

# VOCATIONAL (VOC)

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## VOC ADJ01 The Administration of Justice System

0 Units

Lecture: 54

History and philosophy of the justice system, subsystems, roles, relationships and theories of crime causation and correction.

## VOC ADJ02 Principles and Procedures of the Justice System

0 Units

Lecture: 54

Due process in criminal proceedings from pre-arrest through trial and appeal using statutory law and legal precedent.

## VOC AGG01 Food Production, Land Use, and Politics - A Global Perspective

0 Units

Lecture: 54

Surveys the world's food producing systems in terms of economic, political, and cultural forces. Emphasizes ethical, sustainable food producing agriculture.

## VOC AGR-G Home Gardening

0 Units

Lecture: 18-68

Organic and traditional gardening, plants, and fruit orchards. Includes design, propagation methods, pruning, fertilizing, and pest control.

## VOC AGR01 Horticultural Science

0 Units

Lecture: 54

Horticulture skills and techniques for use in gardening, nursery, and landscape applications. Emphasis on propagation, cultural practices, and the study of plant relationships, structure, growth and development. Off-campus meetings required.

## VOC AGR02 Plant Propagation/Greenhouse Management

0 Units

Lecture: 36 Lab: 54

Plant propagation and production practices with emphasis on florists' plants, woody ornamentals, and fruits. Commercial techniques include seed propagation, cuttings, grafting and budding, layering, fern sporing, and division. Stresses greenhouses and other environmental structures for plant propagation and production.

## VOC AGR05 Park Facilities

0 Units

Lecture: 54

Management and operation of different types of park facilities. Includes the management of sports fields, recreation centers, campgrounds, aquatic facilities, and golf courses.

## VOC AGR13 Landscape Design

0 Units

Lecture: 36 Lab: 54

Landscape design for residential and small commercial sites including the design process, drafting, graphics, site evaluation, landscaping materials, and plant usage. Field trips and off-campus assignments are required.

## VOC AGR15 Interior Landscaping

0 Units

Lecture: 54

Design, installation, and maintenance practices used in interior landscaping. Includes identification, culture, and care of plants suitable for interior use.

## VOC AGR24 Integrated Pest Management

0 Units

Lecture: 36 Lab: 54

Common agricultural pests in Southern California and physical, biological, and chemical pest control principles and practices, including integrated pest management (IPM). Stresses use, safety, equipment, laws, and regulations of pesticides. Field trips are required.

## VOC AGR25 Floral Design 1

0 Units

Lecture: 24 Lab: 44

Principles of floral design: form, style, and composition. Includes designing of floral arrangements, wreaths, sprays, baskets, bouquets, wedding flowers, and corsages.

## VOC AGR26 Floral Design 2

0 Units

Lecture: 24 Lab: 44

**Advisory:** VOC AGR25

Contemporary floral design theory emphasizing creativity, self-expression, and professional design situations.

## VOC AGR27 Floral Design 3

0 Units

Lecture: 24 Lab: 44

**Advisory:** VOC AGR25 and VOC AGR26

Advanced principles of floral design and florist operations management. Includes designs and operations related to holidays, parties, weddings, and sympathy.

## VOC AGR29 Ornamental Plants - Herbaceous

0 Units

Lecture: 36 Lab: 54

Identification, growth habits, culture, and ornamental use of landscape annuals, biennials, perennials, ferns, indoor plants, groundcovers, and vines adapted to climates of California. Plants emphasized will come from the Plant California Alliance and National Association of Landscape Professionals (NALP) certification plant lists. Off campus meetings required.

## VOC AGR30 Ornamental Plants - Trees and Woody Shrubs

0 Units

Lecture: 36 Lab: 54

Identification, growth habits, culture, and ornamental use of landscape trees and shrubs adapted to climates of California. Plants emphasized will come from the Plant California Alliance and National Association of Landscape Professionals (NALP) certification test plant lists. Off campus meetings required.

**VOC AGR32 Landscaping and Nursery Management****0 Units**

Lecture: 36 Lab: 54

Operation and management of wholesale and retail nurseries. Includes site location and layout of areas, greenhouse management, soil mixes, proper use of fertilizers, insecticides, fungicides, herbicides, growth regulators, irrigation, mechanization, financing, personnel management, retail displays, advertising, customer relationships, federal, state, and local laws and regulations. Field trips are required.

**VOC AGR35 Ornamental Plants for Southwest Climates****0 Units**

Lecture: 36 Lab: 54

Identification, growth habits, culture, and ornamental use of annuals, perennials, groundcovers, shrubs, trees, cacti, and succulents which are native to California and the Southwest, or drought tolerant in Southern California.

**VOC AGR39 Turf Grass Production and Management****0 Units**

Lecture: 36 Lab: 54

Cultivation, maintenance, and management of turfgrasses utilized for athletic fields, golf courses, parks, cemeteries, and commercial and residential lawns. Identification, installation, cultural requirements, and maintenance practices are emphasized. Field trips required.

**VOC AGR40 Sports Turf Management****0 Units**

Lecture: 36 Lab: 54

Prepares students to work in the sports turf industry. Emphasizes turf cultural techniques used in sports turf management. Includes turf surfaces used on baseball, football, soccer, tennis, golf courses, driving ranges, and other sports fields in both professional and amateur sports. Field trips required.

**VOC AGR50 Soil Science and Management****0 Units**

Lecture: 36 Lab: 54

Principles of soil management, including management of air, water, nutrients, organic matter. Study of soil including physical, chemical, and biological properties, classification, derivation, use, function, and management including erosion, moisture, retention, structure, cultivation, organic matter, and microbiology as they pertain to optimized plant, growth. Laboratory topics include soil type, classification, soil reaction, soil fertility, and physical properties of soil. Laboratory required. Field trips are required.

**VOC AGR51 Tractor and Landscape Equipment Operations****0 Units**

Lecture: 36 Lab: 54

Selection, operation, repair, and maintenance of power equipment used in the agriculture and landscape industry. Includes two- and four-wheel drive tractors, skip loaders, skid steer loaders, backhoes, lawnmowers, edgers, weed eaters, blower vacuums, rototillers, chainsaws, spraying equipment, and all-terrain vehicles. Laboratory includes use of this equipment.

**VOC AGR53 Small Engine Repair 1****0 Units**

Lecture: 36 Lab: 54

Principles and repair of small engines used in landscape, industrial and agricultural applications. Includes repair of lawnmowers, chainsaws, 2-cycle engines, 4-cycle engines, spraying equipment, all-terrain vehicles, and other related gas-powered equipment.

**VOC AGR62 Irrigation Principles and Design****0 Units**

Lecture: 36 Lab: 54

Principles of irrigation, design techniques, sprinkler system components, and hydraulic principles used in nursery management, interior design, residential, and commercial landscapes. Special emphasis is given to water conservation. Field trips are required.

**VOC AGR63 Irrigation Systems Management****0 Units**

Lecture: 36 Lab: 54

Systematic approach to water conservation in landscapes. Soil-plant-water relationships, evapotranspiration, irrigation schedules, salinity and drainage, and irrigation efficiency. Water measurement, soil moisture measurement, irrigation systems, and practical constraints affecting scheduling. California water supply and budget, water rights, local, state, and federal water institutions, and California water issues. Irrigation efficiency testing will be incorporated to demonstrate proper methods of water audits and system evaluation. Field trips are required.

**VOC AGR64 Irrigation - Drip and Low Volume****0 Units**

Lecture: 36 Lab: 54

Conservation of water in landscapes by utilization of drip and low-flow irrigation practices. Design, installation techniques, operation, and maintenance of drip and low-flow irrigation systems, including determination of irrigation requirements, selection of emitters and low-flow devices, and uniformity of water distribution. Includes hands-on experience in design and installation techniques. Field trips are required.

**VOC AGR71 Construction Fundamentals****0 Units**

Lecture: 36 Lab: 54

Construction techniques and tools used in landscaping with construction projects that include surveying techniques, utilities (gas, water, and electricity), woodworking, and masonry.

**VOC AGR72 Landscape Hardscape Applications****0 Units**

Lecture: 36 Lab: 54

Landscape construction pertaining to hardscape featured in the landscape. Estimation and installation of fences, walks, planters, patios, lighting, barbecues, gazebos, decks, ponds, spas, fountains, and pools. Students will gain hands-on experience in the laboratory activities.

**VOC AGR73 Landscaping Laws, Contracting, and Estimating****0 Units**

Lecture: 54

Landscape laws, contracting and estimating as they pertain to landscape construction. Information covered will be helpful for the Landscape Contractor's (C-27 classification) licensing exam administered by the State of California. Off campus assignments required.

**VOC AGR75 Urban Arboriculture****0 Units**

Lecture: 36 Lab: 54

Care and management of ornamental trees. Includes pruning techniques, fruit tree care, bracing, cabling, and pest control. Safe practices in the use of equipment including the use of ropes, chippers, boom trucks, chain saws, and identification and evaluation of common trees. Prepares students for the tree worker and arborist certification (ISA) exams.

**VOC AIW AI for the Workplace****0 Units**

Lecture: 4-80

Contextualized course focused on how AI (Artificial Intelligence) can transform essential job skills in a variety of workplace settings. This course will assist students in understanding the potential of using AI while on the job including effects of its application in the workplace and what to consider when identifying AI opportunities and benefits at work. Ethical considerations, challenges, and risks with adopting AI will also be covered.

**VOC ANA50 Basic Anatomy and Physiology****0 Units**

Lecture: 60-180

Introduction to human anatomy and physiology by systems with brief descriptions of biochemistry, cell biology, and molecular biology. Upon completion, students will understand normal functions and be able to recognize pathologies.

**VOC AR101 Design 1 - Elements of Design****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC AR121 or ARCH 121

Design and design process including conceptualization, visualization, form making, presentation, expression, and site analysis of physical, contextual, and cultural aspects of design and the urban environment. Portfolio will be produced. Field trips are required.

**VOC AR102 Design 2 - Architectural Design****0 Units**

Lecture: 54 Lab: 54

**Corequisite:** VOC AR122 or ARCH 122**Advisory:** (VOC AR101 or ARCH 101) and (VOC AR121 or ARCH 121) and (VOC AR141 or ARCH 141)

Second level architectural design studio with a focus on site analysis, design conceptualization, form making, program development and presentation. Emphasis is on critical thinking and problem solving integrated with the artistic design process. Investigations will stress symbolic expression, aesthetics, craftsmanship, technical skills, vocabulary and physical object making through the design of multi-family residential, institutional and cultural buildings. Field trips are required.

**VOC AR121 CADD and Digital Design Media - Level 1****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC AR101 or ARCH 101

CADD (Computer Aided Design and Drafting) Level 1 and computer application in architecture, engineering and related fields, including spreadsheet, CAD, and presentation application. Field trips required.

**VOC AR122 Architectural Presentations****0 Units**

(May be taken three times for credit)

Lecture: 54 Lab: 54

**Advisory:** (VOC AR101 or ARCH 101) or (VOC AR102 or ARCH 102) or (VOC AR121 or ARCH 121) or (VOC AR141 or ARCH 141)

Analysis and preparation of architectural presentation projects, including schematic and final design, architectural models, oral presentation techniques, board layouts using hand-drawn and computer-aided techniques, and development of project portfolio. Field trips required.

**VOC AR141 Design Drawing and Communication****0 Units**

Lecture: 54 Lab: 54

Architectural drawing techniques including graphic standards, scales, orthographic, paraline, and perspective projections. Field trips required.

**VOC AR147 Architectural CAD and BIM****0 Units**

Lecture: 36 Lab: 71

**Advisory:** (VOC AR141 or ARCH 141) or (VOC AR121 or ARCH 121)

3-D Building Information Modeling (BIM) for architectural design and design development. Portfolio of 3-D building models and extracted 2-D drawings will be produced. Field trips required.

**VOC AR201 Design 3 - Environmental Design****0 Units**

Lecture: 54 Lab: 54

**Advisory:** (VOC AR102 or ARCH 102) or (VOC AR221 or ARCH 221)

Theory and principles of environmental design as applied to architecture, landscape architecture, urban design, urban planning, and civil engineering. Portfolio will be produced. Field trips required.

**VOC AR202 Design 4 - Sustainable Design Advanced Project****0 Units**

Lecture: 54 Lab: 54

**Advisory:** (VOC AR201 or ARCH 201) or (VOC AR222 or ARCH 222)

Fourth level architectural design studio focusing on sustainability, energy efficiency, and environmental conservation. Emphasis is on critical thinking and problem solving involving material selection, envelope design, advanced space planning, and the development of designs from complex building programs. Investigations will stress logical organization, craftsmanship, technical skills, vocabulary, and physical object making through the design complex building types. Field trips are required.

**VOC AR221 Architectural Rendering and Illustration****0 Units**

Lecture: 36 Lab: 71

**Advisory:** (VOC AR122 or ARCH 122) or (VOC AR201 or ARCH 201)

Architectural and interior illustration including perspective drawing, sketching, shades and shadows, entourage, and color application utilizing various media and development of project portfolio. Field trips required.

**VOC AR222 Advanced Digital Media, Generative, and Algorithmic Design and Illustration****0 Units**

Lecture: 36 Lab: 71

**Advisory:** *VOC AR202 or ARCH 202*

Architectural computational and algorithmic design. Course focuses on design mathematics, visual interface coding, and the development of digital models from computational definitions. Computer Aided Design (CAD), 3 dimensional (3-D) illustration and modeling. Development of interior and exterior 3-D models and how they interact with solar lighting.

**VOC AR247 Architectural CAD Working Drawings****0 Units**

Lecture: 36 Lab: 71

**Advisory:** *(VOC AR147 or ARCH 147) or ARCH 146*

Architectural Building Information Modeling (BIM) for design development and working drawings. Portfolio of working drawings using BIM applications of integrated 3-Dimensional (3D) models will be produced. Field trips required.

**VOC AR250 World Architecture: Prehistory to the Middle Ages****0 Units**

Lecture: 45 Lab: 27

Development of world architecture from pre-history to the Middle Ages. Influence of geography, religion, and socio-economic background on architecture from ancient Egypt, Europe through the Middle Ages, and classic civilizations of Asia and the Americas. Field trips required.

**VOC ASC01 Animal Science****0 Units**

Lecture: 54

A scientific approach to the livestock industry encompassing aspects of animal anatomy, physiology, nutrition, genetics, and epidemiology. Emphasis on the origin, characteristics, adaptations, and contributions of livestock to the modern agriculture industry. Field trips may be required.

**VOC ASC02 Animal Nutrition****0 Units**

Lecture: 54

Composition of feeds and their utilization by domestic animals including digestive physiology, animal assessment, feed appraisal and compiling of rations.

**VOC ASC12 Exotic Animal Management****0 Units**

Lecture: 54

Care and management of exotic and alternative livestock species with emphasis on identification, health maintenance, handling techniques, nutrition, and reproduction. Includes analysis of industry trends and principal marketing uses of exotic animals.

**VOC ASC14 Swine Production****0 Units**

Lecture: 36 Lab: 54

Study of the principles and practices in the purebred and commercial pork production industries; emphasis on the importance of breeds, breeding principles, selection, nutrition, environmental management, health, marketing and recordkeeping to ensure scientifically-based management decisions and consumer product acceptance.

**VOC ASC16 Horse Production and Management****0 Units**

Lecture: 54 Lab: 54

Selection, utilization, and management of the light horse. Emphasis is on evaluation, health care, and handling skills.

**VOC ASC17 Sheep Production****0 Units**

Lecture: 36 Lab: 54

Survey of the sheep and goat industries; management of commercial, purebred and small farm flocks; selecting, feeding, breeding, and basic care of small ruminants plus marketing of sheep, goats and their products. Laboratory and field trips required.

**VOC ASC18 Horse Ranch Management****0 Units**

Lecture: 54 Lab: 54

Skills and procedures used in the management of an equine business. Includes business plans and record keeping, staff and financial management, horse care and training, and farm design for a variety of horse operations.

**VOC ASC19 Horse Hoof Care****0 Units**

Lecture: 18 Lab: 54

Proper horse hoof care; shoeing, trimming, and disease recognition and control.

**VOC ASC20 Horse Behavior and Training****0 Units**

Lecture: 18 Lab: 54

**Advisory:** *VOC ASC16 or ASCI 16*

Breaking and starting horses of all ages. Concentrates on halter training of foals, ground work on yearlings, and green-breaking two-year-olds and up. Includes lunging techniques, driving, and breaking to a saddle. Training in collection, turning, backing, leads, and trailer loading.

**VOC ASC30 Beef Production****0 Units**

Lecture: 36 Lab: 54

Purebred and commercial beef cattle production; emphasis on the importance of breeds, breeding principles, selection, nutrition, environmental management, health, marketing, and recordkeeping to ensure scientifically based management decisions and consumer product acceptance as applied to beef cattle. Laboratory required. Field trips required.

**VOC ASC34 Livestock Judging and Selection****0 Units**

Lecture: 18 Lab: 54

Study of form and appearance of farm animals as related to their function. Includes judging of breeding and terminal livestock as well as carcass evaluation. May require field trip.

**VOC ASC70 Pet Shop Management****0 Units**

Lecture: 54

Pet shop operations and the economic aspects of the pet industry. Organization and operation of pet shops, animal care practices, and sound business management practices.

**VOC ASC71 Canine Management****0 Units**

Lecture: 54

Selection, feeding, housing, breeding and management of dogs, including commercial aspects of the dog as a domestic pet. Laboratory work will include practical experience in the handling and training of dogs. May include field trips.

**VOC ASC72 Feline Management****0 Units**

Lecture: 54

Care and management of cats including breed identification and characteristics, grooming, showing, nutrition, practical care, behavior, breeding, and housing.

**VOC ASC73 Tropical and Coldwater Fish Management****0 Units**

Lecture: 36

Care and keeping of marine and freshwater aquarium fishes, plants, and invertebrates. Guidance on setting up aquariums, choosing compatible species, feeding, health care, breeding, and raising fish.

**VOC ASC74 Reptile Management****0 Units**

Lecture: 36

Care and maintenance of reptiles and amphibians, including snakes, lizards, turtles, tortoises, newts, salamanders and frogs. Identification and characteristics of reptiles commonly kept as pets. Housing, feeding, health maintenance, breeding and raising of reptiles.

**VOC ASC76 Aviculture - Cage and Aviary Birds****0 Units**

Lecture: 54

Cage and aviary birds marketed in the wholesale and retail pet trade. Identification, nutrition, breeding, disease prevention and control, and aviary construction. Psittacines, soft bills, finches, game birds, poultry, and ornamental waterfowl.

**VOC ASC94 Animal Breeding****0 Units**

Lecture: 54

The science of animal breeding including fundamentals of inheritance, reproduction, and breeding systems for domestic animals. Artificial insemination, embryo manipulation, and current topics in reproductive biotechnology will also be included.

**VOC ASC96 Animal Sanitation and Disease Control****0 Units**

Lecture: 54

Prevention and control of infectious diseases affecting domestic animals including basic disease concepts, transmission of infectious diseases, principles of sanitation, and fundamentals of immunology.

**VOC ASC97 Artificial Insemination of Livestock****0 Units**

Lecture: 36 Lab: 54

Theory and application of artificial insemination of domestic animals, including semen evaluation and processing, heat synchronization, and pregnancy diagnosis.

**VOC BA07 Principles of Accounting - Financial****0 Units**

Lecture: 90

**Advisory:** (VOC BA11 or BUSA 11) or eligibility for MATH 51 or eligibility for (ENGL C1000 or ENGL 1A) or eligibility for (ENGL C1000H or ENGL 1AH) or AMLA 1A

Financial accounting required of Business Administration and Accounting majors. Defines financial accounting and its relevance to business decision-makers, accounting concepts and techniques, analysis and recording of financial transactions, and preparation, analysis and interpretation of financial statements focusing on application of generally accepted accounting practices. Includes asset, liability, and equity valuation, revenue and expense recognition, cash flow, internal controls, ethics, and financial statement analysis. General Ledger Accounting Software program is integrated throughout and used to complete various homework assignments.

**VOC BA11 Fundamentals of Accounting****0 Units**

Lecture: 54

**Advisory:** (VOC BA68 or BUSA 68) or eligibility for MATH 50

Accounting vocabulary and theory, equations to solve word problems, simple and compound interest, present value, consumer and business credit, mortgages, financial statements and ratios, inventory, depreciation, business taxes, and investments.

**VOC BA68 Business Mathematics****0 Units**

Lecture: 54

Addition, subtraction, multiplication, division, decimals, percentages, fractions, signed numbers, equations, and problem solving.

**VOC BA70 Payroll Accounting****0 Units**

Lecture: 54

**Prerequisite:** VOC BA68 or BUSA 68

On-the-job payroll accounting. Perform gross-to-net pay and employer tax calculations. Survey the various tax procedures required by the employer and employee in filing the correct forms for Social Security, Medicare, federal and state income taxes, federal and state unemployment and their reconciliation. Laws related to worker's compensation, state disability benefits, and fair employment practices are discussed. Prepare summarized payroll transactions in the accounting system.

**VOC BA71 Personal Financial Planning****0 Units**

Lecture: 54

Integrative approach to personal finance focusing on practical financial decision making as well as the social, psychological, and physiological contexts in which those decisions are made. Students will examine their relationships with money, set personal goals, and develop a plan to meet those goals. Topics include consumerism, debt, healthcare, investing, retirement, long-term care, disability, death, and taxes.

**VOC BA72 Bookkeeping - Accounting****0 Units**

Lecture: 90

**Advisory:** (VOC BA68 or BUSA 68) or eligibility for MATH 50

Bookkeeping and accounting principles including the accounting cycle for service and merchandising companies, cash management, payroll, and special journals. Computerized simulations and completion of an accounting project for a company.

**VOC BA75 QuickBooks for Accounting****0 Units**

Lecture: 54

**Advisory:** (VOC BA07 or BUSA 7) or (VOC BA72 or BUSA 72)

Accounting concepts utilizing QuickBooks, a general-ledger software program. Hands-on use of a microcomputer to process accounting transactions, prepare statements and reports, and complete accounting cycle tasks.

**VOC BA76 Excel for Accounting****0 Units**

Lecture: 54

**Advisory:** (VOC BA07 or BUSA 7) or (VOC BA72 or BUSA 72)

Analysis of financial data and preparation of managerial accounting reports using Excel software. The development of comprehensive analysis models using Microsoft Excel formulas, pivot tables, and pivot charts to summarize complex managerial accounting data into information for decision making. Includes manufacturing and consolidation worksheets, financial statement analysis, and statement of cash flows. The ability to demonstrate the use of presentation methods like Microsoft PowerPoint to effectively communicate analysis of managerial accounting information.

**VOC BCDP Basic Computing - Desktop Publishing****0 Units**

Lecture: 12-56

Basic desktop publishing to create and produce professional-looking publications.

**VOC BCPP1 PowerPoint Basics 1****0 Units**

Lecture: 12-56

**Advisory:** VOC BCDP

Basic use of PowerPoint to create slide presentations.

**VOC BCPP2 PowerPoint Basics 2****0 Units**

Lecture: 12-56

**Advisory:** VOC BCPP1

Create PowerPoint presentations using text and object animation, video, audio, and hyperlinks.

**VOC BM10 Principles of Continuous Quality Improvement****0 Units**

Lecture: 54

**Advisory:** (VOC B005 or BUSO 5) or eligibility for ENGL 68

History and evolution of thought in Continuous Quality Improvement (CQI), including the theories and methods of Deming, Juran, and Crosby. Practical application of Quality management processes and tools are presented for the continuous improvement of (organizational quality. Relevant case studies are included.

**VOC BM20 Principles of Business****0 Units**

Lecture: 54

Business and its functions, background, development, organization, and opportunities. Business terms, current trends, methods, contemporary and future problems, and current business practices are covered.

**VOC BM50 World Culture: A Business Perspective****0 Units**

Lecture: 54

An overview of the effects of culture on business communication and interaction. Cultural roles and components are described and related to the business environment and the student's own culture.

**VOC BM51 Principles of International Business****0 Units**

Lecture: 54

**Advisory:** (VOC B005 or BUSO 5) or eligibility for ENGL 68

International business environment with a global perspective. Introduces global viewpoints across the full spectrum of business functions, including, but not limited to: accounting, finance, human resources, management, operations, production, purchasing, and strategic planning.

**VOC BM52 Principles of Exporting and Importing****0 Units**

Lecture: 54

**Advisory:** (VOC B005 or BUSO 5) or eligibility for ENGL 68

Practical information needed to participate in activities related to the exporting and importing of goods and services. Includes vocabulary, acronyms, trends, regulations, regional agreements, documentation, and challenges related to the exporting and importing of goods and services.

**VOC BM53 Supply Chain Management****0 Units**

Lecture: 54

The supply chain and its key elements. Students are exposed to concepts, models, and terminology used in demand planning, inventory planning, material planning, distribution planning, fulfillment planning, and related components of a supply chain.

**VOC BM60 Human Relations in Business****0 Units**

Lecture: 54

Inter-disciplinary study of how people work and relate at the individual, group, and organizational level. Topics include motivation, team work, leadership skill, and how to handle organizational change.

**VOC BM61 Business Organization and Management****0 Units**

Lecture: 54

**Advisory:** VOC BM20 or BUSO 20

Functions of management, management concepts, planning, organizing, staffing, and controlling. Theories of management, lines of authority, functions of departments, and the importance of policies, procedures, and controls.

**VOC BM62 Human Resource Management****0 Units**

Lecture: 54

Direction of people including guidance, control, supervisory problems, training, job analysis, interviewing, testing, rating, and other functions involving human resources. Designed to improve the overall understanding of the relationship between the individual and the business organization.

**VOC BM66 Small Business Management****0 Units**

Lecture: 54

Organizing, starting, and operating a small business enterprise. Emphasis on entrepreneurial applications in a small business environment.

**VOC BM85 Special Issues in Business****0 Units**

Lecture: 36

Provide business majors with a forum to gain knowledge, develop techniques, problem solve and implement solutions in an actual business situation to add to the creation of a career portfolio.

**VOC B005 Business English****0 Units**

Lecture: 54

**Advisory:** *Eligibility for (ENGL C1000 or ENGL 1A) or (ENGL C1000H or ENGL 1AH) or AMLA 1A*

Skills and techniques of English, as applied to business situations, with emphasis on effective document structure.

**VOC B025 Business Communications****0 Units**

Lecture: 54

**Prerequisite:** *Eligibility for (ENGL C1000 or ENGL 1A) or (ENGL C1000H or ENGL 1AH) or AMLA 1A*

Written communications, including letters and memos, for a variety of situations in the business environment. Includes writing of good news, bad news, sales, claims, and persuasive correspondence; letters and resumes appropriate to job seeking and application; and practicing oral skills as applied to job interviews and business reports.

**VOC B026 Oral Communications for Business****0 Units**

Lecture: 54

Oral communication used in business situations such as training sessions, presentations, professional discussion, and telephone interactions.

**VOC BS33 Advertising and Promotion****0 Units**

Lecture: 54

Characteristics and role of advertising and promotion in business. Emphasis is placed on promotional mix, trend and forecast research, and developing a comprehensive multimedia promotion plan including advertising layout and copy.

**VOC BS34 Social Media Marketing****0 Units**

Lecture: 54

An introduction to basic social media marketing concepts, strategies, and techniques in a global online marketplace. A basic understanding of the creation, execution, transmission, and evaluation of social media and social networks concerned with the advertising and promotion of products and services.

**VOC BS35 Professional Selling****0 Units**

Lecture: 54

Principles of selling and the role of a salesperson in the marketing process. Includes characteristics and skills necessary for a successful salesperson, techniques for prospecting and/or qualifying buyers, buyer behavior, and critical steps in the selling process. Students develop and offer a sales presentation for a selected product, service, or concept.

**VOC BS36 Principles of Marketing****0 Units**

Lecture: 54

Organization and function of system of distributing goods and services from the point of production to the consumer. Preparation of a marketing plan using product, distribution, promotional, and pricing strategies.

**VOC BS50 Retail Store Management and Merchandising****0 Units**

Lecture: 54

Principles and practices used in the management and merchandising of retail stores. Includes critical buying function, merchandising, promotional techniques, site selection, layout, staffing, market positioning, and customer service.

**VOC BS85 Special Issues in Marketing****0 Units**

Lecture: 36

Provides marketing students with an opportunity to problem solve and develop a marketing plan or related project as requested by a local business to add to the creation of a career portfolio.

**VOC CC1 Care Coordinator 1****0 Units**

Lecture: 30-60 Lab: 20-30

Communication, culture, diversity, the healthcare system, resources, and wellness to provide timely access to quality healthcare through all phases of the healthcare continuum.

**VOC CC2 Care Coordinator 2****0 Units**

Lecture: 30-60 Lab: 20-30

Determine needs of patients, identify resources, and create an appropriate discharge plan to prevent readmission. Includes technology, community resources, support delivery, and personal and professional development.

**VOC CC3 Care Coordinator 3****0 Units**

Lecture: 12-60 Lab: 10-20

Patient care coordination from pre-admission to post-discharge.

**VOC CD Child Development****0 Units**

Lecture: 50-180

Survey of child development, addressing knowledge and skills in the development of children from prenatal to school age development. Introduction to theories, stages, best practices, and career paths. The course does not fulfill Title 22 requirements for employment or educational requirement for the CA Child Development Matrix.

**VOC CI11 Database Management - Microsoft Access****0 Units**

Lecture: 54

**Corequisite:** VOC CI11L**Advisory:** (VOC CSB11 or CISB 11) or (VOC CSB15 or CISB 15)

Design, creation, and management of relational databases using Microsoft Access. Basic database design, creation of tables, queries, forms, reports, and macros. Creation of custom graphical user interface and introduction to Visual Basic for Applications (VBA) code.

**VOC CI11L Database Management - Microsoft Access Laboratory****0 Units**

Lab: 27

**Corequisite:** VOC CI11 or CISD 11

Laboratory for VOC CI11 - Database Management - Microsoft Access. Exercises focusing on design and development of a business database using Microsoft Access software, including creation of tables and relationships between tables, queries, forms, reports, macros, and an introduction to Visual Basics for Applications (VBA) programming language to make a fully-functioning, user-friendly Access database.

**VOC CI01 Change in Ownership 1****0 Units**

Lecture: 30-80

Foundational preparation for an Ownership Clerk position within the Los Angeles County Office of the Assessor providing students with the essential skills and knowledge of Section 401, Change in Ownership, of the California Assessor Handbook. Topics include an overview of change in ownership and exclusions, forms of individual property ownership, life estates and estates for years, foreclosure, air rights, and interspousal and registered domestic partner exclusions.

**VOC CI02 Change in Ownership 2****0 Units**

Lecture: 30-80

Advanced preparation for an Ownership Clerk position within the Los Angeles County Office of the Assessor providing students with critical skills and knowledge of Section 401, Change in Ownership, of the California Assessor Handbook. Topics include trusts, parent-child and grandparent-grandchild exclusions, leases, legal entities, government acquisition of property, and property damaged or destroyed by disaster.

**VOC CNT50 Personal Computer (PC) Servicing****0 Units**

Lecture: 54 Lab: 54

Personal computer (PC) and peripheral servicing techniques, preventative maintenance, hardware configurations, software configurations, software diagnostics, and the use of test equipment.

**VOC CNT52 PC Operating Systems****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC CNT50 or CNET 50

Current operating systems required for A+ and Network+ Certification and general computer servicing. Includes: identification of major components, installation, configuration, upgrading, and troubleshooting.

**VOC CNT54 PC Troubleshooting****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC CNT50 or CNET 50

Personal computer (PC) servicing. Includes isolating, identifying, and repairing specific problems in the computer environment at the hardware level. Prepares students for the A+ Certification Exam.

**VOC CNT56 Computer Networks****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC CNT54 or CNET 54

Standards, terminology, design, implementation, and troubleshooting techniques as they relate to both local and wide area networks. Emphasis on hardware and software components, network architecture, and data transmission methods. Of special interest to computer and network technicians and those seeking certification in A+, Network+, or other certifications.

**VOC CNT58 Server Systems****0 Units**

Lecture: 54

**Advisory:** VOC CNT56 or CNET 56

Server systems, both physical and virtual. Server installation, configuration, and management. Includes hardware and software components, virtual server configurations, troubleshooting techniques using flow charts and diagnostic tools, and disaster recovery concepts. Emphasis on hardware components. Covers the core material needed for the Server+ Certification. Software content in this course is covered only to the extent that is required for hardware troubleshooting, repair and implementation per CompTIA.

**VOC CNT60 A+ Certification Preparation****0 Units**

Lecture: 36

**Advisory:** (VOC CNT50 or CNET 50) and (VOC CNT52 or CNET 52)

Prepares the student and qualified computer technician for the A+ certification examination. All aspects of the A+ Essentials and A+ Practical Application test modules will be stressed through both lecture review and test simulation software.

**VOC CNT62 Network+ Certification Preparation****0 Units**

Lecture: 36

**Advisory:** VOC CNT56 or CNET 56

Prepares the student or A+ certified technician for the Network+ (Net+) certification examination. Includes Open System Interconnection (OSI) model, Transmission Control Protocol/Internet Protocol (TCP/IP), and implementing, installing, maintaining, and supporting networks.

**VOC CNT64 Server+ Certification Preparation****0 Units**

Lecture: 36

**Advisory:** *VOC CNT58 or CNET 58*

Prepares the computer/network service technician for the CompTIA Server + certification examination.

**VOC CNT66 Security+ Certification Preparation****0 Units**

Lecture: 36

**Advisory:** *(VOC CNT54 or CNET 54) and (VOC CNT56 or CNET 56)*

Prepares the computer/network service technician for the CompTIA sponsored Security+ Certification examination. Security information is covered only as it pertains to enabling the service technician to troubleshoot a computer system that may have a security problem.

**VOC CPBC1 Basic Computing - Level 1****0 Units**

Lecture: 18-54

Introduction to the personal computer, including terminology and basic computer operations in a Windows environment.

**VOC CPBC2 Basic Computing - Level 2****0 Units**

Lecture: 12-54

Create documents in applications such as Microsoft Word; includes basic computer maintenance and problem-solving techniques.

**VOC CPBC3 Basic Computing - Level 3****0 Units**

Lecture: 12-54

Software application skills including creative projects which introduce computer graphics.

**VOC CPBE1 Basic Excel - Level 1****0 Units**

Lecture: 12-56

Introduction to Excel, including terminology, and working with data in a spreadsheet application.

**VOC CPBE2 Basic Excel 2****0 Units**

Lecture: 12-56

Basic functions in Excel including formulas, sorting, filtering data, and formatting tables.

**VOC CPBE3 Basic Excel 3****0 Units**

Lecture: 12-56

**Advisory:** *VOC CPBE2*

Basic Excel including storing, manipulating and analyzing data in spreadsheets, and displaying data graphically using charts.

**VOC CPCC Creative Computing****0 Units**

Lecture: 18-54

Creative skills in utilizing graphic designs for projects such as labels, flyers, posters, greeting cards, and computer-generated fabric designs.

**VOC CPDI Digital Photography for the Beginner****0 Units**

Lecture: 12-54

Digital camera operations, image management, composition, and use of graphics software.

**VOC CPNET Internet Research - an Introduction****0 Units**

Lecture: 18-54

Fundamental Internet functions including terminology, email, search engines and research tools.

**VOC CRIMJ Criminal Justice****0 Units**

Lecture: 75-180

History, structure, and functions of the American criminal justice system; law enforcement, courts, and corrections agencies. Examine the interrelationship across agency processes and their impact on contemporary issues in society.

**VOC CS11 Computer Keyboarding****0 Units**

Lecture: 40-112

Develops alpha and numeric keyboarding skills on a personal computer at a straight-copy rate of 25- to 40-gross words a minute with a predetermined error limit. Includes keyboarding of letters, tables, and reports.

**VOC CS12 Intermediate Computer Keyboarding****0 Units**

Lecture: 40-112

**Advisory:** *VOC CS11*

Develops computer keyboarding speed and accuracy with a proficiency standard upon completion of 35- to 55-gross words a minute with a predetermined error limit. Uses word processing software to format letters, memos, reports, tables, and other related business documents.

**VOC CS41 Office Management Skills****0 Units**

Lecture: 40-80

Training and skill building in filing systems and procedures, proofreading, telephone techniques, faxing, emailing, electronic calendaring of events, appointments, meetings, memos, and business letters.

**VOC CSB10 Office Skills****0 Units**

Lecture: 54

Skills necessary to work in an office setting including: alpha and numeric keyboarding, email etiquette and standards, electronic calendaring, ten-key, composing, formatting and storing business documents, and telephone techniques.

**VOC CSB11 Computer Information Systems****0 Units**

Lecture: 54 Lab: 27

Overview of computer information systems including computer hardware, software, networking, programming, databases, Internet, security, systems analysis, ethics, and problem solving using business applications.

**VOC CSB15 Microcomputer Applications****0 Units**

Lecture: 54 Lab: 27

Windows operating system (OS) and applications, simple business examples using up-to-date browser, word processing, spreadsheet, database management and presentation software, and integration of software applications.

**VOC CSB16 Macintosh Applications****0 Units**

Lecture: 27 Lab: 27

Macintosh operating system and related tools; creating files using office applications; storing and sharing files using iCloud.

**VOC CSB21 Microsoft Excel****0 Units**

Lecture: 54

Spreadsheet concepts using Microsoft Excel including formatting, formulas and functions, charts, linked worksheets, pivot tables, business intelligence, macros, and Visual Basic for Applications (VBA) code.

**VOC CSB31 Microsoft Word****0 Units**

Lecture: 54

Word processing with Microsoft Word and its editing, formatting, and language tools to create, edit, and format business and publication documents. Includes creating flyers, newsletters, and other publication documents using advanced formatting techniques and tools.

**VOC CSB51 Microsoft PowerPoint****0 Units**

Lecture: 54

Using PowerPoint to plan, design, and produce effective presentations. Includes creating charts, diagrams, and storyboards; developing appropriate text content; and adding sound, animation, and movies.

**VOC CSB61 Desktop Publishing Software****0 Units**

Lecture: 54

Using desktop publishing software to integrate text and various graphic objects, design, edit and produce a variety of high-quality business publications.

**VOC CSE1 Introduction to Cyber Threat and Vulnerability****0 Units**

Lecture: 60-180

Introductory course covering basic cybersecurity threat and vulnerability assessment and remediation. Topics include reconnaissance analysis and corporate security practices. Students also design and use a vulnerability management program to identify, prioritize, and remediate organizational vulnerabilities.

**VOC CSE2 Cyber Incident Response Basics****0 Units**

Lecture: 60-180

Introductory course covering basic cybersecurity incident response planning, tools and techniques. Topics include forensic tools, their appropriate use, and analysis of the symptoms of an incident. The purpose and importance of communication and role-based responsibilities will be integrated throughout the course.

**VOC CSW15 Web Site Development****0 Units**

Lecture: 54 Lab: 27

Plan, develop, implement, publish and maintain Web sites with a professional visual Web-authoring application, includes working with text and images, internal and external hyperlinks, image maps, tables, Cascading Style Sheets (CSS), Web page content, Web forms, multimedia objects (Flash text, Flash buttons, sounds, and video), interactions and behaviors, and Web page templates. Principles of Web site structures, documentation, management, and maintenance will be discussed.

**VOC CT Contact Tracer****0 Units**

Lecture: 60-90

Process and mechanics of contact tracing. Topics include public health, communication, cultural sensitivity, resources, communicable diseases, collection of data, and courses of action.

**VOC DCIS Digital Citizenship - Internet Safety Course****0 Units**

Lecture: 18-68

Fundamentals of digital citizenship, including the knowledge, skills, and ethical considerations necessary to be responsible and ethical users of digital technologies. Explores key concepts, strategies, and tools that can be utilized by adult re-entry students and/or incumbent workers seeking employment, upskilling, or reskilling in various workplace settings.

**VOC DMB Digital Media Basics for the Workplace****0 Units**

Lecture: 12-68

Fundamentals of digital and social media to create and manage workplace social media accounts, navigate privacy and security settings, share and interact with content. This course will explore key concepts, strategies, and tools used in the digital landscape to effectively utilize digital platforms for professional growth in various workplace settings. Preparation for adult re-entry students and/or incumbent workers seeking employment, upskilling, or reskilling in an ever-changing job market.

**VOC ECOM E-Commerce Specialist****0 Units**

Lecture: 1-50 Lab: 1-50

Specialization in designing online e-commerce stores. Topics include: online store platforms, target audience, ad campaigns, content marketing, website optimization, digital marketing strategy, and cultural market research.

**VOC ED Careers in Education****0 Units**

Lecture: 60-180

Explore career opportunities in education and the necessary training, education, and certifications needed to gain employment in this sector. Examine the personal, professional, and technical skills suitable in an education setting.

**VOC EL10 Introduction to Mechatronics****0 Units**

Lecture: 18 Lab: 54

A combination of conventional electronic technology with mechanical and computer technology. Special emphasis is on robotics. Hands-on activities include the building of a robot.

**VOC EL11 Technical Applications in Microcomputers****0 Units**

Lecture: 36 Lab: 54

Personal computer (PC) applications used in electronics technology. Includes word processing, spreadsheets, database, computer presentation methods, and internet research specifically designed for electronics technology.

**VOC EL12 Computer Simulation and Troubleshooting****0 Units**

Lecture: 18 Lab: 54

**Advisory:** (VOC EL51 or ELEC 51) and (VOC EL56 or ELEC 56)

Troubleshooting of electronic hardware, including use of computer-based tools for simulation and troubleshooting of analog and digital circuits. National Instruments Multisim software will be used for circuit analysis, value substitution, and fault diagnostics.

**VOC EL50A Electronic Circuits - Direct Current (DC)****0 Units**

Lecture: 54 Lab: 54

**Advisory:** Eligibility for MATH 51

Direct Current (DC) electrical circuits and their applications. Covers DC sources, analysis, test equipment, measurements, and troubleshooting of resistive devices and other basic components. Includes Ohm's Law, Kirchhoff's law, and network theorems. (Students seeking a survey course in electronics should take VOC EL10, Introduction to Mechatronics, rather than VOC EL50A or 50B.)

**VOC EL50B Electronic Circuits (AC)****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC EL50A or ELEC 50A

Alternating Current (AC) electrical circuits and their applications. Covers AC sources, analysis (using complex numbers), test equipment, measurements, and troubleshooting of basic circuits with capacitors, inductors, and resistors. Includes impedance, resonance, filters, and decibels.

**VOC EL51 Semiconductor Devices and Circuits****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC EL50B or ELEC 50B

Solid-state devices and circuits, including bipolar-junction and field-effect transistors, rectifier diodes, operational amplifiers, and thyristors. Analog circuits studied include discrete and integrated circuit amplifiers, voltage regulators, oscillators and timers. Emphasizes configurations, classes, load lines, characteristic curves, gain, troubleshooting, measurements, and frequency response.

**VOC EL53 Communications Systems****0 Units**

Lecture: 54 Lab: 54

**Advisory:** (VOC EL51 or ELEC 51) taken prior or concurrently

Analog and digital communications systems. Emphasizes analog and digital modulation principles, multiplexing, protocols, and telecommunications circuits and systems.

**VOC EL54A Industrial Electronics****0 Units**

Lecture: 54 Lab: 54

**Advisory:** (VOC EL50A or ELEC 50A) and (VOC EL50B or ELEC 50B)

Industrial electronic components and basic control circuits. Includes time delay controls, thyristor controls, relays, optoelectronic (opto) devices, direct current (DC) and alternating current (AC) motor control, transducers, silicon controlled rectifier (SCR) and unijunction transistor (UJT) devices.

**VOC EL54B Industrial Electronic Systems****0 Units**

Lecture: 36 Lab: 54

Systems application of industrial electronics including industrial production and processes, automation, and programmable and motor controllers. Emphasis is on programmable logic controllers (PLCs).

**VOC EL55 Microwave Communications****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC EL50B or ELEC 50B

Microwave components and circuits. Stresses transmission lines, Smith Charts, impedance matching, antenna characteristics, wave propagation, frequency analysis, and measurement techniques.

**VOC EL56 Digital Electronics****0 Units**

Lecture: 54 Lab: 54

Combinational and sequential logic circuits emphasizing number systems, binary math, basic gates, Boolean algebra, Karnaugh maps, encoders, decoders, multiplexing, flip-flops, counters, registers, and microcontrollers. Stresses design and troubleshooting techniques. Includes finite state machine design, Algorithmic State Machine (ASM) charts, field programmable logic arrays (FPGAs) and associated software.

**VOC EL61 Electronic Assembly and Fabrication****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC EL50A or ELEC 50A) and (VOC EL50B or ELEC 50B)

Manufacturing and fabrication processes associated with the electronics industry. Printed circuit board (PCB) design from conception to completion. Emphasizes electrical schematics, bill of material (BOM), component selection, layout design, manufacturability, assembly, soldering, de-soldering, and surface-mount technology.

**VOC EL62 Advanced Surface Mount Assembly and Rework****0 Units**

Lecture: 18 Lab: 54

**Advisory:** VOC EL61 or ELEC 61

Advanced course in assembly and repair (soldering) on surface mount assemblies (SMT). Material is similar in content to the Institute for Printed Circuits (IPC) surface mount assembly and rework certification.

**VOC EL74 Microcontroller Systems****0 Units**

Lecture: 54 Lab: 54

**Advisory:** VOC EL56 or ELEC 56

Microcontroller systems and programming methods; programmable logic devices (PLDs); serial communications; conversion of signals from analog to digital formats and the converse. Industry applications, interfacing, and troubleshooting.

**VOC EL76 FCC General Radiotelephone Operator License Preparation  
0 Units**

Lecture: 18 Lab: 54

**Advisory:** *VOC EL50B or ELEC 50B*

Prepares qualified electronics and aviation technicians for the Federal Communications Commission (FCC) commercial General Radiotelephone Operator License (GROL).

**VOC EL81 Lab Studies in Electronics****0 Units**

Lab: 54

Extended laboratory experience supplementary to those available in the regular program. Allows the student to pursue more advanced and complex laboratory projects and experiments.

**VOC EMT90 Emergency Medical Technician****0 Units**

Lecture: 100-160 Lab: 45-60

Approved by the Los Angeles (LA) County Emergency Medical Services (EMS) Agency. Develops the ability to recognize the signs and symptoms of various illnesses and injuries. Teaches proper procedures of pre-hospital emergency care per local and national standards. Awards an Emergency Medical Technician (EMT) Course Completion Certificate needed to take National Registry Certifying Exam. Necessary for many jobs in emergency care and is a prerequisite for entry into a paramedic program and most fire department jobs.

**VOC ESD02 Production of Boutique Crafts for Retail Sales****0 Units**

Lecture: 12-54

Design and production of boutique crafts. Includes marketing, pricing, cost analysis, and use of emerging technology.

**VOC ESD03 Lettering Styles and Advertising Calligraphy****0 Units**

Lecture: 12-54

Styles of calligraphy as they are used in art, media, and advertising. Includes size, placement, styles, and emerging technology.

**VOC ESD07 Handcrafted Needlework for Retail Sales****0 Units**

Lecture: 12-54

Needlework technique including knitting, crocheting, embroidery, needlepoint for plastic canvas, and emerging technology to construct finished products for sale.

**VOC ESD08 Jewelry Production and Design for Retail Sales****0 Units**

Lecture: 12-56

Design and construct wire-worked jewelry using beads and stones with various methods of wire wrapping, coiling, hammering, and emerging technology.

**VOC ESD09 Sewing and Design****0 Units**

Lecture: 12-54

Basic sewing techniques for basic tailoring, pattern reading, cutting, and style design to construct professional looking garments.

**VOC ESD10 Beginning Decorative Art Production for Retail Sales****0 Units**

Lecture: 12-54

Introduction to decorative painting and associated mediums. Includes painting on a variety of surfaces using tole art brush strokes used in folk art, stenciling, and other design applications and emerging technology.

**VOC ESD11 Intermediate Decorative Art Production for Retail Sales****0 Units**

Lecture: 6-54

Intermediate tole art brush strokes on a variety of surfaces using acrylic paints, associated mediums, and emerging technology to create finished products.

**VOC ESD15 Jewelry and Lapidary Production Design****0 Units**

Lecture: 12-56

Jewelry making, stone cutting, polishing, and lapidary work, using emerging technology.

**VOC EST50 Electrical Fundamentals for Cable Installations****0 Units**

Lecture: 40-75 Lab: 20-40

Electrical fundamentals for cable and wire installations and other low voltage systems. Includes direct current (DC) and alternating current (AC), solid-state devices, digital and microprocessor devices, and their application to cable installations.

**VOC EST51 Electrical & Tool Fundamentals****0 Units**

Lecture: 54 Lab: 54

Electrical and tool (hand and power) fundamentals for low voltage systems used in residential and commercial security, networks, and audio/video systems. Topics include tool fundamentals, DC/AC sources and components, solid-state devices, digital devices, and their application to low voltage systems.

**VOC EST52 Fabrication Techniques for Cable Installations****0 Units**

(May be taken three times for credit)

Lecture: 40-75 Lab: 20-40

Fabrication techniques used in the installation of home theater, computer networks, home automation, and other low voltage system applications. Emphasis on hand and power tools, construction methods, and materials as they apply to cable and wire installations. Prepares students for the California (CA) State Contractors C-7 low voltage systems license.

**VOC EST54 Cable and Wiring Standards****0 Units**

Lecture: 40-120 Lab: 20-60

Cable and wire standards of video, voice, and data wiring for home theater, computer networks, home automation, telecommunications, and other low voltage system installations. Emphasis on copper wire, coax, fiber optic, and structured cables.

**VOC EST56 Home Theater, Home Integration & Home Security Systems**  
**0 Units**

Lecture: 40-120 Lab: 20-60

Home theater, home integration, home management Power Line Carriers (PLCs), security hardware and programming, and the installation and servicing of such systems.

**VOC EST62 Electronic Troubleshooting 1**  
**0 Units**

Lecture: 30-60 Lab: 30-60

Troubleshooting appliances and electronic systems to the subsystem and component levels. Covers installation, troubleshooting, maintenance, and operation of a variety of small and large appliances.

**VOC ET90A Introduction to EMS System**  
**0 Units**

Lecture: 15-25 Lab: 22-30

Prerequisite for VOC EMT 90. Introduces concepts of the Emergency Medical Services (EMS) System, roles, and responsibilities. Basic concepts of patient assessment and scene management taught. Stresses collaboration with other scene team members.

**VOC FAB General Fabrication**  
**0 Units**

Lab: 4-180

Project support course for students completing fabrication projects. Digital fabrication including 3D printing, laser cutting, and Computer Numerical Controlled (CNC) vinyl and fabric production. Conventional fabrication techniques including wood working, machining, sheet metal, welding and plasma cutting.

**VOC FDB1 Financial and Database Management 1**  
**0 Units**

Lecture: 4-288

Short-term introduction to small business and database software, including Intuit QuickBooks and Microsoft Excel, to introduce elementary computer literacy. Data entry including work with Accounts Receivable and Accounts Payable. Create and work with customers, vendors, and basic bookkeeping transactions. Design and explore database objects, including simple forms, reports, and queries.

**VOC FDB2 Financial and Database Management 2**  
**0 Units**

Lecture: 4-288

Further instruction in basic computer literacy for Intuit QuickBooks and Microsoft Excel. Order, manage, and sell physical inventory. Process simple sales tax operations, customer refunds, discounts, and credits. Activate, create, and apply classes for transactions. Create, duplicate, and memorize basic estimates. Utilize progress invoicing. Modify reports, queries, and forms.

**VOC FS Fundamentals of Sustainability**  
**0 Units**

Lecture: 4-44

Introduction to basic concepts of sustainability and examination of connections among social, economic, and environmental systems in society. The course explores multiple sustainability models, the history of the environmental and sustainability movements, and the urgency of implementing sustainable systems throughout society and the workforce. Waste issues, climate change, and the biophilia hypothesis will also be examined through multiple lenses, including environmental justice and ecojustice. Students will learn about the exciting career opportunities that are emerging within the growing field of sustainability.

**VOC FSF Tool Use and Field Service Fundamentals**  
**0 Units**

Lecture: 2-50 Lab: 2-50

Introductory course in tool use and material fabrication as applied to field-serviceable equipment. Covers elementary aspects of installation and maintenance with emphasis on safety and proper use of hand and power tools, fasteners, and other hardware.

**VOC FSH08 Introduction to Fashion**  
**0 Units**

Lecture: 54

Fashion industry as a whole, including raw materials, manufacturing, retailing, technology, world economics, globalization, and careers. Includes apparel design, manufacturing, retail merchandising, sales, promotion, textile production, and career opportunities.

**VOC FSH09 History of Fashion**  
**0 Units**

Lecture: 54

Survey of Western costume and fashion from antiquity to contemporary times. Emphasis is placed on style development as it relates to social, economic, and political forces, and the relationship of historic styles to current fashion.

**VOC FSH10 Clothing Construction 1**  
**0 Units**

Lecture: 36 Lab: 54

Essentials of industry standard apparel construction techniques using a variety of machines and equipment. Students will be given instruction in single needle machine operation, industrial overlock operation, and garment assembly.

**VOC FSH12 Clothing Construction 2**  
**0 Units**

Lecture: 36 Lab: 54

**Advisory:** VOC FSH10 or FASH 10

Fundamentals of advanced industry clothing construction techniques. Emphasis on the skills required for using apparel industrial sewing equipment, and apparel industry manufacturing concepts.

**VOC FSH14 Dress, Culture, and Identity**  
**0 Units**

Lecture: 54

The interrelatedness of socio-psychological, economic, cultural, and political/religious influences on dress, adornment, and fashion in historical perspective. Includes cross-cultural analysis of Western and non-Western dress.

**VOC FSH15 Aesthetic Design in Fashion****0 Units**

Lecture: 54

**Advisory:** *VOC FSH25 or FASH 25*

Design principles and influences in apparel selection and fashion design. Projects applying design elements and principles using computer-aided design (CAD) software.

**VOC FSH16 Corset Construction****0 Units**

Lecture: 36 Lab: 54

**Advisory:** *VOC FSH10 or FASH 10*

History of the corset, types of corset fabrics, trims and methods of embellishment. Essentials of standard apparel corset construction techniques using a variety of tools and equipment. Skills learned can be applied to historical or contemporary corsets.

**VOC FSH17 Textiles****0 Units**

Lecture: 54

Introductory study of the physical and chemical properties of textiles. Textile fiber production, classification, properties, and identification. Textiles coloration and finishing processes. Relationship of fiber characteristics, coloration, and finishing processes to fabric properties, performance, legislation, and care.

**VOC FSH21 Patternmaking 1****0 Units**

(May be taken three times for credit)

Lecture: 36 Lab: 54

**Advisory:** *VOC FSH10 or FASH 10*

Flat patternmaking techniques to create garment designs using industry standards, dart transfer, and seam manipulation. First and production patterns will be created, constructed, and fitted.

**VOC FSH22 Fashion Design By Draping****0 Units**

Lab: 108

**Advisory:** *(VOC FSH10 or FASH 10) and (VOC FSH21 or FASH 21)*

Three dimensional dress design through draping fabrics directly to a dress form to create original designs and patterns to interpret fashion illustrations and technical flats.

**VOC FSH23 Patternmaking 2****0 Units**

Lecture: 36 Lab: 54

**Advisory:** *(VOC FSH21 or FASH 21) and (VOC FSH25 or FASH 25)*

Intermediate pattern drafting and flat patternmaking with an introduction to technical packages. Students apply patternmaking theories to create ready-to-wear sportswear designs for misses and women's wear.

**VOC FSH24 Fashion Patternmaking by Computer****0 Units**

Lecture: 36 Lab: 54

**Advisory:** *VOC FSH21 or FASH 21*

Industrial fashion patternmaking and grading using Gerber computer-aided design (CAD) technology. Exploration of drawing techniques, pattern development, flat pattern manipulation, and the sizing and grading of patterns.

**VOC FSH25 Fashion Digital Illustration and Design****0 Units**

Lecture: 36 Lab: 54

Technical fashion drawing techniques using Adobe Illustrator and Photoshop. Includes drawing production flats, colorization, and digital fashion figures using a computer as a drafting tool. Exploration of popular computer techniques and apparel industry design methods.

**VOC FSH57 Fashion Retailing and Production Technologies****0 Units**

Lecture: 54-54

Apparel wholesale to retail concepts and technologies used in fashion merchandising environment systems. The emphasis is on practical knowledge and use of software in the fashion industry.

**VOC FSH59 Fashion Retailing****0 Units**

Lecture: 54

Overview of fashion retailing, on site environments, online fashion stores, management and multi-channel retailers. Principles focus on the fashion segment of the retailing industry and the merchandising of fashion products.

**VOC FSH62 Retail Buying and Merchandising****0 Units**

Lecture: 72

Principles and practices used in retail buying and merchandising environment. This course emphasizes the buyer's role in merchandising management, quantitative retail formulas, costing calculations, pricing strategies, and managing profit. Students will apply concepts learned using Microsoft Excel.

**VOC FSH63 Fashion Promotion****0 Units**

Lecture: 54

Principles and techniques of integrated marketing communications for apparel wholesale and retail products. Emphasis focuses on principles of integrated marketing and communication strategy, market and consumer research, branding, and the comprehensive nature of promotion in the fashion merchandising environment and emphasizes the changing nature of promotion in a global marketplace.

**VOC FSH66 Visual Merchandising Display****0 Units**

Lecture: 36 Lab: 54

**Prerequisite:** *VOC FSH25 or FASH 25*

Design principles, color theory, space, and lighting in relation to visual merchandising display areas and interior design of stores using various applications of computer graphics programs.

**VOC FSVCS Food Services****0 Units**

Lecture: 60-180

Principles of food preparation, service procedures and sanitation, and safety practices in the food service industry. Study the application of food costing, recipes and menu planning, and professional dining service practices in various types of food operation businesses. Examine employment skills and knowledge suitable for careers in this industry.

**VOC GD1 Introduction to Graphic Design****0 Units**

Lecture: 60-180

Introductory course into the field of Graphic Design with a focus on its history and process. This course will review the historical evolution of graphic design highlighting works of famous graphic design artists. Students will also explore the design principles, practices, and tasks utilized when creating graphic art or developing a graphic design solution.

**VOC GD2 Graphic Design: Pathway Exploration****0 Units**

Lecture: 4-80

Exploration of the general career and academic pathways available to students interested in the graphic design profession. An overview of the education, training, and skills needed for employment as a graphic designer will also be provided.

**VOC GOG10 Introduction to Geographic Information Systems****0 Units**

Lecture: 36 Lab: 54

Principles, theory, and operations of geographic information systems (GIS), including geospatial data models, analytical functions, data quality, map design and visual communication, and social and environmental applications of GIS.

**VOC HBB1 Starting a Home-Based Business****0 Units**

Lecture: 18-54

Starting a home-based business to become self-employed. Includes basic marketing, finance and management skills.

**VOC HBB2 Managing and Growing Your Home-Based Business****0 Units**

Lecture: 12-54

Managing day-to-day business activities to increase revenue and profitability to grow a home-based business.

**VOC HEP Healthcare Exam Preparation****0 Units**

Lecture: 4-75

General health sciences, affixes and medical terminology, statistical graphing and charting, technical writing, grammar, reading comprehension, listening and communicating skills, and test-taking strategies for entrance into healthcare programs and exams.

**VOC HHA Home Health Aide****0 Units**

Lecture: 10-30 Lab: 10-30

**Prerequisite:** *Certified Nurse Assistant per CA Dept of Health*

Preparation for certification as Home Health Aide by the State of California. Includes Federal and State regulations, client needs, quality of care, and clinical hours.

**VOC HOSP Hospitality****0 Units**

Lecture: 60-180

Organizational structure and functions of the various segments that comprise the hospitality industry. Examination of principles of management, service, and business operations. Study of history, development, and interrelatedness of segments in the industry, along with careers in hospitality.

**VOC HSW Health and Safety for Workplace****0 Units**

Lecture: 1-80

Contextualized health and safety course for various workplace environments. Focuses on safe work practices in offices, industry, and construction as well as how to identify and prevent or correct problems associated with occupational safety and health. Designed to assist the student with the implementation of safe and healthy practices at work.

**VOC HTH01 Certified Nursing Assistant****0 Units**

Lecture: 65-105 Lab: 85-125

This course prepares students to function as a nursing assistant in a variety of health care settings under the supervision of a licensed nurse. Students will be prepared to take the California Nurse Aide certification examination upon completion.

**VOC HTH04 Acute Certified Nursing Assistant (CNA)****0 Units**

Lecture: 48-75 Lab: 80-120

Preparation of CNA to provide basic personal care to patients in acute care facilities and hospitals.

**VOC HTH05 Health Careers Skills Lab (HCRC)****0 Units**

Lab: 1-320

Health occupational training and experience using instructional equipment and simulators for health occupation competencies.

**VOC HTH06 Health Careers Employability Skills****0 Units**

Lecture: 10-60

Provides training to ensure the delivery of high quality care meeting the industry expectations. This course covers communication competency, workplace ethics and professionalism, team building and collaboration, effective problem solving, embracing diversity, and demonstrating compassion.

**VOC HTH12 Medical Terminology****0 Units**

Lecture: 40-60

Medical terminology used in various allied health fields.

**VOC ID10 Introduction to Interior Design****0 Units**

Lecture: 36

Interior design and the planning of total interior environments that meet individual, functional, and environmental needs. Field trips may be required.

**VOC ID10L Introduction to Interior Design Laboratory****0 Units**

Lab: 54

**Advisory:** *VOC ID10 or ID 10 (May have been taken previously)*

Application of the interior design practice and the planning of total interior environments that meet individual, functional, and environmental needs. Field trips may be required.

**VOC ID12 Materials and Products for Interior Design****0 Units**

Lecture: 36 Lab: 54

**Advisory:** *VOC ID10 or ID 10*

Analysis, application, and evaluation of products and materials used in interior design. Field trips required.

**VOC ID14 History of Furniture and Decorative Arts****0 Units**

Lecture: 54

Historic development of structure, interior spaces, furniture, and decorative arts throughout the world. Interior architecture is illustrated in this overview of design heritage from antiquity to present. Emphasis is placed on style development as it relates to social, economical, and political influences as well as the use of materials and technology. Field trips may be required.

**VOC ITECH Information Technology****0 Units**

Lecture: 54-80

Information Technology core aspects focusing on applications, processes, and their impact on society, businesses, and individuals. Career opportunities that utilize IT skills and participate in activities that integrate teamwork and communication skills that will enhance employability.

**VOC LFC Local Food Communities****0 Units**

Lecture: 4-44

An introduction to local food communities as it applies to the personal or professional roles involved in sustaining the well-being of a community. This course introduces regenerative and sustainable gardening methods and practices, exploring how they help build resilient communities and address food access issues. Students will learn about local farms, markets, and organizations involved with food in their local community. Learn how to actively collaborate with local food producers to improve the quality of life for the community.

**VOC LGAN Logistics Analyst****0 Units**

Lecture: 1-50 Lab: 1-50

Specialization in creating value for logistics operations through creating, mining, and the analyzing of data. Topics include: a data driven logistics operation, evaluating, and analyzing a company's physical and informational assets, operations forecasting, and creating company value that reduce inefficiencies and consume profits.

**VOC LOS Logistics Operations Specialist****0 Units**

Lecture: 1-50 Lab: 1-50

Specialization in logistics and distribution center operations. Topics include: inventory control, transportation management, supplier vendors, customer relationships.

**VOC LS Land Surveying****0 Units**

Lecture: 30-60 Lab: 30-60

A practical course in land surveying with a review of mathematics. Hands-on experience with surveying instruments such as measuring wheel, surveyor's tapes, automatic and digital levels, optical theodolites, and electronic total station. No materials needed.

**VOC LTEC Logistics Technician****0 Units**

Lecture: 1-50 Lab: 1-50

Specialization in designing and enhancing systems that help streamline logistics operations. Topics include: implementing and troubleshooting Warehouse Management Systems, CRM's (Customer Relations Management) Systems, RF (Radio Frequency) scanners, data reports and operation automation technology.

**VOC LWFRC Law Enforcement****0 Units**

Lecture: 60-180

Policing in America including its historical evolution, social issues in law enforcement, and practices in law and public safety. Policing agencies at the local, state, and federal levels.

**VOC MAST Medical Assistant****0 Units**

Lecture: 60-180

Scope of practice, tasks, and responsibilities of the Medical Assistant; theory and foundational skills in medical assisting. Study essential competencies that provide a central body of knowledge for movement into administrative or clinical career paths.

**VOC MDCS Medical Core Studies****0 Units**

Lecture: 60-180

Study of health and disease, human body systems, medical terminology and vocabulary, and healthcare systems and processes. Focus on anatomy, physiology, pathology of the various systems, and career opportunities in healthcare.

**VOC MF110 Introduction to CAD****0 Units**

Lecture: 54 Lab: 54

**Advisory:** *Eligibility for MATH 51*

Basic Computer Aided Design (CAD) and computer applications (AutoCAD and SolidWorks) in engineering and related fields, including basic word processing, spreadsheet, CAD, and presentation applications. Production card and digital calipers required.

**VOC MF120 CAD for Manufacturing****0 Units**

Lecture: 54 Lab: 54

**Advisory:** *VOC MF110 or MFG 110*

Intermediate CAD (Computer Aided Design) for engineering related industries, 2D and 3D environments, 3D parametric solid modeling. Construct assemblies & subassemblies; use and editing of mates. Certified SolidWorks Associate (CSWA) exit exam. Production card and digital calipers required.

**VOC MF130 Manufacturing Processes and Materials****0 Units**

Lecture: 36 Lab: 54

Common manufacturing processes used to cut, bend, form, mold, and cast common metal and plastic alloys. Investigates material properties, structural concepts and joining methods. Includes survey of advanced manufacturing technologies.

**VOC MF140 Print Reading and Shop Practice****0 Units**

Lecture: 36 Lab: 54

Print reading, layout, tools, and methods used in fabrication and manufacturing industries. Print reading fundamentals and mastery of tool and process selection, safety; proficiency in basic machine operation skills.

**VOC MF150 Manual Machining 1****0 Units**

Lecture: 36 Lab: 54

Conventional mill and lathe safety and machining practices, tool nomenclature, lathe and mill operation, application and tooling. Application to Computer Numerical Control (CNC) machines. Production cards and calipers required.

**VOC MF155 Manual Machining 2****0 Units**

Lecture: 18 Lab: 54

**Advisory:** VOC MF150 or MFG 150

Intermediate application of conventional mill and lathe safety and machining practices, tool nomenclature, lathe and mill operation, application and tooling. Production cards; safety glasses, hearing protection, and calipers required.

**VOC MF160 Introduction to Mechanical Principles****0 Units**

Lecture: 36 Lab: 54

**Advisory:** VOC MF110 or MFG 110

Use computer-aided design (CAD) and other media to survey mechanical devices, concepts, and principles common to manufactured products and manufacturing processes. Analysis, discussion, and problem-solving related to mechanical design scenarios supported by CAD. Emphasis on mechanical literacy. Production cards and calipers are required. Field trips may be required.

**VOC MF180 Introduction to MasterCAM****0 Units**

Lecture: 36 Lab: 54

**Advisory:** VOC MF155 or MFG 155

Use MasterCAM X software to create wire-frame part geometry, add tool paths, and create computer numerical control (CNC) code for CNC mills and CNC lathes. Overview of tooling and tooling nomenclature.

**VOC MF210 Advanced CAD****0 Units**

Lecture: 36 Lab: 71

**Advisory:** VOC MF120 or MFG 120

Advanced engineering Computer Aided Design (CAD) for developing detailed working drawings in 3D environments, incorporating 3D parametric solid modeling, bill of materials, and surface development. Production card required. Field trip required.

**VOC MF220 Computer Aided Manufacturing 2****0 Units**

Lecture: 36 Lab: 71

**Prerequisite:** (VOC MF120 or MFG 120) and (VOC MF180 or MFG 180)

Advanced use of industry standard computer aided manufacturing (CAM) software (MasterCam) to generate tool paths and create computer numerical control (CNC) code for operation of CNC mills and CNC lathes. Production cards and calipers required.

**VOC MF250 Introduction to CNC Programming****0 Units**

Lecture: 18 Lab: 108

**Advisory:** VOC MF150 or MFG 150

Theory and practice of manually developing Computer Numerical Control (CNC) programs. Writing and editing program code for CNC mills and lathes. Methods of transmitting data to CNC machines and operation of CNC mills and lathes.

**VOC MF260 CNC Operation****0 Units**

Lecture: 18 Lab: 108

**Advisory:** VOC MF250 or MFG 250

Operation of computer numerical control (CNC) machines and their applications in manufacturing. Students will learn to analyze and interpret industry prints to determine datums, orient work to the machines, set up, and apply work holding solutions and basic tooling and machining strategies common in the industry. Students will be involved in producing and machining industry representative parts.

**VOC MFES Manufacturing and Electrical Systems****0 Units**

Lecture: 25-50 Lab: 25-50

A basic understanding of electrical systems; troubleshooting electrical circuits; understanding and identifying what quality is; use of tools for inspection; and diagnostics investigation.

**VOC MFPP Manufacturing and Production Principles****0 Units**

Lecture: 25-50 Lab: 25-50

Focus on manufacturing and production principles. Concepts include torque, basic assembly techniques, use of materials, safety, use of tools, bonding and finishing, accurate measurements, high voltage safety, and reading blueprint drawings.

**VOC MFTH Manufacturing Theory and Blueprint Reading****0 Units**

Lecture: 50-100

Manufacturing theory, including lean manufacturing concepts, 5S methodology housekeeping, 7 wastes, principles of what is work, including value add and non-value add, continuous improvement, pull systems, and error proofing. Software includes Takt time production. Components of blueprints and how to read blueprint drawings.

**VOC MIT Mobile Information Technology for the Beginner****0 Units**

Lecture: 12-108

Introduction to mobile information technology for skills, concepts, and principles to safely and effectively use mobile platform devices and the Internet.

**VOC MR01 Medical Records****0 Units**

Lecture: 25-60 Lab: 25-60

Basics of health information management and medical office skills. Topics include the content, structure, management, analysis, and processing of health information, and issues surrounding quality, confidentiality, and compliance. Special emphasis is placed on electronic information processing. Prepare students for the Electronic Health Records Specialist Certification exam from the National Healthcareer Association, with the potential to earn the Certified Electronic Health Records Specialist (CEHRS™) credential.

**VOC NCLXP NCLEX-PN Preparation****0 Units**

Lecture: 4-80

Exam preparation course to provide vocational nursing students with the necessary skills to master core content, develop into practice-ready nurses, and pass the National Council Licensure Examination for Practical Nurses (NCLEX-PN) exam. Topics include exam administration and overview, client needs categories, clinical judgement, case study analysis, and practice assessments. The steps to take the NCLEX-PN and the next generation of the exam will also be covered.

**VOC NF81 Cooking for Health and Wellness****0 Units**

Lecture: 9 Lab: 27

**Advisory:** (NF 10 or NF 12 or NF 25 or NF 25H or knowledge equivalent to an introductory nutrition course) and (NF 20 or CUL 102 or basic food preparation knowledge, skills, and experience)

Principles and techniques of healthful food preparation, investigation of chronic disease prevention through dietary means, and recipe modification. Includes laboratory experience in preparation of healthful foods and meals. Off-campus meetings may be required.

**VOC NF82 Vegetarian Cuisine****0 Units**

Lecture: 9 Lab: 27

**Advisory:** (NF 10 or NF 12 or NF 25 or NF 25H or knowledge equivalent to an introductory nutrition course) and (NF 20 or HRM 54 or CUL 102 or basic food preparation knowledge, skills, and experience)

Principles and techniques of vegetarian food preparation and investigation of issues related to vegetarian eating practices. Includes laboratory experience in preparation of vegetarian foods and meals. Off-campus meetings may be required.

**VOC NWE Noncredit Work Experience****0 Units**

Provides on-the-job work experience for students in noncredit programs at an approved work setting related to classroom, theory, or clinical instruction.

**VOC OCBA Introduction to Office Cloud-Based Applications****0 Units**

Lecture: 18-54

Introduction to the fundamental features and functionalities of cloud-based productivity applications, focusing on Google Suite and Office 365 online versions. Students will be able to navigate and utilize these online resources to collaborate effectively.

**VOC OTA Occupational Therapy Aide****0 Units**

Lecture: 40-130 Lab: 20-50

Role and skills of occupational therapy aide. Includes terminology, procedures and interpersonal skills.

**VOC PCA Personal Care Aide****0 Units**

Lecture: 90-145

Preparation to assist elderly, disabled, and ill persons. Roles and responsibilities of a caregiver. Communication skills, maintenance of a healthy environment, and procedures for emergencies. Physical, emotional, and developmental characteristics of the consumers served, personal hygiene, safe transfer techniques, and basic nutrition.

**VOC PH11A Intermediate Photography****0 Units**

Lecture: 36 Lab: 54

**Advisory:** VOC PHO10 or PHOT 10

Professional photography techniques, basic production processes, and studio lighting. Includes studio and field assignments related to problems encountered while professionally photographing people and products. Topics include medium and large format film, Studio production, continuous, and strobe lighting.

**VOC PH11B Digital Capture Workflow****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC PHO10 or PHOT 10) or (VOC PH11A or PHOT 11A)

Advanced application of digital capture and data workflow using various digital format cameras. Students will be using digital single-lens reflex (DSLR), medium, and large format digital camera systems along with software to produce high-quality digital photographs. Studio and field assignments will provide opportunities for image capture and application of professional workflow, production, and lighting techniques. Field trips may be required.

**VOC PHLB1 Phlebotomy Technician 1****0 Units**

Lecture: 40-90

This course is an introduction of the phlebotomy concepts and skills that serve as a foundation for the individuals seeking certification as a phlebotomy technician. Topics include basic infection control, universal precautions and safety, basic anatomy and physiology of body systems with emphasis on the circulatory system and appropriate medical terminology, proper identification of patient and specimens, proper selection and preparation of skin puncture sites. Course serves as foundational preparation for employment as a phlebotomy technician.

**VOC PHLB2 Phlebotomy Technician 2****0 Units**

Lab: 40-60

This course provides the clinical laboratory experience in phlebotomy required to qualify for the examination of Certified Phlebotomy Technician I. After successfully demonstrating the following objectives, the student will have completed the following 40 hours Phlebotomy Clinical Practicum necessary for obtaining California Certified Phlebotomy Technician I Certification as required under Sections 1035.1 covering topics on selecting blood collection equipment, infection control, skin punctures, venipunctures, post puncture care, processing of blood, disposal of needles, sharps, and medical waste. Students must also pass the California Department of Public Health CPT 1 exam to receive certification.

**VOC PHO09 Digital Image Editing for Photographers****0 Units**

Lecture: 36 Lab: 54

Image editing software and techniques commonly used in photography. This will include digital workflow practices, file management, image editing, enhancing, and retouching methods commonly used in photography.

**VOC PHO10 Basic Digital and Film Photography****0 Units**

Lecture: 36 Lab: 54

The basic mechanical, optical, and chemical principles of photography, including traditional darkroom techniques and digital image systems. Laboratory experience involves problems related to camera and image editing and output techniques.

**VOC PHO12 Black and White Photo Alternative Studies****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC PHO10 or PHOT 10) or (VOC PH11A or PHOT 11A)

Photo alternative black and white analog film studies. Techniques, practice and understanding of advanced analog camera systems, camera formats, film development, and darkroom printing. Students will be exposed to classical and contemporary photographers and how they relate to the techniques related to produce and display photographic work.

**VOC PHO14 Commercial Lighting****0 Units**

Lecture: 36 Lab: 54

**Prerequisite:** (VOC PHO10 or PHOT 10) or (VOC PH11A or PHOT 11A)

**Advisory:** VOC PH11B or PHOT 11B

Studio and location lighting techniques for commercial photographic applications. Field trips may be required.

**VOC PHO15 History of Photography****0 Units**

Lecture: 54

Survey of the history of photography from early 1800s to the present, introducing various concepts of photo representation and their impact on society. Field trip required.

**VOC PHO16 Fashion and Editorial Portrait Photography****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC PH11A or PHOT 11A) or (VOC PH11B or PHOT 11B)

Fashion, editorial, and portrait photography in studio and on location. This includes studio and location lighting techniques, production processes, creative concepts, styling, and working with models.

**VOC PHO17 Photocommunication****0 Units**

Lecture: 36 Lab: 54

**Advisory:** VOC PHO10 or PHOT 10

Enhancing visual communication of commercial, documentary, and fine art imagery. Includes using camera tools (lens, aperture, shutter) lighting, color, and design to create images that clearly communicate messages.

**VOC PHO18 Portraiture and Wedding Photography****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC PHO10 or PHOT 10) or (VOC PH11A or PHOT 11A) and (VOC PH11B or PHOT 11B)

Professional studio and field techniques for portrait and wedding photography. Off-camera assignment or field trips may be required.

**VOC PHO1A Laboratory Studies: Beginning Black and White Photography****0 Units**

Lab: 54

**Advisory:** VOC PHO10 or PHOT 10

Extended black-and-white laboratory experiences to improve skills through further instruction and practice, as well as pursue more advanced projects and experiments.

**VOC PHO1B Laboratory Studies: Advanced Black and White Photography****0 Units**

Lab: 54

**Advisory:** (VOC PHO11A or PHOT 11A) or (VOC PHO12 or PHOT 12) or (VOC PHO17 or PHOT 17)

Extended advanced black and white laboratory experiences with medium and large format cameras to improve skills and pursue more advanced photographic printing, processing, and enlarging techniques.

**VOC PHO1C Laboratory Studies: Studio Photography****0 Units**

Lab: 54

**Advisory:** (VOC PHO11 or PHOT 11) or (VOC PH11A or PHOT 11A) or (VOC PH11B or PHOT 11B) or (VOC PHO14 or PHOT 14) or (VOC PHO16 or PHOT 16) or (VOC PHO17 or PHOT 17) or (VOC PHO18 or PHOT 18) or (VOC PHO20 or PHOT 20) or (VOC PHO28 or PHOT 28) or (VOC PHO30 or PHOT 30)

Extended studio photography experiences to supplement those available through the regular program. Provides students the opportunity to improve skills through further instruction and practice, as well as pursue more advanced projects and experiments.

**VOC PH01D Laboratory Studies: Computer Applications in Photography****0 Units**

Lab: 54

**Advisory:** (VOC PH009 or PHOT 9) or (VOC PH11B or PHOT 11B) or (VOC PH024 or PHOT 24) or (VOC PH026 or PHOT 26)

Extended computer laboratory experiences to supplement those available in the regular program. Provides students the opportunity to improve skills through further instruction and practice, as well as pursue more advanced projects and experiments.

**VOC PH020 Color Photography****0 Units**

Lecture: 36 Lab: 54

**Advisory:** VOC PH010 or PHOT 10

Color principles as they relate to commercial and artistic styles of photography, including lighting, color theory, color management, exaggerated and unique color schemes, and applied color psychology principles.

**VOC PH024 Advanced Digital Image Editing for Photographers****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC PH009 or PHOT 9) and (VOC PH010 or PHOT 10)

Advanced digital image editing, archiving, and retouching for photographers.

**VOC PH026 Video for Photographers****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC PH11A or PHOT 11A) or (VOC PH11B or PHOT 11B)

Advanced photography students learn how to create moving images using Digital Single-Lens Reflex cameras. Students using principles of framing, composition, storyboarding, production, camera, sound, and editing techniques, students will produce a commercial advertising reel representing their motion work. Field trips may be required.

**VOC PH028 Photography Portfolio Development****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC PH11A or PHOT 11A) and (VOC PH11B or PHOT 11B) and (VOC PH014 or PHOT 14) and (VOC PH020 or PHOT 20) and (VOC PH012 or PHOT 12) or (VOC PH016 or PHOT 16) or (VOC PH018 or PHOT 18)

Development of a photography portfolio for use in job application or gallery exhibition purposes. Field trips may be required.

**VOC PH029 Studio Business Practices for Commercial Artists****0 Units**

Lecture: 54

Studio business practices for commercial artists. Small business operations, pricing services based on the licensing business model, copyright basics, project production, and estimating and invoicing. Field trips may be required.

**VOC PH030 Advertising Photography****0 Units**

Lecture: 36 Lab: 54

**Advisory:** (VOC PH11A or PHOT 11A) or (VOC PH11B or PHOT 11B) or (VOC PH014 or PHOT 14)

Overview of the commercial and advertising photographic industry including specialties and styles. Field trips may be required.

**VOC PHOTO Basic Photography****0 Units**

Lecture: 60-180

Introductory photographic elements of art and principles of design, composition, and lighting. Explore career opportunities related to photography.

**VOC PPCCR Professional and Postsecondary Skills for College and Career Readiness****0 Units**

Lecture: 4-80

Contextualized essential professional and postsecondary skills course to prepare students for successful transition to college, apprenticeships, or career. Topics include effective communication, analysis/solution mindset, collaboration, digital fluency, empathy, adaptability, entrepreneurial mindset, handling setbacks, self-awareness, and social diversity/awareness.

**VOC PT81 Physical Therapy Aide****0 Units**

Lecture: 25-60 Lab: 25-60

Role and skills of physical therapy aide. Includes terminology, procedures, and interpersonal skills.

**VOC PTEC1 Pharmacy Technician 1****0 Units**

Lecture: 30-150

Entry-level course in pharmacology, anatomy and physiology of the muscular, skeletal, respiratory, renal, cardiovascular, and hematologic systems, brand and generic name medications, alternative therapies, routes of administration, standard precautions, and the law and ethics of pharmacy practice. Introduction to the role of pharmacy clerks and technicians.

**VOC PTEC2 Pharmacy Technician 2****0 Units**

Lecture: 50-150

Pharmacology, anatomy and physiology of the nervous, endocrine, gastrointestinal, reproductive, immune, ears/nose/throat, and dermatologic systems, brand and generic name medications, alternative therapies, routes of administration, and standard precautions. Introduction to over-the-counter (OTC) and non-prescription products.

**VOC PTEC3 Pharmacy Technician 3****0 Units**

Lab: 75-150

Practical pharmacy experience in selected outpatient, inpatient, acute care, home health, or selected hospital settings under the supervision of registered pharmacists and clinical work-based learning coordinator. Intravenous additives, sterile compounding, prescription dispensing, inventory management, customer service, communication and professional ethics. Students will be prepared to take the Pharmacy Technician Certification Board examination upon course completion.

**VOC QLT Artisan Quilting for Retail Sales****0 Units**

Lecture: 12-54

Fundamental quilting techniques and essential skills including fabric selection, preparation, pattern reading, cutting, piecing, appliqué, emerging quilt design and cost analysis to construct and complete artisan quality quilts for retail sales.

**VOC RBT Registered Behavior Technician****0 Units**

Lecture: 40-60

Introduces the core tasks and fundamental skills performed by registered behavior technicians such as measurement, assessment, skill acquisition, behavior reduction, documentation and reporting, and professional conduct and scope of practice. Presents evidence-based instruction on behavioral concepts, procedures for skill acquisition, strategies for problem behavior reduction, and professional and ethical conduct. Students will be able to apply skills in a variety of vocational settings including mental health facilities, hospitals, schools, and shelters.

**VOC RG Regenerative Gardening****0 Units**

Lecture: 4-44

An exploration of organic and traditional gardening as it applies to gardeners and innovative green entrepreneurs. This course prepares students with gardening skills, including plant needs, design, propagation methods, pruning, and soil science, that can be applied on the job or in the community. Learn how to manage pests using integrated pest management, a science-based and environmentally sound system. This course is built upon a regenerative gardening framework centered around sustainability, waste reduction, community building, indigenous wisdom, and environmental education.

**VOC SPMD Sports Medicine****0 Units**

Lecture: 60-180

Introductory theory and practice in sports medicine focusing on the prevention, recognition, evaluation, and treatment of common athletic injuries.

**VOC SPT Solar Panel Technology****0 Units**

Lecture: 30-75 Lab: 10-25

Entry-level solar panel installation training for technician from project planning to final inspection and trouble shooting. Safe working practices, conditions where the most power can be captured from sunlight, and the physics of solar panel operation are covered. Additionally, the student will learn the mechanical aspects of installation such as tools, mounting hardware, and maintaining roof integrity. Electrical instruction will include the different configurations of circuitry and types of grid connections. Hands-on practical labs are designed to emphasize and support the lecture curriculum.

**VOC ST1 Sewing and Tailoring 1****0 Units**

Lecture: 4-54

**Advisory:** VOC ESD09

Patternmaking and garment fitting with flat pattern and draping methods, learned through process of creating a personal fitting form.

**VOC ST2 Sewing and Tailoring 2****0 Units**

Lecture: 4-54

Haute couture garment construction, including couture tailoring techniques for inner structure, finishing, and achieving superior overall appearance.

**VOC STECH Surgical Technician****0 Units**

Lecture: 60-180

Scope of practice, tasks, and responsibilities of the Surgical Technician; the operative environment and professional roles.

**VOC TCH60 Customer Relations for the Technician****0 Units**

Lecture: 36

Customer relations (soft skills) for the technician including benefits for knowing and using effective customer contact tools, proper customer interactions, ethics, and maintaining customer satisfaction.

**VOC THR14 Stagecraft****0 Units**

Lecture: 36 Lab: 54

Theory and practice of scenery construction, scenic painting, and stage rigging. Practical work in scene construction and rigging with the opportunity to perform these tasks in actual theater situations.

**VOC THR19 Theatrical Costuming****0 Units**

Lecture: 36 Lab: 54

Theatrical costuming design and construction. Includes the study of costume history, principles of costume design, fibers and textiles, basic costume construction, and design rendering techniques. Costume crew assignments for major productions will provide practical instruction in actual performance demands on costumes and their proper maintenance. Class is suitable for people interested in costuming for theater, dance, film, television, and reenactments.

**VOC TR10A Introduction to Tutoring****0 Units**

Lecture: 18-68

Introduction to tutoring with an emphasis on tutoring strategies, problem-solving, and working with a diverse student population.

**VOC TR10B Tutoring in the English Language****0 Units**

Lecture: 18-68

Tutoring in the English language using approaches to working with students on written drafts and the needs of non-native speakers.

**VOC TR10C Tutoring - Supplemental Instructor****0 Units**

Lecture: 18-68

Tutoring in the classroom and in small groups under the supervision of a designated instructor.

**VOC TR10D Tutoring in Mathematics****0 Units**

Lecture: 18-68

Tutoring in mathematics with an emphasis on strategies, active learning, and dealing with obstacles in developmental algebra.

**VOC TR10R Tutoring in Reading****0 Units**

Lecture: 18-18

Application of strategic reading processes and approaches to tutoring reading. Prepares students to become tutors for reading across disciplines.

**VOC TRAD1 Introduction to Construction Trades 1****0 Units**

Lecture: 40-120

An introduction to the various building and construction trades. Overview and history of the trades and unions, and preparation for entrance into the apprenticeship programs and construction industry.

**VOC TRAD2 Introduction to Construction Trades 2****0 Units**

Lecture: 40-120

Second module introducing essential topics related to various building and construction trades. Construction health and safety, basic components of a blueprint, green construction, and financial literacy.

**VOC VN1 Vocational Nursing 1****0 Units**

Lecture: 192-205 Lab: 318-330

Entry-level preparation for the vocational nurse to provide direct patient care in a variety of healthcare settings. Lecture topics to be covered include anatomy and physiology, nutrition, nursing fundamentals, geriatrics, nursing process, physical assessment, communication, pharmacology, and medication calculations and administration. Introduction to documentation, nursing ethics, culture, grief, and end-of-life care. The lab will focus on fundamental nursing skills and procedures as well as medication calculations and administration.

**VOC VN100 Vocational Nursing Anatomy and Physiology****0 Units**

Lecture: 35-43

Basic anatomy and physiology to establish the foundations for the clinical skills and competencies required for vocational nursing. The National Council Licensure Examination (NCLEX) test plan assumes that the nurse integrates concepts from the knowledge of biological sciences including anatomy and physiology.

**VOC VN101 Fundamentals of Vocational Nursing Practice****0 Units**

Lecture: 116-134 Lab: 292-418

Introduction to fundamental vocational nursing concepts and skills, including patient care for common health issues, nursing history, healthcare systems, ethics, and legal responsibilities. Students will learn basic vocational nursing procedures, cultural considerations, communication, documentation, and safety practices. Topics also include asepsis, nutrition, fluids and electrolytes, mobility, vital signs, end-of-life care, and nursing theory. Instruction combines classroom learning with hands-on practice in labs and clinical experiences in acute or long-term care settings.

**VOC VN102 Vocational Nursing Pharmacology****0 Units**

Lecture: 54-66 Lab: 38-47

Role of the vocational nurse in administering medications. Topics include medications, their source and uses, calculation of dosage, safe administration of prescribed medications, routes, and classifications of drugs according to body systems and categories. Skills practice provided through hands-on training with various modes of delivery of the medication in lab and clinical experiences in the acute or long-term care facility.

**VOC VN120 Vocational Nursing Care of the Adult with Medical-Surgical Diagnosis 1****0 Units**

Lecture: 122-137 Lab: 242-268

Focused on enhancing vocational nursing (VN) student's knowledge, skills, and attitude to care for a medical-surgical (med-surg) patient. Topics include etiology, pathophysiology, signs, symptoms, diagnosis, treatment, patient teaching, nursing care, and prognosis for conditions of the integumentary, cardiovascular, hematologic, immune, lymphatic, gastrointestinal, musculoskeletal, respiratory, urinary, male and female reproductive systems. Caring for a pre- or post-operative patient will also be included. Information about sexually transmitted diseases, organ transplantation, and the care of patients with cancer will be provided. Instruction includes skills in the lab and clinical experiences in the acute or long-term care facility.

**VOC VN122 Life Span Development for Vocational Nurses****0 Units**

Lecture: 44-57 Lab: 72-85

Overview of major concepts and theories related to human development through the lifespan from the prenatal period to the end of life. Basic aspects of growth and development with a focus on the individual's body, mind, and personality will add to the nursing knowledge, skills, and attitude of the vocational nursing (VN) student to care for patients of all ages. Instruction includes skills in the lab and clinical experiences in the acute or long-term care facility.

**VOC VN124 Psychology and Behavioral Health Vocational Nursing****0 Units**

Lecture: 40-51 Lab: 16-25

Overview of major concepts and theories related to psychology and behavioral health in vocational nursing (VN). Topics include legal and ethical issues, mental health concepts, communication, interpersonal skills, major mental disorders, psychosocial issues, and care of the physically ill patient. This course will add to the nursing knowledge, skills, and attitude of the vocational nursing student to care for patients with mental health challenges. Skills in the lab and clinical experiences in the acute or long-term care facility included.

**VOC VN130 Vocational Nursing Care of the Adult with Medical-Surgical Diagnosis 2****0 Units**

Lecture: 73-87 Lab: 218-241

Building on the concepts and skills from Vocational Nursing Care of the Adult with Medical-Surgical Diagnosis 1, this course is focused on adding to the knowledge, skills, and attitude of the vocational nursing (VN) student to care for a medical-surgical patient. Topics include etiology, pathophysiology, signs, symptoms, diagnosis, treatment, patient teaching, nursing care, and prognosis for conditions of the neurologic and endocrine systems. Students will learn about caring for patients with chronic illnesses and those who need rehabilitation. Instruction includes skills in the lab and clinical experiences in the acute or long-term care facility.

**VOC VN132 Leadership and Supervision in Vocational Nursing****0 Units**

Lecture: 34-41 Lab: 35-42

Vocational nursing (VN) communication techniques as a leader, legal and ethical issues in the workplace, preparation for licensure, career opportunities, professional nursing organizations, team leading, and supervision. This course will add to the nursing knowledge, skills, and attitude of the vocational nursing student to function as a leader. Skills in the lab and clinical experiences in the acute or long-term care facility included.

**VOC VN134 Vocational Nursing Care of the Family****0 Units**

Lecture: 68-82 Lab: 97-111

Vocational nursing (VN) care of family including maternity, women's health, and pediatrics. Male and female anatomy, physiology, and development changes, stages of pregnancy and delivery complications of pregnancy, newborn care (both normal and those with disorders), contraception, and sexually transmitted diseases. Vocational nursing care of the hospitalized infant, child, and adolescent for both chronically and terminally ill. This course adds to the nursing knowledge, skills, and attitude of the VN student to care for patients of childbearing age, women's health, and pediatric patients. Skills in the lab and clinical experiences in the acute or long-term care facility included.

**VOC VN2 Vocational Nursing 2****0 Units**

Lecture: 192-205 Lab: 318-330

Intermediate preparation for the vocational nurse to provide direct patient care in variety of in-patient and community healthcare settings. Lecture topics to be covered include medical surgical nursing, psychology and mental health nursing, and growth and development. The lab will focus on intermediate nursing skills.

**VOC VN3 Vocational Nursing 3****0 Units**

Lecture: 192-204 Lab: 318-330

Advanced preparation for the vocational nurse to provide direct patient care in specialty settings (inpatient and outpatient obstetrics, well-child and ill-child settings, and leadership and supervision in a Long-Term care setting). Lecture topics to include leadership and supervision, and nursing care of the family during childbearing years. Lab will focus on advanced nursing skills, team leading, supervision of Unlicensed Assistive personnel, nursing care during pregnancy and childbirth, nursing care of the child and adolescent with diseases and conditions, and health promotion.

**VOC WL30 Metal Sculpture****0 Units**

Lecture: 18 Lab: 54

Welding processes used in the metal sculpting industry to create three-dimensional art forms. Covers design, pre-construction analysis, and cost estimates for projects. Includes use of equipment for oxyfuel welding, gas metal arc welding (GMAW), gas tungsten arc welding (GTAW), shielded metal arc welding (SMAW), and flux-cored arc welding (FCAW). Includes demonstrations and exercises in welding as it relates to the art industry.

**VOC WL40 Introduction to Welding****0 Units**

Lecture: 18 Lab: 54

Fundamentals of welding processes related to the areas of fabrication, construction, machine tool, aerospace, and the transportation industries.

**VOC WL50 Oxyacetylene Welding****0 Units**

Lecture: 18 Lab: 54

Oxyacetylene fusion welding (OAW), non-fusion welding and cutting, Brazing and Braze welding (OFB), Gas Tungsten Arc Welding (GTAW), fusion and non-fusion welding. Develops understanding of and fundamental skills in modern welding practices.

**VOC WL51 Basic Electric Arc Welding****0 Units**

Lecture: 18 Lab: 54

Electric arc welding and cutting processes (SMAW, GTAW, GMAW, FCAW, PAC), and their similarities and differences. Exploring each of these arc welding processes to gain more experience and skill welding with these processes and also gain an understanding of each of these different welding processes' strengths and weaknesses. Lab and shop safety.

**VOC WL53A Welding Metallurgy****0 Units**

Lecture: 54

Designed for students seeking a career in welding and welding inspection. Covers structure of matter, chemical, physical, and mechanical properties of metals, principles of alloying, solid state diffusion, plastic deformation, and heat treatment.

**VOC WL60 Print Reading and Computations for Welders****0 Units**

Lecture: 54

Reading prints and performing computations for welding fabrication operations. Interpreting and visualizing prints, title blocks, welding symbols, specifications, notes, and bills of materials. Computations necessary to calculate materials, costs, sizes, and fractional, decimal, and metric conversions.

**VOC WL70A Beginning Arc Welding****0 Units**

Lecture: 18 Lab: 108

Develops manipulative skills and techniques for shielded metal arc (SMAW) and flux cored arc (FCAW) welding processes in the flat and horizontal positions using AC and DC welding currents on carbon steel.

**VOC WL70B Intermediate Arc Welding****0 Units**

Lecture: 18 Lab: 108

**Advisory:** *VOC WL70A or WELD 70A*

Welding high alloy steel with both Shielded Metal Arc (SMAW) and Flux Core Arc (FCAW) welding processes in the vertical and overhead positions with an introduction to Gas Metal Arc (GMAW) and Gas Tungsten (GTAW) welding.

**VOC WL70C Certification for Welders****0 Units**

Lecture: 18 Lab: 108

**Advisory:** *VOC WL70B or WELD 70B*

Building construction for the advanced arc welding student. Special emphasis will be placed on welding symbols and the American Welding Society's (AWS) D1.1 and D1.3.

**VOC WL80 Construction Fabrication and Welding****0 Units**

Lecture: 18 Lab: 108

**Advisory:** *(VOC WL40 or WELD 40) and (VOC WL51 or WELD 51) and (VOC WL70A or WELD 70A)*

Theory and practical applications of welding used in industry and construction. Designed to adapt and upgrade skills to industry standards and develop fabrication skills to supplement and augment welding skills. Includes project models such as ornamental iron gates and fences and material storage components.

**VOC WL81 Pipe and Tube Welding****0 Units**

Lecture: 18 Lab: 108

**Advisory:** *(VOC WL70B or WELD 70B) and (VOC WL70C or WELD 70C)*

Welding in all positions as applied to the pipe industry. Welding processes include shielded metal arc welding (SMAW), gas tungsten arc welding (GTAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW) using a variety of materials and configurations on subcritical and critical piping and tubing.

**VOC WL90A Gas Tungsten Arc Welding****0 Units**

Lecture: 18 Lab: 108

**Advisory:** *VOC WL70A or WELD 70A*

Advanced Gas Tungsten Arc Welding (GTAW) or tungsten inert gas (TIG) of steel, aluminum, corrosion resisting steel (CRES), and exotic metals. All position welds with many surfaces and transitions.

**VOC WL90B Semiautomatic Arc Welding Process****0 Units**

Lecture: 18 Lab: 108

**Advisory:** *VOC WL70C or WELD 70C*

Semiautomatic Welding Processes including Gas Metal Arc Welding (GMAW), Flux Cored Arc Welding (FCAW), Submerged Arc Welding (SAW) with solid and tubular wires with and without gas shielding. All position welds with many varying thickness will be covered.

**VOC WL91 Automotive Welding, Cutting and Modification****0 Units**

Lecture: 18 Lab: 108

**Prerequisite:** *VOC WL70B or WELD 70B*

This course covers the welding and cutting of metals used in fabrication in the automotive industry. Gas metal arc (GMAW/MIG), gas tungsten arc (GTAW/TIG), plasma arc cutting (PAC), and oxy-fuel cutting (OFC) and welding will be demonstrated as they are used in the automotive industry, with an emphasis placed on specific applications and situational uses of each of these processes.

**VOC WLD01 Welding Basics****0 Units**

Lecture: 30-90 Lab: 30-90

Fundamentals of welding processes including Oxyfuel, Shielded Metal Arc, and Gas Metal Arc welding. Welding processes related to the areas of fabrication, construction, machine tool, aerospace, and the transportation industries. Focus on use of welding tools and safety in the industry.