

**AP PL 717 Plastering Equipment Application** (1.5)  
 1 hour lecture - 1 1/2 hours laboratory  
 Instruction in the materials, application methods and techniques for operating a plaster pump. Students will complete a three-coat work application to industry standards. Emphasis on proper pump set-up, washout and maintenance.

**AP PL 718 Plastering Equipment** (1.5)  
 1 hour lecture - 1 1/2 hours laboratory  
 Terminology, components and operating procedures for plastering equipment and machinery. Machine maintenance, safety, troubleshooting procedures, limits of operation and communication practices will be covered. Students will inspect and properly set up and clean a plastering pump.

**AP PL 797 Plasterer 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  
 Topics in Plasterer. See Class Schedule for specific topic offered. Course title will designate subject covered.

## Sheet Metal (AP SM)

A five-year apprenticeship program. Applicants for this program should be directed to the San Diego Sheet Metal Joint Apprenticeship and Training Committee, 4596 Mission Gorge Place, San Diego, CA 92120. Telephone (619) 265-2758.

### A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AP SM 701 Core I	4
AP SM 702 Core II	4
AP SM 703 Core III	4
AP SM 704 Core IV	4
AP SM 705 Sheet Metal Welding	3
AP SM 706 Plans & Specifications	4
AP SM 709 Foreman and Project Management Training	4
AP SM 710 Architectural Application	4
AP SM 711 HVAC I	4
AP SM 712 HVAC II	4
AP WE 710 Sheet Metal Work Experience	16
<b>TOTAL UNITS</b>	<b>55</b>

### COURSE OFFERINGS

**AP SM 701 Core I** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** Indentured apprentice to the San Diego Sheet Metal Joint Apprenticeship and Training Committee  
 An introduction to the basic principles, processes, drawings, materials and practices used in the sheet metal industry.

**AP SM 702 Core II** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 701  
 A continuation of basic sheet metal processes as well as an introduction to simple sheet metal forming processes.

**AP SM 703 Core III** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 702  
 An introduction to intermediate sheet metal processes demonstrating job layout, architectural details and construction techniques with problems of unusual complexity and difficulty.

**AP SM 704 Core IV** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 703  
 A continuation of intermediate processes with problems of unusual difficulty and complexity.

**AP SM 705 Sheet Metal Welding** (3)  
 1 1/2 hours lecture - 4 1/2 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 704  
 An introduction to the basic principles and methods of gas and arc welding used in the sheet metal industry. Includes codes, standards, welding theory and the practical application using prescribed welding procedures and equipment.

**AP SM 706 Plans and Specifications** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 705  
 An introduction to the language and organization of plans and specifications for sheet metal projects. Topics will include architectural, structural, mechanical and electrical drawings as well as how to write and implement a change order to plans and specifications.

**AP SM 709 Foreman and Project Management Training** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 712  
 Overview of the knowledge, skills and abilities required to effectively perform as a foreman and project manager in the sheet metal industry.

**AP SM 710 Architectural Application** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 709  
 Overview of the knowledge, skills, and abilities of advanced architectural project performance.

**AP SM 711 HVAC I** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 706  
 An introduction to the physical components and systems of a basic HVAC system as well as hands-on techniques for startup and basic system troubleshooting.

**AP SM 712 HVAC II** (4)  
 3 hours lecture - 3 hours laboratory  
**Prerequisite:** A minimum grade of 'C' in AP SM 711  
 Designed to build on the principles of basic HVAC system design and installation. Students will develop a better understanding of how a modern HVAC system is designed and functions. Field installation, plans and specifications, commissioning, project management and basic LEED principles will also be covered.

**AP SM 797 Sheet Metal 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 Sheet Metal Joint Apprenticeship and Training Committee  
 Topics in Sheet Metal. See Class Schedule for specific topic offered. Course title will designate subject covered.

## Sound and Communication Systems Installer (AP SC)

A three-year apprenticeship program. Applicants for this program should be directed to the Riverside and San Bernardino Joint Electrical Apprenticeship Training Committees, 1855 Business Center Drive, San Bernardino, CA 92408. Telephone: (909) 890-1703.

### A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AP SC 701 Intro to Sound/Communication Trade Industry	4
AP SC 702 Electrical Theory and Practices DC	4
AP SC 703 Electrical Theory and Practices AC	4
AP SC 704 Semiconductor Electronics	4
AP SC 705 Intro to Digital Electronics and Signaling Devices	4
AP SC 706 Management/Alarms/Codes/Circuits	4
AP WE 713 Electrician Work Experience	16
<b>TOTAL UNITS</b>	<b>40</b>

#### Sound Technician (AP SC)

A four-year apprenticeship program. Students will work in the field during the day and attend class in the evenings. Each apprentice is paid for field work with regularly scheduled pay increases based on required work hours and completion of classroom instruction. Upon completion of this program, students will receive a certificate of completion from the California Division of Apprenticeship Standards and Journeyman Sound Technician status in the I.B.E.W. All students must be indentured Sound Technical apprentices to be eligible for the course. Interested applicants from San Diego/Imperial counties should apply to the San Diego Electrical Training Trust, 4675 Viewridge Avenue, San Diego, CA 92123. Telephone: (858) 569-6633, extension 111.

### A.S. DEGREE MAJOR OR CERTIFICATE OF ACHIEVEMENT

Program Requirements	Units
AP SC 701 Intro to the Sound/Communication Trade Industry	4
AP SC 702 Electrical Theory and Practices DC	4
AP SC 703 Electrical Theory and Practices AC	4
AP SC 704 Semiconductor Electronics	4
AP SC 705 Introduction to Digital Electronics	4
AP SC 706 Management/Alarms/Codes/Circuits	4
AP SC 707 Life Safety and Security System Applications	4
AP SC 708 Specialized Systems and Supervision Techniques	4
AP WE 713 Electrician Work Experience	16
<b>TOTAL UNITS</b>	<b>48</b>

#### COURSE OFFERINGS

##### AP SC 701 Introduction to the Sound and Communication Trade Industry (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in MATH 50. Completion of designated tests with a passing grade determined by the appropriate committee. Indentured Apprentice to the Riverside, San Bernardino, Mono, and Inyo Counties Sound and Communications Joint Apprenticeship Committee or the San Diego Sound & Communications Joint Apprenticeship Committee.

Introduction to the sound and communication industry, electrical code, fundamentals of wiring methods, fastening devices, electrical conductors, circuits, voltage and data communication.

##### AP SC 702 Electrical Theory and Practices DC (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in AP SC 701

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

##### AP SC 703 Electrical Theory and Practices AC (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in AP SC 702

Study of apprenticeship, electrical inductance, capacitance and reactance, including grounded conductors, branch circuits, transformer principles, RCL circuits and filters.

##### AP SC 704 Semiconductor Electronics (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in AP SC 703

Study of solid-state electronic theory and components, diodes, transistors, SCR, triacs, diacs, IC amplifiers and op-amps.

##### AP SC 705 Introduction to Digital Electronics and Signaling Devices (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in AP SC 704

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 SC 706 Management/Alarms/Codes/Circuits (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in AP SC 705

Introduction to management, installation of security and fire alarm systems, the National Electrical Code as it relates to alarm installation and circuits as applied to alarm systems.

##### AP SC 707 Life Safety and Security System Applications (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in AP SC 706

Continuation of digital theory studies. Instruction expands coverage of Life Safety Systems, and introduces the theory and application of Nurse Call Systems and Security Systems with an emphasis on closed circuit television (CCTV) installations.

##### AP SC 708 Specialized Systems and Supervision Techniques (4)

3 hours lecture - 3 hours laboratory

**Prerequisite:** A minimum grade of 'C' in AP SC 707

Study of specialized building systems including cable television systems (CATV), master antenna systems (MATV), and building automation systems. Training will cover aspects of job administration including personal computer use, job estimating, customer relations, and building system startup procedures.

##### AP SC 797 Sound and Communication Systems Installer 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 Riverside, San Bernardino, Mono, and Inyo Counties Sound and Communications Joint Apprenticeship Committee or the San Diego Sound & Communications Joint Apprenticeship Committee.

Topics in Sound and Communication Systems Installer. See Class Schedule for specific topic covered. Course title will designate subject covered.

#### Work Experience (AP WE)

Students may earn a maximum of 16 units in AP Work Experience.

##### AP WE 710 Sheet Metal Work Experience (4)

12 hours laboratory

**Prerequisite:** Indentured apprentice to a designated Joint Apprenticeship and Training Committee

**Note:** Pass/No Pass grading only

Supervised on-the-job training in the Sheet Metal Trade.

##### AP WE 711 Carpentry Work Experience (4)

12 hours laboratory

**Prerequisite:** Indentured apprentice to a designated Joint Apprenticeship and Training Committee

**Note:** Pass/No Pass grading only

Supervised on-the-job training in the Carpentry trade.