May be taken 2 times

Study of transformers theory, installation, connection and distribution systems. Performing short circuit calculations, selecting of building wire for specific applications, calculating loads for residential and multifamily loads and service feeders. Applying conduit bending principles using mechanical benders to fabricate segmented concentric bends.

AP E 705 Introduction to Electronics and Industrial Blueprints (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 704**Note:** May be taken 2 times

Introduction to basic electronics including examination of semiconductor devices, current and voltage manipulation, applications, and blueprint reading.

AP E 706 Grounding, Electrical Services, and Transform Three-Phase Connections (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 705**Note:** May be taken 2 times

Study of requirements for electrical services installation. Study of electrical grounding including merits, impact on safety, ground fault protection, and identification of grounding system elements and functions.

AP E 707 Electrical Motor Control, Pilot Devices, Starters and Relays (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 706**Note:** May be taken 2 times

Study of controls and circuits, pilot devices, starters, and relays. Includes the analysis and development of circuits, the installation and service of electrical equipment, and the electrical code.

AP E 708 Digital Electronics (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 707**Note:** May be taken 2 times

Introduction to digital electronic technology and electronic equipment. Instruction includes basic digital systems, binary and decimal numbering systems, decision-making logic circuits, Boolean Algebra, flip-flops, counters, shift registers, encoders, decoders, ROMs, DC to AC converters and organization of these component blocks to accomplish manipulation of data.

AP E 709 Management, Fire Alarms, High Voltage Testing, and Telephone and Security Wiring (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 708**Note:** May be taken 2 times

Introduction to management and marketing practices, installation of fire alarm systems and the National Electric Code as it relates to alarm installation and high voltage of telephone wiring and security systems.

AP E 710 Programmable Logic Controllers (4)

3 hours lecture - 3 hours laboratory

Prerequisite: A minimum grade of 'C' in AP E 709**Note:** May be taken 2 times

Introduction to basic input/output hardware, processors and memory numbering systems associated with programmable controllers. Instruction includes use of personal computer to create and modify ladder diagrams and relay instructions, using solid state logic elements, counters, and shift registers. Principles of process control are explained and principle components are identified.

AP E 797 Electrical Topics (.5 - 4)

Units awarded in topics courses are dependent upon the number of hours required of the student. Any combination of lecture and/or laboratory may be scheduled by the department. Refer to Class Schedule.

Prerequisite: Indentured apprentice to the San Diego Electrical Joint Apprenticeship and Training Committee or the Riverside and San Bernardino Joint Electrical Apprenticeship Training Committee**Note:** May be taken 4 times

Concentrated courses on electricity. Course title will designate subject covered.

Inside Wireman (AP IW)

A five-year apprenticeship program. Study of technical course development and delivery techniques for the electrical trade, utilizing classroom-proven techniques. The student will familiarize him/herself with classroom management, testing and assessment techniques, curriculum development and material presentation based on industry-standard and college level instructional methodologies. Applications for this program should be directed to the San Diego Electrical Training Trust, 4675 Viewridge Avenue, San Diego, CA 92123. Telephone (858) 569-6633, ext. 111.

A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements		Units
AP IW 701	Introduction to the Electrical Trade	4
AP IW 702	Electrical Theory, Practice and Blueprint Reading	4
AP IW 703	Inductance and Capacitance Theory	4
AP IW 704	Transformer, Motors, and Motor Controls	4
AP IW 705	Special Electrical Systems	4
AP IW 706	Specialized Electrical Applications	4
AP WE 713	Electrician Work Experience	16
Electives (Select 16 units)		
AP IW 709	Advanced Motor Controls	2
AP IW 710	AutoCAD	4
AP IW 713	Electrical Project Supervision	4
AP IW 714	Electrical Certification Preparation	4
AP IW 715	Low Voltage	4
AP IW 716	Photovoltaics	4
AP IW 717	Service Equipment	2
AP IW 718	Test Equipment	2
AP IW 719	Welding	2
AP IW 720	Instructional Leadership I	4
AP IW 721	Programmable Logic Controllers	4
AP IW 722	Fire/Life Safety Systems	4
AP IW 723	Instrumentation	4
AP IW 724	Instructional Leadership II	4
AP IW 725	Building Automation Systems	4
AP IW 726	Electrical Construction Practices	4
AP IW 797	Inside Wireman Topics	2 - 4
TOTAL UNITS		56