Career Technical Education Course Code Definitions by Sector and Pathways 2013-14 Users Guide

The course definitions in this users guide reflect instructional practices and national and state curriculum guidelines for CALPADS reporting as of 2013-14.

California Department of Education Course Code Definitions by Sector and Pathways

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Agriculture and Natural Resources Sector

Agricultural Business (Pathway 100)

4041   Ag Economics

Ag Economics courses develop knowledge and skills needed to manage an agricultural business. Instruction includes economic principles and structures, business enterprise analysis, accounting, taxes, insurance, productivity, financing, capital resources, purchasing, and the role of government programs. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4042   Ag Sales & Marketing

Ag Sales and Marketing courses develop student knowledge and skills in agricultural sales and marketing, commodity marketing, agricultural economics, and international agriculture. Instructional units include: successfully starting an agribusiness, developing a marketing plan, pricing, advertising, and selling products and services, communicating with customers, applying commodity trading techniques, basic economic principles, the international agribusiness economy, and agricultural career opportunities. Student skills will be enhanced in math, reading comprehension, communications, and writing through agribusiness applications. Improving computer and workplace skills will be a focus. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4043   Ag Communications & Leadership

Ag Leadership and Communications courses help students develop leadership and communications skills with a focus on opportunities in the food, fiber and natural resources industries. Topics may include but are not limited to human relationships and effective communication, issue analysis, decision-making and problem solving, leadership qualities and styles, and ensuring successful completion of group activities. The students then learn and enhance their written and oral communication skills by presenting their views and opinions to the class. Students learn how to arrange and present debates, speeches, and interviews to be effective leaders in today's society. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4044   Ag Computers & Technology

Ag Computer and Technology courses help students develop their knowledge and skills in using computer and other technology in the operation and management of agricultural businesses. Student will utilize computer hardware, software, and the Internet to find information, record and analyze financial and production data, tract market tends and economic forecasts, monitor weather, utilize global positioning systems and prepare communications and reports. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

Agricultural Mechanics (Pathway 101)

4031   Introduction to Agricultural Mechanics

Introductory Agricultural Mechanics courses provide theory and hands-on experiences that provide opportunities for students to develop basic knowledge and skills in agricultural mechanics. Instructional areas include the basic fundamentals of maintaining and repairing small gasoline engines, basic electricity, welding, construction, cold metal work, and operating agricultural equipment safely. Improving workplace and computer skills will be a focus. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4032   Agricultural Welding

Agricultural Welding courses provide students an opportunity to learn the practices and technical practice of welding processes used in agricultural fields. Students will be exposed to mechanical, electrical and thermal power that are associated with the field of agricultural welding. Applied activities develop an understanding and skill development in metal joining and fabrication processes. Instruction will prepare students to select, operate, repair, fabricate and maintain a variety of agricultural machinery and equipment. Processes covered may include: Oxyfuel Cutting/Heating/Welding, Shielded Metal Arc Welding (SMAW), Gas Metal Arc Welding (GMAW), Flux-cored Arc Welding (FCAW), Gas Tungsten Arc Welding (GTAW), Air-carbon Arc Cutting, Plasma Arc Cutting, Safety and Metal Fabrication. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4033   Fabrication & Construction

Fabrication and Construction courses challenge the student to apply and further advance their skills in use of wood, electrical, masonry, cold metal, and welding in the construction of agricultural structures and equipment. Project planning, cost estimate, record keeping, and safety will be emphasized. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4034   Engine & Power Mechanics

Engine and Power Mechanics courses provide hands-on instruction in the theory, operation, and repair of engines and power units including the compression, fuel, electrical, cooling and lubrication systems. Application of various types of gasoline, diesel, and alternative fuel engines in applications from small engines to large equipment applications in agriculture will be emphasized. Students learn how to select engines for specific applications. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4035   Equipment Operation & Repair

Agricultural Equipment Operation and Repair courses provide students with the engineering and power technology principles, skills, and knowledge that are specifically applicable to the agricultural industry. Typical topics include the operation, maintenance, and repair of power, electrical, hydraulic, and mechanical systems. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

Agriscience (Pathway 102)

4071 Introduction to Agriscience

Introduction to Agriscience courses will develop knowledge and skills that provide a foundation for understanding the industry of agriculture in a global society, the career pathways with the agriculture industry, and the application of science contained within them. The course will provide knowledge and skills in the areas of animal science, plant and soil science, ornamental horticulture, forestry and natural resources, agricultural business management, and agriscience. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts. Through this course, students will develop agricultural literacy.

4072 Agricultural Environmental & Earth Science

Agricultural Environmental and Earth Science courses apply environmental science and earth science principals to agriculture. Courses explore the earth's composition, structure, processes, and history, its atmosphere, fresh water, oceans, and environment. Courses utilize agricultural examples and laboratory demonstrations to show the role agriculture plans in the stewardship of the earth, forests, natural resources, and environment. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4073 Agricultural Biology

Agricultural Biology courses apply biological principles and understanding to plant and animal science in order to produce or refine agricultural products. Course topics typically include but are not limited to microbiology, genetics, growth and reproduction, structural basis of function in living systems, chemistry of living systems, quantitative problem solving, and data acquisition and display. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4074 Advanced Agriscience

Advanced Agriscience courses provide students with opportunities to further their knowledge of applications of science in the agricultural industry. Common topics could include: commercial versus organic farming practices, biotechnology uses in plant and animal production, and chemical use in production, and sustainability. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4075 Food Science

Food Science courses provide learning experiences in food science and safety which allow students to apply scientific knowledge and processes to practices used in the development and preservation of food products. Issues of food science and safety are examined from a scientific and technological perspective. Students critically analyze information to evaluate and draw conclusions on the appropriate use of technology to implement food science and safety practices. Units of instruction include: principles of food preservation, food processing, biochemistry of foods, and food selection and consumer health. Careers to be examined include meat inspector, quality control technician, food processor, and sanitation supervisor. Students will use scientific and technological information about food science and safety as a part of developing career plans and personal viewpoints on societal issues concerning the development and preservation of food products. Improving computer and workplace skills will be a focus. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

Animal Science (Pathway 103)

4021   Introduction to Animal Science

Introduction to Animal Science courses impart information about the care and management of domestic and farm animals. These courses may cover animal nutrition, health, behavior, selection, reproduction, anatomy and physiology, facilities, product processing, and marketing. Students will be introduced to various species of large and small livestock or they may learn how to care for and maintain livestock as a more inclusive study. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4022   Large Animal Science

Large Animal Science courses focus on the production, care and management of large animals. Animal nutrition, health, behavior, reproduction and breeding, anatomy and physiology, facilities, handling and training, and grooming are typical areas of study. Course may include specie specific courses Beef, Sheep, Swine, Horses, and other large animals as well as product processing and marketing. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4023   Small Animal Care & Management

Small Animal Care and Management courses focus on the care and management of small animals including poultry, rabbits, dogs, cats, etc. Animal nutrition, health, behavior, reproduction and breeding, anatomy and physiology, facilities, handling and training, and grooming are typical areas of study. Course topics may include kennel operations and sales. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4024   Veterinary Science

Veterinary Science courses impart information about the causes, diagnosis and treatment of diseases and injuries of animals, typically emphasizing domestic and farm animals. Course topics focus on anatomy and physiology, nutrition, behavior, and reproduction, sanitation, and use of veterinary supplies and equipment. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4025   Aquaculture

Aquaculture courses impart the knowledge and skills needed for producing fish, plants and other species living in an aquatic environment, and course topics typically include the selection, propagation, harvesting and marketing of those species. Instruction may also address aquatic and marine biology, ecosystems, water quality and management, and business practices. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

Forestry and Natural Resources (Pathway 104)

4061   Forestry

Forestry courses provide students with an understanding of the importance of forest ecology, recognizing species of trees and forest plants, tree and plant growth and development, forest and fire management, harvesting, timber stand improvement in both wild land and urban forests. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4062   Wildlife Management

Wildlife Management courses provide students with skills and knowledge of: wildlife preservation, waterfowl, wetlands, and fish management, topography map use, management and use of recreational areas, game bird and animal management, and outdoor safety. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4063   Natural Resource Management

Natural Resource Management courses introduce students to career opportunities in natural resource management and related industries. Topics include: soil features, erosion and management practices, conservation practices, water cycles, quality standards, reducing water pollution, conducting water quality tests, maintaining watersheds, recycling and management of waste in the environment, soil conservation management practices, land uses, and maintaining air quality. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

Ornamental Horticulture (Pathway 105)

4051   Introduction to Ornamental Horticulture

Introduction to Ornamental Horticulture courses expose students to the art and science of growing plants, shrubs, trees, flowers, fruits, and vegetables. They provide information regarding the care and propagation of plants, flowers, trees, and shrubs, but place a special emphasis on those used for decorative and aesthetic purposes. In doing so, they cover a wide variety of topics, including greenhouse and nursery operations, soils and media mixtures, fruit and vegetable production, turf/golf course management, interior and exterior plantscaping, irrigation systems, weed and pest control, and floral design. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4052   Floriculture & Floral Design

The Floriculture and Floral Design course focuses on the production, use, and marketing of flowers and foliage plants utilized in the floral industry. Major units of study include floriculture plant identification, greenhouse structures, and the culture of greenhouse crops. Also included is care and handling of cut flowers, principles of art applied to floral design, and the mechanics of floral design. Agribusiness units will be introduced in merchandising, advertising, sales, and operating a retail floral business. Improving computer and workplace skills will be a focus. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

This code should be used in place of retired code 4014.

4053   Landscape Design

Landscape Design courses will introduce students to basic study of the theory and principles of landscape design. Designs are applied to selected problems, both hypothetical and actual, in landscape development. Preliminary sketches and final drawings are prepared in plane, elevation and perspective form. Students will receive a basic understanding of horticulture and how to identify and select common trees, shrubs, ground covers and vines used in landscape design. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4054   Greenhouse & Nursery Management

Greenhouse and Nursery Management courses will provide students with the knowledge and skills related to the operation of greenhouses and nurseries in the production of plant ornamental plants. Students will be prepared to produce commercial plant species in a controlled environment and manage plant growth and health. Effect of environmental factors of light, temperature, moisture, humidity, air quality, nutrients, and pests, will be evaluated. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4055   Landscape & Turf Management

Landscape and Turf Management courses will provide students with the knowledge and skills related to the establishment and maintenance of landscape and turf in residential and commercial settings. Students will select appropriate species and plant materials and to design, install, and maintain interior and exterior plantings and hardscapes. They will also learn to maintain the facilities and equipment associated with the landscape and turf maintenance. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

Plant and Soil Science (Pathway 106)

4011 Plant Science

Plant Science courses provide knowledge about the propagation of plants for food and fiber. These courses may cover such topics as plant growth and health, irrigation, pest and weed control, food and fiber processing, and farm operations. They may also cover the knowledge and skills needed to produce all types of crops or may emphasize a particular area of the agricultural industry. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4012 Soil Science

Soil Science courses involve the study of soil properties, including soil chemistry, biology, fertility, mineralogy, and hydrology. Topics covered may also include soil texture, structure, conservation, irrigation, and management. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4013 Viticulture

Viticulture (grape-growing) courses prepare students for further studies and employment in the viticulture and wine making industry. The course emphasizes hands-on agricultural applications using vineyards and wineries as extensions of the classroom. Topics include vineyard establishment and management, harvesting, fermentation, wine making, marketing, and career options within the industry. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

4015 Crop Production

Crop Production courses prepare students for further studies and employment in the production of tree fruit, vegetable, grains, legume, and specialty crops. The course emphasizes the specific growing conditions, management practices, irrigation, weed, and pest control methods. Course could address a single crop species or multiple species. Participation in FFA student organization activities and SAE projects is an integral course component for leadership development, career exploration and reinforcement of academic concepts.

Arts, Media, and Entertainment Sector

Design, Visual, and Media Arts (Pathway 111)

5621   Introduction to Graphic Arts Technology

This course provides students with a foundational understanding of manufacturing processes and systems common to careers in graphic arts and printing technology. Representative topics include printing enterprise, art and copy preparation, graphic design, image generation and assembly, reproduction photography, graphic reproduction operations, binding and finishing related to digital imaging, lithography, and screen printing.

5622   Intermediate Graphics Technology

This course provides students with an in depth understanding of manufacturing processes and systems common to careers in integrated graphics technology. Representative topics include integrated text, graphic, audio, and video enterprises; composition and imaging; on-demand publishing; desktop publishing; integrated graphic design; digital imaging; color separation theory; communication techniques; electronic prepress; electronic image assembly; analog and digital audio; integrated graphic media distribution; and integrated graphic media production and storage.

5702   Introduction to Animation

This course introduces students to the artistic and technological foundations to create animated presentations for industry and entertainment. Students will develop basic drawing and design skills; learn the fundamentals and physics movement, the concept of communication to a given audience, and techniques for self-expression through a variety of animated formats. They will explore the careers and requisite skills required by animators in both entertainment and the business world.

5711   Intermediate Animation

Integrated graphic technology digital animation courses provide students with an understanding of manufacturing processes and systems common to careers in digital animation. Representative topics include integrated animation enterprises; composition and imaging; integrated graphic design; digital imaging; communication techniques; and analog and digital audio.

5712   Internet Publishing

This course covers specific elements of computer literacy used to create Internet publications including current software, design elements, graphics, text manipulation and page layout. Students will review legal and ethical issues surrounding Internet communication, as well as the roles and responsibilities of members of a publication team: writer, editor, graphics designer, layout artist, etc. Students will combine foundational competencies with technical knowledge to create a variety of materials including: posters, pamphlets, flyers, and complex text driven material.

5713   Two-Dimensional Design

This course provides an introduction to the commercial application of design principles to communicate on a two-dimensional plane. Students will create, manipulate, and analyze artistic elements and media used to express feeling and communicate ideas. Students will study the historical and cultural development of two-dimensional arts and its impact as a communications tool. Students will become familiar with current practices and applications including computer design and graphic art.

5714   Three-Dimensional Design

This course will emphasize the manipulation of artistic elements, media and competencies beyond the two-dimensional plane. Students will use a variety of media to create three-dimensional works that are personally expressive and culturally relevant. Students will be trained to use the aesthetic and practical applications of design principles in art, architecture, fashion, and industry.

5717   Advanced Cinema/Film/Video Production

This course will examine specific uses of film and video technology in various entertainment and industry sectors. Students receive advanced training in pre and postproduction jobs and competencies, current and emerging technologies, and the collaborative nature of the creative process involved in video production.

5729   Introduction to Media Arts

This course will combine competencies in film, video, computer, and live production, as well as foundational knowledge in design to introduce students to a variety of jobs in the multimedia/communications workforce. Instruction will focus on the interaction between media sources in live, recorded, and web-based productions. Students will develop skills in computer design, film and video production, lighting, sound, and projection design, and print media design. Students will also explore career options within this rapidly expanding industry sector.

5737   Visual Arts and Related Careers

This course introduces students to the elements and principle of design, a variety of artistic media, and the foundational skills of drawing, painting and three dimensional art in a commercial context. Students design, execute layouts and make illustrations for advertising displays and instructional manuals. It includes instruction in the preparation of copy; in lettering, poster, package, and product design; in fashion illustration; in silk screening; in airbrushing; and in ink and color dynamics. Students will explore the variety of career paths for professional artists as well as the skills and competencies required for specific artistic and commercial careers.

5751   Advanced Graphics Communications

Capstone- Graphic Arts- Communications focused.

5754   Commercial Art

This instructional program prepares individuals to design and execute layouts and make illustrations for advertising displays and instructional manuals. It includes instruction in the preparation of copy; in lettering, poster, package, and product design; in fashion illustration; in silk screening; in airbrushing; and in ink and color dynamics.

5755   Commercial Photography

This instructional program prepares individuals to use cameras and laboratory film-processing techniques. It includes instruction in composition and color dynamics; contact printing; enlarging; developing film; the use of airbrushes, camera meters, and other photographic equipment; portrait, commercial, and industrial photography; processing microfilm; and preparing copy for printing or for graphic-arts processing.

5757   Desktop Publishing

This instructional program prepares students to deal with the changing landscape of publishing. Students will develop competencies in computer programs and software, layout design, image editing and formatting, content manipulation, current printing technology, and distribution.

5759   Photography Production and Technology

This instructional program prepares individuals to engage in lithography, lithographic photography, stripping and related plate making processes.

5760   Photographic Laboratory and Darkroom

This instructional program prepares individuals to develop and print still or motion picture film; control resultant prints; touch up negatives; and finish, color, restore, and copy prints.

5769   Other Arts, Media and Entertainment

This designation is for an instructional program/course in Arts, Media and Entertainment that is not described above.

Performing Arts (Pathway 112)

5718   Intermediate Dance Performance

This course will refine dance and choreographic skills and introduce production elements (i.e., staging, lighting, and sound) and company organization and management in professional dance careers.

5719   Advanced Dance / Choreography

This course will apply dance and choreographic skills to create project-based performances for live, film and video production. Students will prepare audition or choreographic portfolios, learn business/managerial skills, and develop a professional career plan.

5720   Introduction to Professional Dance

This course explores the variety of career pathways available in dance. It introduces dance technique, choreography. Students will explore the variety of dance genre (modern, jazz, ballet, tap, and contemporary). Students gain an appreciation of dance as an art form and develop the skills necessary to pursue a variety of careers in dance. The course includes application of the elements and principles of dance, study of historical and contemporary dance, and exploration of the art form from a careers perspective.

5723   Introduction to Professional Music

This course explores the variety of career pathways available the professional music industry. It will provide foundational training in instrumental/vocal technique, basic theory and composition, and develop the skills necessary to pursue a variety of careers in the music industry. The course includes application of music theory, study of historical and contemporary music, and exploration of the art form from a careers perspective.

5724   Advanced Professional Music

This course will build on music theory and technical knowledge to prepare students for specific career paths in music creation, arrangement and production. Students will explore music as an interpretive form of artistic expression and as a practical communications tool. Students will be trained to compose and appreciate music in a variety of genre. The historical and cultural context of composition will also be examined. The psychological impact on audience and market will be evaluated to maximize the effectiveness of a composition or arrangement. Students will explore the spectrum of career options ranging from artistic communication to entertainment to marketing and identify the effective use of musical composition in each pathway.

5727   Intermediate Musical Performance

This course will build on foundational music theory and technical knowledge to prepare students for specific career paths in music creation, performance or production. Students will refine skills and competencies in their particular pathway of the professional music industry. Students will explore the career options and opportunities in their particular career path.

5742   Intermediate Theatre Performance

This course will build on the foundational skills in a variety of technical and performance disciplines to create project-based live performances in theatre and musical theatre. Students will also be introduced to the business/managerial careers associated with live theatrical performance.

5743   Advanced Theatre Performance

This course will apply skills theatrical performance to create project-based performances in theatre, musical theatre, film and video production. Students will prepare audition or direction portfolios, learn business/managerial skills, and develop a professional career plan.

Production and Managerial Arts (Pathway 113)

5527   Introduction to Stage Technology

This course introduces the techniques and processes involved in stage management, prop construction, lighting, the setup and operation of sound systems, and the operation of projection equipment. The program develops basic construction techniques for stage property and scenery; affords practice in stage crew work, which includes the erection and striking of scenery; and provides an overview of related occupations in radio and television.

5715   Film Making

This course trains students to use film as a tool for communication and self-expression in entertainment and industry. Students will study the history and aesthetics of film as a complex, collaborative art form. They will explore the foundational elements of writing, photography, visual perception, and elements of design as they apply to cinematic expression. Students will analyze the use of film and video to share ideas and influence culture. They will also be trained in the multiple technical competencies required to communicate through film and the rich variety of employment opportunities available in the field.

5716   Film/Cinema/Film/Video Production

This course covers the history and development of the cinema, documentaries, and other new media and film technologies. Students learn skills and practices in various aspects of cinema and video production by applying the elements of art, principles of design, integration of technology for the effective visual communication of their ideas, feelings, and values. Students develop skills, including camera/recording operation, framing and composition, manipulations of space and time, idea development and communication, the mechanics and psychology of editing, script writing or text creation, light and sound, and impact.

5721   Introduction to Professional Theater

This course introduces the variety of careers in professional theater. Students will study a range of professional models from Broadway to regional to community theatre to identify established practices and basic competencies required to create professional theatre.

5725   Radio Production

This course will allow students to examine the multiple uses of radio as a broadcast medium in various entertainment and industry sectors. They will receive task-oriented training in pre, post, and "on air" production jobs and competencies, current and emerging technologies, and the collaborative nature of the creative process involved in radio production. In addition to "on air" performance techniques, students will examine the technological interface of sound, recording, audio switching, and computer modification involved in radio broadcast production.

5730   Introduction to Multimedia Production

This course will provide foundational competencies in film, video, computer, and live production, as well as foundational knowledge in design to prepare students for employment in a variety of jobs in the multimedia/communications workforce. Instruction will focus on the interaction between media sources in live, recorded, and web-based productions. Students will develop skills in computer design, film and video production, lighting, sound, and projection design, and print media design.

5731   Broadcast Production

This course provides students skills and competencies in broadcast media including television, radio, web/pod casting, and emerging broadcasting technologies. Students will become familiar with current and emerging technology and practices and the variety of career opportunities that present themselves in the live broadcasting pathways (see Television Production and Radio Presentation for further information). Concentration or Capstone Course in Production Managerial Arts.

5732   **Intermediate Stage Technology**

This course will train students in the use and management of the various elements of technical production during a dance, music or theatrical performance. These elements include the rigging and movement of sets, scenery, and lighting equipment, the use of computerized switching systems for lighting and sound, the management and distribution of stage properties, etc. Students will also be taught to manage the complex support tasks that are involved in a performance. They will explore apprenticeship, higher education options career training, and professional placement.

5733   **Stage Design and Production**

This instructional program will build on foundation skills in Stage Technology and Production to include design in variety of theatrical productions. Students will use analytical skills to interpret literary material to create a design concept. Students will be familiar with design elements, drafting techniques, computer software, and modeling skills necessary to prepare designs and models of theatrical sets. They will be trained to interpret mechanical drawings to safely use appropriate power equipment to construct sets based on artist's designs. They will also become familiar with the diverse array of production materials and techniques used to augment live theatrical productions.

5734   **Arts Management**

Capstone Course for any Career Pathway focused on Management.

5744   **Stage Production**

Capstone Production Based.

5745   **Television Production**

This instructional program will train students to carryout support tasks involved in the successful production of a live television broadcast. They gain expertise in the use of lighting, sound, camera, and switching equipment and software used in various live broadcasts (news, dramatic, musical, dance, and reality based performance genre). Students will become familiar with the skills and equipment necessary for each production element, as well as the collaborative interaction required for success.

5770   **Broadcasting Technology**

This instructional program prepares individuals to support broadcast managers in the production of materials and the production and broadcasting of materials or programs.

Game Design and Integration (Pathway 114)

5752 Game Design

This course introduces students to the rapidly developing field Game Design and production. They will explore current technologies, media and art applications, and emerging technological advances that impact this ever-expanding field. They will combine foundations in design, animation, graphic imaging, and multimedia production to prepare for employment, advanced training, or higher education in project or software design.

5735 Intermediate Game Design

This course refines student skills and expands student knowledge in current technologies, media and art applications, and emerging technological advances that impact the game design field. Students will refine skills in design, animation, graphic imaging, coding and multimedia production to prepare for employment, advanced training or higher education in project or software design. Students will explore other industry application including a mobile application design and technology

5736 Advance Game Design

This course will prepare students for entry-level careers or continuing education in a particular area of game design. Students will use advanced skills to create collaborative projects, evaluate peer designs, and create a design portfolio and career plan.

Building and Construction Trades Sector

Cabinetry, Millwork, and Woodworking (Pathway 120)

The Cabinetry, Millwork, and Woodworking pathway provides learning opportunities for students interested in preparing for careers in cabinet construction, millwork, finish carpentry, and furniture making for both production and custom products

5514   Furniture Making

This instructional program prepares individuals to assemble and finish wood furniture. It includes instruction in preparing freehand sketches; fastening wooden parts with glue; reinforcing joints with dowels, screws, staples, or nails using power screwdrivers, staple guns, or hammers; and finishing and/or refinishing new, used, damaged, or worn furniture according to specifications.

This code should be used in place of retired code 5526.

5520   Millwork and Cabinet Manufacturing

This instructional program prepares individuals to engage in the mass production of such articles as window frames, moldings, trim and panels, and such products as store fixtures, kitchen cabinets and office equipment. The program includes instruction in cutting, shaping, assembling, and refinishing articles; installing hinges, catches, drawer pulls, and other hardware; and planning and drafting layouts. The emphasis should be on how to design and implement large-scale reproduction of the products being built.

5531   Introduction to Woodworking Principles

This course prepares students to safely design, lay out and shape stock; assemble wooden articles or subassemblies; mark, bind, saw, carve, and sand wooden products; repair wooden articles; and use a variety of hand and power tools.

5532   Cabinetmaking

This course introduces students to all phases of cabinet construction, design and production and covers the construction of both custom and small-scale production/manufacturing.

Engineering and Heavy Construction (Pathway 121)

The Engineering and Heavy Construction pathway provides learning opportunities for students interested in preparing for careers in engineering and heavy industrial construction (roads, highways, subdivisions). The pathway includes instruction in the way in which these structures are built (Class A California License)

5505 Brick, Block and Stonemasonry

This instructional program prepares individuals to lay bricks and/or blocks. It includes instruction in laying out and/or spacing bonds; determining vertical and horizontal alignment of courses using gauges, plumb bobs, and levels; and cutting, notching, and shaping blocks, bricks, terra-cotta veneer, glass, and stone to construct or repair walls, partitions, arches, sewers, and fireplaces

5509 Construction Equipment Operation

This instructional program prepares individuals to operate and maintain heavy equipment, such as crawler tractors, motor graders and scrapers, and shovels, including draglines, hoes, and cranes. It includes instruction in digging, ditching, sloping, stripping, grading, backfilling, clearing, and excavating.

5533 Engineering and Heavy Construction

This course prepares students for careers in engineering and heavy industrial construction such as roads, highways, subdivisions and includes instruction in the way these structures are built.

This code should be used in place of retired codes 5535, 5536, 5537.

Mechanical Systems Installation and Repair (Pathway 122)

The Mechanical Systems Installation and Repair pathway provides students with competencies fundamental for preparing for employment or advanced training in heating, ventilation, air-conditioning (HVAC) and appliance installation, maintenance, and repair. The pathway includes preparation for a Class C California License and EPA certification.

5506 **Exploring Building and Mechanical Systems**

This introductory program prepares individuals to keep a building functioning and to service a variety of structures, including commercial and industrial buildings and mobile homes. The program includes instruction in the basic maintenance and repair skills required to maintain air-conditioning, heating, plumbing, electrical, and other mechanical systems.

5516 **Heating, Ventilation and Air Conditioning (HVAC) Systems**

This instructional program prepares individuals to install, operate, test, repair and maintain commercial and domestic heating and air-conditioning systems.

This code should be used in place of retired codes 5510 and 5522.

5534 **Introduction to Mechanical Construction**

This course prepares students for careers in plumbing, electrical, heating, ventilation, air-conditioning (HVAC). This course also includes instruction in how these systems work in structures.

This code should be used in place of retired codes 5517, 5522, 5528.

Residential and Commercial Construction (Pathway 123)

The Residential and Commercial Construction pathway provides learning opportunities for students interested in preparing for careers in construction and building design, performance, and sustainability. The standards focus on the manner in which residential and commercial structures are designed and built. The pathway includes instruction in the way in which these structures are built (Class B California License)

5501 Introduction to Building and Construction Trades

This course is intended to be an introductory course focusing on the foundational skills needed in the construction trades and is required for enrollment in advanced career and technical education courses in the Building and Construction Trades Sector. It will include the study of safety, career opportunities, hand and power tools, planning and design, applicable mathematics, blueprint reading, component nomenclature, trade vocabulary, residential and commercial construction standards, construction manufacturing standards, and specialized skills. Competencies related to each standard in the sector are taught.

This code should be used in place of retired codes 5503, 5508, 5511, 5513, 5515, 5517, 5521, 5523, 5524, 5525, 5528, 5529, 5538.

5502 Residential and Commercial Construction

This course provides individuals with the intermediate skills and information specific to the residential and commercial construction industry. It comprises the study of fasteners and hardware, finishes and coatings, materials, installation techniques, new and emerging technologies, mapping and surveying, levels and transits, foundations and floors, walls and partitions, roof systems, electrical wiring, interior and exterior finishes, floor coverings, metal construction, heating and cooling, plumbing, concrete and brick masonry, insulation, glazing, maintenance, and landscaping.

This code should be used in place of retired codes 5508, 5511, 5513, 5515, 5517, 5521, 5523, 5524, 5525, 5528, 5529.

5507 Carpentry

This instructional program emphasizes the preparation of individuals to layout, fabricate, erect, install and repair wooden structures and fixtures, using hand and power tools. It includes instruction in common systems of framing, including stair layout, windows and exterior doors, floor systems, drywall installation and finishing, construction materials, estimation, and blueprint reading should be considered. (Intermediate or Capstone)

5526 Introduction to Emerging Construction Technologies

This course will introduce students to building systems, building processes and building materials that support new and emerging technologies, including sustainable landscaping practices and other "Green" technologies.

5950 Construction Technology

This course is comprehensive, building upon foundational skills learned in an introductory class. The course will focus on all aspects of the building process, including site layout/survey, foundations, masonry, floor systems, framing, roofing, exterior finishing, electrical, HVAC, waste systems and plumbing. The course introduces advanced construction concepts and practices as well as management and production practices in current use in the construction industry.

Business and Finance Sector

Financial Services (Pathway 180)

4600 Accounting

This instructional program prepares individuals to perform any combination of the following and similar tasks: apply the accounting cycle for both a service and merchandising business through closing the books for a sole proprietorship, partnership, and corporation; select and use appropriate computer hardware and software to develop, process, and maintain accounting records and create reports; create and maintain subsidiary ledgers; prepare, analyze, and interpret financial statements; apply procedures for asset acquisition and disposition and analyze and calculate depreciation methods; create budgets, design flexible budgets, and make capital budgeting decisions. Course title examples include: Accounting, Computer Accounting

4611 Banking and Finance Services

This course will cover major functions of financial institutions, modern trends in the finance industry, credit functions, loan creation, debt collection, and stocks and bonds. Course title examples include: Financial Planning and Services, Financial Operations, Financial Planning, Business Planning, Financial Services, Business Services, Banking, Loan Management

4612 Business Financial Management

This course will cover planning, organizing and controlling of the monetary resources of a business. Course title examples include: Introduction to Business Financial Management, Financial Management, and Business Finance.

This code should be used in place of retired code 4624.

4629 Personal Finance

This course includes principles on how to make good financial decisions. Course title examples include: Personal Finance, Personal Financial Literacy, and Financial Literacy

4630 Business Economics

This instructional program integrates economic principals with entrepreneurship/business concepts. Such programs provide functional economic literacy through an experienced-based business curriculum.

International Business (Pathway 181)

4625   Introduction to International Business

This course will provide students with exploratory experiences related to career opportunities in international business at entry, technical, and professional levels.

4626   International Business Communications

This instructional program prepares individuals to communicate electronically by using bulletin boards, online information services, electronic mail systems, voice mail and facsimile machines. Students may identify, evaluate, select, and configure various hardware and software applications across various platforms; analyze, manage, and maintain various types of electronic networks; identify, evaluate, create, and process audio and visual transmissions; and apply work group applications to electronic mail, calendaring, scheduling, and video conferencing.

4627   International Economics

These courses will provide students with an understanding of the principles and applications of global economics. Course titles include: Global Economy, Global Economics, and Globalization

4628   International Banking, Finance and Investment

These courses will provide students with an understanding of global financial, banking, and investment activities. Course titles include: International Banking, International Finance, and International Investment

Business Management (Pathway 182)

4602   Business Fundamentals

This instructional program introduces major principles and concepts that are the foundation for future study of business and management. Program content includes such topics as basic business principles, personal finance concepts, management concepts, systems thinking, quality management, and the current environment for business in a multinational marketplace. Communication skills and basic mathematical concepts are reinforced in this course. Simulations, projects, work-based learning opportunities, teamwork, and career technical student organization (CTSO) leadership activities, meetings, conferences, and competitions provide opportunities for application of instructional content. Courses such as: Business Fundamental, Introduction to Business

4622   Business Support and Services

This instructional program prepares individuals to perform clerical or secretarial duties related to the preparation of legal papers and correspondence, such as summonses, complaints, motions, subpoenas, and so forth. It includes instruction in legal terminology, procedures, and documents. Students take dictation in shorthand or use transcribing machine to transcribe notes on an electronic typewriter and/or microcomputer; prepare and send bills to clients and record appointments; prepare and maintain client files, and operate an electronic calculator. Course Title examples include Administrative Support, Secretarial.

This code should be used in place of retired codes 4608, 4609, and 4613.

4623   Business Technology

This instructional program prepares individuals to create business correspondence, reports, publications and forms by using computer operating systems; word processing; database, spreadsheet and desktop publishing software; hardware and peripherals; and/or electronic typewriters. The student will use appropriate electronic information resources to research and transmit information and operate industry-standard equipment. Courses such as: Administrative Support, Business Applications, Computer Concepts, Computer Applications, Computer Technology, Computer Literacy, General Office Occupations, Word Processing Occupations, Secretarial, Legal Office Occupations, Keyboarding.

This code should be used in place of retired codes 4601, 4610, 4614, 4633.

4637   Business Management

This instructional program prepares students to perform marketing and management functions and tasks associated with starting, owning and operating a business. Students learn the principles and methods of organizing a business firm and for combining resources to produce goods and services, taking account of costs, profits, and the nature and extent of competition in markets. This instructional program describes management functions and processes in contributing to organizational goals. Program content addresses organizational theory; human resource development; management principles and styles; policy and strategy formation; production and operations management, planning and development; and economic theory and practice. Course Titles: Small Business Ownership and Management, Business Leadership, Organizational Leadership, Human Resources

4638   Business Communications

This instructional program prepares students to create business correspondence, reports, publications and forms by using computer operating systems; word processing; database, spreadsheet and desktop publishing software; hardware and peripherals; and/or electronic typewriters. The student will use appropriate electronic information resources to research and transmit information and operate industry-standard equipment.

Education, Child Development, & Family Services Sector

CHILD DEVELOPMENT (Pathway 130)

4321 Child Development and Guidance

This concentration course prepares students to understand children's physical, mental, emotional and social growth and development as well as provide for their care and guidance. Instruction includes prenatal developments; inherited characteristics, health and safety, guidance and discipline, cultural diversity, and child abuse and neglect. This course provides a solid foundation for any career that involves working with children, including childcare and education. Course titles may include: Child Development or Parenting.

This code should be used in place of retired code 4469.

4323 Psychological Development of Children

This concentration course provides an in depth study of research theories in human growth and development from prenatal stages of development to puberty and beyond. This course includes instruction in optimal physical and emotional health, positive learning environments, social interaction, and communication skills. Topics to be explored include guiding children's behavior, changes and crises, and children with special needs. This course is highly recommended for students interested in careers in preschool, elementary or high school education. Course titles may include: Child Psychology.

4400 Careers in Child Development

This capstone course prepares students for employment in the care and guidance of young children under the supervision of professional personnel. Instruction includes child and growth and development; nutrition; program planning and management; health and safety; guidance; recreational and play activities; child abuse and neglect; developmentally appropriate practices; interpersonal relationships; regulations; policies, standards, and licensing; supervision and maintenance of children's environment; professionalism; and classroom management. Course titles may include: Careers with Children, or Working with Young Children.

CONSUMER SERVICES (Pathway 131)

4310 Exploratory Home Economics & Technology I & II (Gr. 6-8)

These introductory courses emphasize the exploration of the home economics careers and technology content areas and related career opportunities. Instruction in grades six and seven targets self-development and management, relationships with others, and preparing for family, work, and community living. In grade eight, students study parenting and child development, personal and family relationships, making consumer decisions, personal image and clothing, healthy food choices, designing living environments and development of community, leadership, citizenship and career roles. Course titles may include Life Skills, or Life Management.

4311 Consumer & Family Studies Comprehensive Core I

This introductory course is the first course in a sequence of courses that provides instruction in the eight content areas and leadership. The focus is on preparing students for personal and life management and providing a strong foundation for home economics careers and technology related careers. Instruction in the content areas of child development and guidance; consumer education; family and human development; education; fashion, textiles, and apparel; food and nutrition; housing and furnishings; individual and family health; and leadership is designed to prepare students with the knowledge, skills and attitudes to function effectively as family members, leaders, workers, and citizens. Course titles may include: Home Economics, Life Management, Independent Living, Creative Living or Life Skills.

4312   Consumer & Family Studies Comprehensive Core II

This is an advanced introductory course that comes second in a sequence of courses that provides advanced instruction in the eight content areas and leadership. The course expands upon previously mastered competencies and provides the depth and breadth required to establish a strong foundation for home economics and careers and technology career paths. Instruction in the content areas - child development and guidance; consumer education; family and human development; education; fashion, textiles, and apparel; food and nutrition; housing and furnishings; and individual and family health and leadership - is designed to prepare students with knowledge, skills and attitudes to effectively manage work and family responsibilities and to transition to jobs and careers related to home economics careers and technology. Course titles may include: Advanced Home Economics, Life Management II, Independent Living II, or Creative Living II, or Advanced Life Skills.

4341   Consumer Education

This concentration course prepares students to understand and analyze values, needs, wants, goals and resources in order to make decisions that contribute to personal and family economic stability. Instruction includes the steps in decision making, earning an income, taxes, money management, financial planning, understanding the marketplace, selling methods, retail information, consumer rights and responsibilities, managing credit, housing decisions, and the consumer as part of the national and global economy. This course provides the background needed in a variety of careers that involve consumer information and purchasing as well as financial planning. Course titles may include: Personal Financial Management.

4371   Resource Management

This concentration course prepares students to manage and maintain a satisfying family and work life. Instruction includes decision making; the societal and economic influences on individual and family management; values, goals, and standards; family economics; equipment selection; energy saving techniques; and the organization of activities in the home as a means of successfully combining work and family roles. Students in each career pathway would benefit from this resource management course. Course Titles may include: Financial, Stress, and Time Management, or Personal Financial Management.

This code should be used in place of retired code 4342.

4398   Other Consumer and Family Studies

This designation is for an instructional program or course in Consumer and Family Studies that is not described above.

4461   Consumer, Personal, and Financial Services

This capstone course prepares students for employment in occupations in personal and financial services; product development, test and demonstration; energy; environment; and consumer communications. Instruction includes comparison shopping; consumer laws and regulations; selection and use of products and equipment; demonstration of new products, energy conservation methods; preparation of materials for publication, broadcast or telecast; interpretation of consumer needs to manufacturers and methods of responding to customer inquiries. Students develop skills to process mail and phone orders; prepare reports; use industry technology; set up and arrange displays; determine customer needs and wants; select merchandise and products; and assist clients in the selection of services.

EDUCATION (Pathway 132)

4401 **Teaching Careers or Careers in Education**

This capstone course prepares students to assist with instructional activities and introduces a variety of careers in education. Students study such topics as standards and licensing regulations; operational procedures; emergency and disaster procedures; child growth and development; positive interaction, guidance and discipline; developmentally appropriate practices; nutrition; health and safety; instructional assistance; supervision; recreational activities; clerical work; use of computers and educational technology; and professionalism. Course titles may include: Educational Practices or Becoming a Teacher.

FAMILY AND HUMAN SERVICES (Pathway 133)

4351   Family and Human Development

This concentration course expands on the comprehensive core and prepares students to understand the basis, function and significance of the interpersonal and family relations; human development; and individual needs throughout the life cycle. Instruction includes the meaning of family, quality relationships, love and commitment, marriage, major life adjustments, and parenting. This course provides the needed background for a variety of careers involved with assisting in the care of children and family, family and human services, as well as the elderly. Course titles may include: Human Growth and Development or Human Lifespan Development.

This code should be used in place of retired code 4352

4391   Individual and Family Health

This concentration course expands on the comprehensive core and prepares students to understand the principles of personal and family health care and the importance of responsible behavior. Instruction includes good health habits, positive mental attitudes, management of stress, good nutrition, body systems, substance use and abuse, family life, managing manipulation, relationships, pregnancy, diseases and infections, safety and emergency care and maintaining a healthy environment. This course may meet a local health requirement and provides a solid background for home economics-related careers.

4451   Family and Human Services

This capstone course prepares students for employment in occupations in family and social services. Instruction includes locating and accessing community resources and housing appropriate for low-income and other clients; and assisting professional staff with interviewing and compiling information. Instruction may include, but not be limited to, organizing and facilitating groups; scheduling activities that meet the needs and interests of individual members; personal health habits and nutrition; social involvement; supervision and safety of clients; common problems of families; professional standards, laws and regulations; and compiling information on social, educational or institutional history. Course titles may include: Careers in Family Services or Careers in Human Services.

4452   Elder Care/Intergenerational Services

This capstone course prepares students with the skills, attitudes and knowledge needed for employment in elder care and intergenerational services occupations. Instruction includes such topics as standards; laws and regulations; health and safety; interaction with families and communities; positive guidance and discipline; the importance of social involvement and sensitivity to common problems experienced by individuals and families with special needs. Students develop skills to assist elderly, handicapped, or convalescent persons with personal, social, and business affairs utilizing community resources.

5802   Marriage and Family Relations

This concentration course provides a basic understanding of communication and relationship issues related to human services occupations. Specifically, this course emphasizes the uniqueness of families and individuals, including values, goals, decision-making, interpersonal relationships and communication skills, and managing personal and family crisis. Course titles may include: Family Communications, or Relationship Connections.

Energy, Environment, and Utilities Sector

Environmental Resources (Pathway 141)

5691   **Energy and Environmental Technology**
This course will provide students with an understanding of emerging energy and environmental technologies to include solar, wind, nuclear, and renewable and non-renewable energy sources.

5569   **Energy, Society and the Environment**
This course will provide students with an understanding of the science and technology of current and future energy sources along with associated environmental problems and societal response.

5582   **Environmental Law and Policy**
This course will examine the role of law and policy in regulation and management of natural resources and the environment. Course title examples include Environmental Law, Environmental Policy, and Introduction to Natural Resources

5584   **Introduction to Environmental Resources**
This course will provide students with an understanding of the concepts and principles of environmental resources.

5587   **Water, Land Use, and the Environment**
This course will provide students with an understanding of water and land use including efficiency, quality, scarcity and waste management. Course Titles include Water Resources, Soils and Land Use.

Telecommunications (Pathway 142)

4618   **Telecommunications**

This course will provide students with the understanding of the basic principles and concepts that impacts the telecommunications industry.

This code should be used in place of retired code 5556.

5551   **Introduction to Electronic Technology**

This course will provide students with the fundamentals of the theory, measurement, control, and application of electrical energy.

5557   **Computer Electronics**

These courses will prepare students to assemble, install, operate, maintain and repair computers and digitally controlled instruments. Course Titles include, Computer Service Technology, Computer Electronics.

This code should be used in place of retired code 5558.

5561   **Electronics Technology**

These courses will prepare students to support the electronic engineer and other professionals in the design, development, modification, and testing of electronic circuits, devices, and systems. Course titles include, Electronics.

This code should be used in place of retired codes 5679, 5690, 5570, 5568, 5567, 5566.

Energy and Power Technology (Pathway 143)

5550   Alternative Technologies

This course will investigate emerging and alternative power generation technologies. Course Title examples include Principles of Alternative and Renewable Energy, Alternative Energy, Alternative Energy Technology

5577   Principles of Power and Energy

This course will explore the basic conventional and fundamental principles and concepts of the power and energy industries.

This code should be used in place of retired code 5580.

5583   Introduction to Electrical Power Systems

This course will introduce students to the fundamentals of electrical power systems including analysis, structure, components and basic principles.

5585   Power and Energy Technology

This course will allow students to apply research methods of energy procurement, transmission, distribution and the interrelationships among components or systems.

5692   Public Utilities

This course is designed to provide students with an understanding of the principles, concepts, and operations of residential and commercial energy and utilities industries.

This code should be used in place of retired codes 5578, 5579, 5586, 5564, 5565, 5518, 5566, 5567, 5693, 5568, 5581.

Engineering and Architecture Sector

Architectural Design (Pathway 150)

The Architectural Design pathway provides learning opportunities for students interested in preparing for careers in such areas as architecture, industrial design, and civil engineering.

5571   Architectural and Structural Engineering

This course provides advanced learning opportunities for students interested in preparing for careers in such areas as architecture, industrial design and civil engineering.

Crosswalk from old course code 5626

5705   Computer Aided Drafting/Design

This instructional program prepares individuals to use a computer, computer software and peripheral devices to create an image or drawing in the design and documentation of an object. Prepares individuals to present information graphically by means of schematics, sections, exploded views, and other techniques that illustrate or clarify oral or written descriptions. May include an introduction to board drafting, emphasis is on Computer Aided Drafting (CAD) and design however.

Crosswalk from old course codes 5701, 5704, 5706, 5708 and 5710.

5707   Technical Drafting

This introductory program prepares individuals to assist engineers and architects in the development of detailed working drawings and related specifications for mechanical devices and machinery. Prepares individuals to present information graphically by means of schematics, sections, exploded views, and other techniques that illustrate or clarify oral or written descriptions. It includes instruction in sketching rough layouts; paper/pencil drafting of detailed multi-view drawings; and analyzing compression, magnitude, direction, point of application of tension, and bending factors. This course emphasizes paper/pencil drafting rather than CAD.

5783   Principles of Design

Focusing on the study of Architectural Design processes, this course will introduce a student to fundamental design principles that lead to further study in Architecture and Engineering.

Engineering Design (Pathway 152)

The Engineering Design pathway provides learning opportunities for students interested in preparing for careers in the design and production of visual communications

5573 Principles of Engineering Design

This introductory course will provide learning opportunities for students interested in preparing for careers in the design and production of visual communications and other areas in the Engineering field. The students learn the design process in order to plan, prepare, and interpret drawings and models through traditional drafting or Computer Aided Drafting (CAD) techniques.

Crosswalk from old course codes 5749

5781 Engineering Design Level 2

An advanced course in the Engineering Design pathway, focusing on specialized engineering concepts and/or industries. Some examples: wind turbine design, aerodynamics (Aerospace), mechanical engineering, etc.

Crosswalk from old course codes 5709, 5780

Engineering Technology (Pathway 153)

The Engineering Technology pathway provides learning opportunities for students interested in preparing for careers in the design, production, or maintenance of mechanical, electrical, electronics, or electromechanical products and systems.

5574   Principles of Engineering Technology

This introductory course will provide learning opportunities for students interested in preparing for careers in the design, production, or maintenance of mechanical, electrical, or electromechanical products and systems.

5782   Engineering Technology Level 2

An advanced course in the Engineering Technology pathway, focusing on specialized concepts and/or industries that require post-secondary training in the design, production, or maintenance of mechanical, electrical, or electromechanical products and systems.

Environmental Engineering (Pathway 154)

The Environmental Engineering pathway includes design and development processes, equipment, and systems that are used to create, monitor, prevent, or correct environmental events and conditions

5575   **Principles of Environmental and Natural Science Engineering**

This introductory course provides students with the opportunity to prepare for careers in the Environmental Engineering field. Students will learn the design process as well as the equipment and systems used to create, monitor, prevent, or correct environmental events and conditions.

5750   **Environmental Engineering Level 2**

An advanced course in the Environmental Engineering pathway, focusing on specialized concepts as it relates to the industry. Examples: waste water treatment, bio-fuel manufacturing, soil and ground water remediation, hazardous waste removal, etc.

Fashion and Interior Design Sector

Fashion Design and Merchandising (Pathway 160)

4331   Fashion, Textiles and Apparel

This concentration course expands on the comprehensive core and prepares students to understand the social, psychological, physiological aspects of fashion, textiles and apparel. Instruction includes apparel and behavior; elements and principles of design; color theory, wardrobe planning, history of apparel, specialized clothing, wardrobe budgets, retail options, textiles, garment care, alterations, and construction. This course provides a strong foundation for entry into the fashion career pathway. Course titles may include: Fashion Design and History; Fashion Strategies; or Fashion and Textiles.

4333   Apparel Design and Construction

This concentration course provides an in-depth study of advanced apparel design. Instruction includes personal and family clothing selection and purchase; design and construction of clothing, utilizing advanced construction techniques; couture design elements; and modification of clothing to meet the special needs of individuals. Emphasis is given to fashion design techniques. This course is highly recommended for students interested in pursuing a career in the fashion industry. Course titles may include: Introduction to Clothing; Apparel Construction; or Garment Design and Construction.

4410   Fashion Merchandising

This capstone course prepares students with the skills, attitudes and knowledge needed for employment in the fashion merchandising of apparel and accessories. Instruction includes such topics as operational procedures; textiles identification and analysis; fabric selection, care and repair; the elements and principles of design; product knowledge and merchandising techniques; sales and service; fashion forecasting; visual merchandising; inventory control and loss prevention; cash and credit transactions; and technology used in the industry. Course titles may include: Fashion Design and Merchandising; Fashion Merchandising and Marketing; or Careers in Fashion Design, Manufacturing, and Merchandising.

4411   Fashion and Textile Design

This capstone course prepares students with the skills; attitudes and knowledge needed for employment in fashion and textile design occupations. Instruction includes such topics as industry regulations; identification and analysis of textiles and textile products; elements and principles of design; garment construction; merchandising and fashion forecasting. Students develop skills to illustrate designs; create color charts with interesting pattern and texture variations; design apparel (including draping, pattern making, and grading); and develop and merchandise a line. Course titles may include: Fashion Design; Fashion Technology; Fiber Arts and Design.

4412   Apparel Manufacturing, Production and Maintenance

This capstone course prepares students with the skills, attitudes and knowledge needed for employment in apparel manufacturing, maintenance, alterations and repair occupations. Instruction includes industry regulations; operational procedures; analysis of textiles products; apparel and accessory construction and repair methods; fitting and alteration; and technology used in the industry. Students develop skills to select fabrics; design and construct apparel; fit and alter garments; and apply finishing and cleaning techniques. Course titles may include: Introduction to Fashion Design and Production; Fashion Construction and Wearable Art; or Careers in Apparel Manufacturing and Production.

Interior Design (Pathway 161)

4381 Housing and Furnishings

This concentration course expands on the comprehensive core and prepares students to understand the physical, psychological, and social influences on complex housing decisions. Instruction includes design principles and elements; housing decisions; materials, furnishings, accessories, and equipment; color theory; space planning; textiles and finishes; landscaping; housing and furniture styles. This course provides a solid background for a variety of careers in residential and commercial furnishings, interior design, and interior maintenance. Course titles may include: Interior Design, Housing, and Furnishings; Space Planning and Design; or Introduction to the Principles of Design.

4382 Environmental Design

This concentration course expands on the housing and furnishing content area to include an in depth study of environmental concerns that impact housing such as conservation of resources, materials, and construction technology as well as the analysis of cultural, psychological, functional and aesthetic design concepts. Topics include the historical periods of architecture and the conditions that influenced them, population trends and the ways the elements and principles of design relate to housing, furnishings, and the environment. This course provides a background for a variety of careers in residential and commercial design and maintenance. Course titles may include: Introduction to Design; Interior Design; or Historical and Contemporary Design.

4430 Interior Design, Furnishings and Maintenance

This capstone course prepares students for employment in occupations concerned with furnishing and decorating residential and commercial properties. Instruction includes assisting purchasers in selecting and maintaining suitable furnishings and/or equipment; assisting interior designers, decorators or professional home service directors; selection of slipcovers, draperies, curtain and window treatments; upholstery; designing accessories as floral arrangements or decorations; designing space to address needs; the care and maintenance of residential and commercial floor surfaces, wall coverings, furnishings and equipment; and personal management. Course titles may include: Interior Design; Interior Merchandising; or Careers in Interior Design, Furnishings and Maintenance.

Personal Services (Pathway 162)

4413   Makeup Artistry

Multi-level hour (400-1600) courses prepares individuals to perform makeup artistry services that can be used in high fashion, high definition camera/film/TV, studio, movie, or theatre productions for specialty or special effects makeup applications. Special attention is given to makeup applications, color theory, skin diseases, and use of prosthetics for special effects, disinfection practices, and state laws/regulations. Instruction prepares students for industry certifications. Course titles may include: Introduction to Makeup Artistry; High Definition or Photography Makeup Artistry; Theatrical or Stage Makeup Artistry; Special Effects Makeup Artistry; or Film and TV Makeup Artistry.

5811   Barbering

This 1500-hour course prepares individuals to perform hairstyles, cutting, chemical services (i.e., bleaching, color, perms, and relaxers), facial care including shaving, health and safety for clients, disinfection/sanitation for real world working skills. Special attention is given to hygiene, anatomy, hair/skin disorders/diseases, basic chemistry, product ingredients, disinfection practices, and state laws/regulations. Instruction prepares students for state licensing examinations. Course titles may include: Introduction to Barbering or Barbering 1; Intermediate Barbering or Barbering 2; Advanced Barbering or Barbering 3.

5812   Cosmetology

This 1600-hour course prepares individuals to perform hairstyles, cutting, chemical services (i.e., bleaching, color, perms, and relaxers), facial care, nail care, makeup, health and safety for clients, and disinfection/sanitation for real world working skills. Special attention is given to hygiene, anatomy, hair/skin disorders/diseases, basic chemistry, product ingredients, disinfection practices, and state laws/regulations. Instruction prepares students for state licensing examinations. Course titles may include: Introduction to Cosmetology or Cosmetology 1; Intermediate Cosmetology or Cosmetology 2; Advanced Cosmetology or Cosmetology 3.

5814   Manicuring

This 400-hour course prepares individuals to perform nail care of the hands and feet for clients. Special attention is given to anatomy/physiology of the hands and feet, nail diseases/disorders, nail art/polish techniques, artificial nail techniques, basic chemistry, product ingredients, equipment used in services, disinfection practices, and state laws/regulations. Instruction prepares students for state licensing examinations. Course titles may include: Introduction to Manicuring or Manicuring 1; Intermediate Manicuring or Manicuring 2; Advanced Nail Art/Artificial Nail Applications or Manicuring 3.

Health Science and Medical Technology Sector

Mental and Behavioral Health (Pathway 195)

4228   **Abnormal Psychology**

This course entails a detailed survey of the various types of abnormal behavior, including behavior resulting from anxiety disorders, mood disorders, substance abuse, sexual disorders, personality disorders, childhood and aging disorders and schizophrenia. The different models of abnormal behavior, its causes, treatment, and prevention, as well as ethics and the law are discussed.

4248   **Child Development: Prevention and Early Intervention**

A concentration content area course that expands on the comprehensive core and prepares students to understand children's physical, mental, emotional and social growth and development as well as strategies for prevention and early intervention. Instruction includes prenatal developments; inherited characteristics, health and safety, mental health prevention and early intervention, cultural diversity and competence, and child abuse and neglect. This course provides a solid foundation for any career that involves working with children, including childcare and education.

4253   **Health Science Preparation**

This course is designed to provide students the necessary academic subject matter required for proficiency within their area. Students will use this knowledge to progress to advance learning in health science focus areas. Course titles may include Medical Biology, Medical Chemistry, Health Education and Careers, Physical Education and Healthcare, Medical Math, and Medical English.

4254   **Introduction to Mental & Behavioral Health Careers**

This course will examine career opportunities and the nature of helping, by identifying significant issues in the field of mental and behavioral health. Includes, but is not limited to, instruction in the skills required by mental and behavioral health professionals including group communication and working in teams. Course titles may include: Group Communication, Conflict Resolution, and Critical Thinking.

4271   **Introductory Psychology**

This course presents a general survey of psychology including development of the individual, learning, thinking, motivation, emotion and perception. Some study is also given to the understanding and measurement of individual differences, group processes, and the biology of behavior. Course titles may include Introduction to Personal Psychology.

4273   **Medical (Clinical) Terminology**

This course will provide the framework needed to learn and recognize word roots, prefixes and suffixes used in medical language today. Students will learn how to combine words to create meaningful medical conditions as well as comprehend their definition and know the correct abbreviations and spelling and pronunciation. This course will cover medical terms related to all major body systems, including: muscular system, skeletal system, respiratory system, circulatory system, digestive system, reproductive system, and urinary system. Course titles may include Spanish for Healthcare.

Biotechnology (Pathway 196)

4245 Biotechnology I

This course integrates the fundamental concepts of life and physical sciences together with the basic laboratory skills necessary in the biological sciences. This course may serve as either the second course in the Biotechnology Research and Development pathway or as an independent science elective. Introduction to Biotechnology introduces students to the fundamentals of biotechnology, current trends and careers in biotechnology, and the business, regulatory, and ethical aspects of biotechnology. Course titles may include Introduction to Cell and Molecular Biology, Introduction to Bio- Manufacturing Instruments and Measuring and Applications in Biotechnology.

4246 Biotechnology II

The course provides the continued knowledge in mathematics, chemistry, biology and microbiology for additional biotechnology coursework. Topics include the fundamental chemical processes common in prokaryotic and eukaryotic biology, chemistry of biomolecules, cellular and molecular biology, gene expression and genetic engineering. The laboratory experience provides basic skills and techniques essential to advanced biotechnology courses.

4253 Health Science Preparation

This course is designed to provide students the necessary academic subject matter required for proficiency within their area. Students will use this knowledge to progress to advance learning in health science focus areas. Course titles may include Medical Biology, Medical Chemistry, Health Education and Careers, Physical Education and Healthcare, Medical Math, and Medical English.

4247 Biotechnology III

This is an advanced lecture/laboratory course implementing major techniques used in the biotechnology industry. Topics include tissue culture methods, purification and analysis of nucleic acids and proteins, DNA amplification and cloning procedures, protein identification methods, scientific information retrieval, and technical writing. This course is intended for students seeking employment opportunities in biotechnology.

4259 Introduction to Biotechnology

This course introduces students to the fundamental scientific principles of Biotechnology, bioethics, the variety of careers in biosciences, as well as the commercial and regulatory characteristics of the biosciences. The knowledge and skills gained in this course provide students with a broad understanding of biotechnology and the impact it makes on society. Course titles may include Biotechnology Careers, Biotechnology and Society.

Healthcare Operational Support (Pathway 197)

4252 Fundamentals of Emergency Preparedness for Healthcare Facilities

This course is designed to teach the basic principles of emergency preparedness management and how they apply to all internal or external hazards, including those due to disasters, terrorism and public health emergencies that may directly affect healthcare facility. Course content includes the application of science and technology, planning, risk analysis, and management in dealing with small to large and complex events. Students will be introduces to an Emergency Operations Plan (EOP) which describes how a facility will respond to and recover from all hazards including communications, resources and assets, safety and security, staff responsibilities, utilities and clinical, support activities. Course titles may include Healthcare Emergency Planning, Introduction to Emergency Operations Plans.

4253 Health Science Preparation

This course is designed to provide students the necessary academic subject matter required for proficiency within their area. Students will use this knowledge to progress to advance learning in health science focus areas. Course titles may include Medical Biology, Medical Chemistry, Health Education and Careers, Physical Education and Healthcare, Medical Math, and Medical English.

4269 Introduction to Healthcare Operational Support Occupations

The course explores the healthcare operational support that includes occupations within a healthcare facility that maintain environmental and infection control standards within established policies and procedures of the Healthcare facility, maintain and distribute materials, supplies, assist in the smooth operations of the facility. Course titles may include, Central Services Operations, Environments Services, Medical and Solid Waste, Practical Application of Healthcare Disinfection and Sterilization.

4273 Medical Terminology

This course will provide the framework needed to learn and recognize word roots, prefixes and suffixes used in medical language today. Students will learn how to combine words to create meaningful medical conditions as well as comprehend their definition and know the correct abbreviations and spelling and pronunciation. This course will cover medical terms related to all major body systems, including: muscular system, skeletal system, respiratory system, circulatory system, digestive system, reproductive system, and urinary system. Course titles may include Spanish for Healthcare.

4272 Materials Management and Purchasing

The course introduces the principles and application of materials management and purchasing in Healthcare. Course content covers concepts of cost effective purchase of supplies and equipment, management and use of supplies, equipment and resources. It also provides information on infection control, operating room equipment, sterilization and infection control, product evaluation, distribution systems, state and federal regulatory developments, medical technology, total quality management and other topics related to the delivery of top-quality patient care.

4281 Nutrition Services for Healthcare

The course content is designed to provide an introduction for careers in healthcare nutritional services and dietetics. Course content covers the application of the principles of nutrition and food science to the nutritional care of individuals. This course introduces students to the relationship between food, food choices, nutrient metabolism, and medical nutrition therapy to meet health and nutrient needs healthy and compromised individuals. Course titles may include Personal Health and Nutrition, Nutrition for heart Health, Diabetes and Nutrition, and Nutrition and Obesity.

Patient Care (Pathway 198)

4249   Dental Services

This course incorporates the job-specific health careers services fundamentals with didactic, laboratory, and clinical competencies for the various dental occupations. The course prepares students completing course work in the dental services to provide preventive, supportive restorative, and interceptive services for patients. Workplace learning experiences may occur in private and group dental practices, dental clinics, dental laboratories, and hospitals that have a dental department. Course titles may include Dental Assistant/RDA, Dental Radiology, Dental Laboratory Technology, and Dental Science.

4279   Nursing Service

This course incorporates the job-specific health careers fundamentals with didactic, laboratory, and clinical competencies. The course prepares students completing course work in the nursing services to assist with direct patient care required as a result of a condition, disease, illness, or injury. Workplace learning experiences may be in a variety of health care settings. Course titles may include Nursing Assistant, Certified Nursing Assistant, Licensed Vocational Nursing, Home Health Care/Aide, and Geriatric Technician.

4250   Diagnostic Services

This course applies to occupations or functions involved primarily in creating a picture of the health status of patients at a single point in time. This course includes knowledge and skills needed by professionals pursuing careers in this pathway. Workplace learning experiences may occur in private and group practices, clinics, laboratories, and hospitals. Course titles may include Clinical Laboratory Aide/Assistant, Imaging Assistant, Phlebotomy, EKG Technology and Medical Sonographer.

4257   Healthcare Occupations

This course explores the healthcare occupations that include an overview of prevention, treatment, and management of illness and the preservation of mental and physical well being through the services offered by the medical and allied health professions. Course titles may include Hospital Occupations, Exploring Healthcare and Introduction to Healthcare, Healthcare Essentials I and II.

4253   Health Science Preparation

This course is designed to provide students the necessary academic subject matter required for proficiency within their area. Students will use this knowledge to progress to advance learning in health science focus areas. Course titles may include Medical Biology, Medical Chemistry, Health Education and Careers, Physical Education and Healthcare, Medical Math, and Medical English.

4258   Healthcare Occupations Supplemental

This course provides students with the knowledge, skill and application to provide immediate care to individuals experiencing an acute medical emergency. Students will learn, practice, and be certified in basic assessment, breathing and heart rescue and or first aid procedures until transport or additional health professional arrive. Course titles may in Certified Pulmonary Resuscitations (CPR), First Aid, Automated External Defibrillator (AED) and Community Emergency Response Teams (CERT).

4273   Medical Terminology

This course will provide the framework needed to learn and recognize word roots, prefixes and suffixes used in medical language today. Students will learn how to combine words to create meaningful medical conditions as well as comprehend their definition and know the correct abbreviations and spelling and pronunciation. This course will cover medical terms related to all major body systems, including: muscular system, skeletal system, respiratory system, circulatory system, digestive system, reproductive system, and urinary system. Course titles may include Spanish for Healthcare.

4275   **Medical Office**

This course incorporates the job-specific health careers fundamentals with didactic, laboratory, and clinical competencies for the various medical office occupations. The course prepares students completing course work to provide direct medical administrative or direct patient clinical support. Workplace learning experiences may occur in private and group medical practices or medical clinics. Course titles may include Clinical Medical Assisting, Medical Office Administrative, and Optometry Assistant/Technician.

4284   **Therapeutic Services**

This course applies to occupations or functions relating to the treatment of disease or disorders of patients; providing or assists in in a cure changing the health status of the patient over time. The course includes basic knowledge and skills needed by individuals in the therapeutic services pathway. Workplace learning experiences may occur in private and group practices, clinics, laboratories, and hospitals. Course titles may include, Emergency Medical Technology (EMT), Massage Therapy, Physical Therapy Aide/Assistant, Pharmacy Technology, Sports Medicine, Athletic/Fitness Trainer, Respiratory Therapy, and Activity Director.

Public and Community Health (Pathway 199)

4251   Epidemiology in Public Health

This course introduces epidemiology and focuses on the patterns of health and disease in populations and their connection with both beneficial and adverse behaviors and exposures. Epidemiology combines the observation of human behavior with the biologic understanding of disease development and the analytic methods of hypothesis testing to explore, explain and control disease.

4253   Health Science Preparation

This course is designed to provide students the necessary academic subject matter required for proficiency within their area. Students will use this knowledge to progress to advance learning in health science focus areas. Course titles may include Medical Biology, Medical Chemistry, Health Education and Careers, Physical Education and Healthcare, Medical Math, and Medical English.

4270   Introduction to Public and Community Health

This course is an introduction to the theory and practice of public and community health. The influence of public health professionals on the past, present and future health status of society through the examination of critical health issues will be described. Course titles include Community Health Issues, Foundation of Public Health, Substance Use and Abuse.

4273   Medical Terminology

This course will provide the framework needed to learn and recognize word roots, prefixes and suffixes used in medical language today. Students will learn how to combine words to create meaningful medical conditions as well as comprehend their definition and know the correct abbreviations and spelling and pronunciation. This course will cover medical terms related to all major body systems, including: muscular system, skeletal system, respiratory system, circulatory system, digestive system, reproductive system, and urinary system. Course titles may include Spanish for Healthcare.

4282   Personal and Community Health

This course provides opportunity to examine personal and community health behaviors and problems as well as steps that can be taken by individuals and groups to reduce risk of health problems for individuals, families and communities. This course provides an introduction to the nature of community health services and resources. Course titles may include Introduction to Healthy Behaviors, Consumer Health, Health and the Environment, and Health and Wellness.

4283   Public Health Emergency Preparedness

This course explores the roles, responsibilities and perspectives of public health in times of natural disasters, terrorism and public health emergencies. It builds upon material covered in the preceding courses. The student is taught how emergency preparedness principles can be applied to public health preparedness. The course covers the role of public health in disasters and terrorism. It discusses how emergency preparedness is applied to public health emergencies and complex humanitarian emergencies.

Healthcare Administrative Services (Pathway 250)

4253   Health Science Preparation

This course is designed to provide students the necessary academic subject matter required for proficiency within their area. Students will use this knowledge to progress to advance learning in health science focus areas. Course titles may include Medical Biology, Medical Chemistry, Health Education and Careers, Physical Education and Healthcare, Medical Math, and Medical English

4263   Introduction to Health Information and Records System

This course is an introduction to health information and records systems focusing on procedures for completion, maintenance and preservation of health information. This course explores the legal basis for the control, use and release of health information, the concept of consent for treatment and other procedures, as well as the ethical issues involved in the release of health care information. Federal and state laws and regulations governing the handling of special health information will be reviewed. Provide Students receive practical experience in the use of software programs commonly used in health information and learn the relationship between health information systems, management, and healthcare delivery systems. Course titles may include Medical Records, Healthcare Records Management Healthcare Information Technology and Electronic Health Records.

4264   Introduction to Healthcare Administrative Services

This course provides an overview of the nature, organization, and function of the continuum of healthcare administrative services. Instruction includes topic such as healthcare reform, healthcare costs, accessibility of services, governmental influence on health care delivery, private industry role in health care, services for the medically indigent and elderly, ethical issues regarding transplants, reproductive technology, end of life decisions and funding. Students have the opportunity to learn the practical application of leadership communication, organizational culture, problem solving, conflict and negotiation, decision-making, productivity measurement and budget management. Course titles may include Healthcare Today, Hospital Administrative Services, and Medical Office Administrative Services.

4273   Medical Terminology

This course will provide an overview of medical terms for healthcare administrative service occupations. Course includes necessary word recognition, word roots, prefixes, and suffixes used in medical language today. Students will learn how to combine words to create meaningful medical conditions as well as comprehend their definition and know the correct abbreviations and spelling and pronunciation. This course will cover medical terms related to all major body systems, including: muscular system, skeletal system, respiratory system, circulatory system, digestive system, reproductive system, and urinary system. This course includes the principles and mechanics of coding procedures according to current procedural terminology and its relationship to the healthcare financing, administration, and the common procedure coding system in healthcare. Course titles may include Spanish for Healthcare.

4274   Medical Insurance Billing and Coding

This course covers the principles of medical insurance billing and coding diseases and procedures using the International Classification of Diseases. Instruction will focus on students learning and applying coding skills; the impact of coding for reimbursement, the Prospective Payment System and Diagnosis Related Groups (DRGs) will be introduced as well as coding for prospective payment. Students will learn a variety of administrative health information functions, including those associated with organizing, analyzing, and technically evaluating health insurance claim forms and coding diseases, surgeries, medical procedures, and other therapies for billing and collection.

Hospitality, Tourism, and Recreation Sector

Food Science, Dietetics, and Nutrition (Pathway 200)

4362 Nutritional Science

This is an advanced-level concentration course that includes instruction in researching information to evaluate an individual's diet and adequacy of essential nutrients supplied in the diet, physiology and utilization of nutrients by the body, contribution of nutrients to general health, dietary needs during the life cycle, food regulations by the government agencies, impact of additives, environmental contaminants, food-borne illnesses, food faddism and quackery, cultural factors in food choices, and new food technology. This course provides a strong background for nutritional science, dietetics as well as careers related to the food industry. Course titles may include: Food Science; Chemistry of Foods; Food for Health and Fitness; Food Technology and Nutrition.

4471 Food Science, Dietetics and Nutrition

A capstone course that prepares students for employment in occupations in food science, dietetics and nutrition industries. Includes instruction in meeting nutritional needs; planning, selecting, purchasing and preparing of food to conserve nutrients; food safety and sanitation; using dietary and food guidelines to plan healthy diets; food preferences and marketing. Students develop skills to utilize nutritional knowledge in preparing, inspecting and serving meals to people with special counseling under the direction of a dietetic technician or professional dietitian. Course titles may include: Careers in Food Science, Dietetics and Nutrition; Advanced Nutritional Science; and Advanced Food Science.

4472 Food Science and Technology

A capstone course that prepares students with the skills, attitudes and knowledge needed for employment in food science and technology occupations. Instruction includes such topics as operational procedures; dietary needs; food preparation; data and statistics; and food preferences and marketing. Students develop skills to support and assist food scientists, technicians or home economists by applying, under their direction, scientific and nutritional knowledge to the production, processing, preservation, evaluation and/or distribution of food. Students develop skills in identifying qualities of various foods; collecting and testing food samples as directed; recording and comparing test results; purchasing and maintaining laboratory supplies and inventory. Course titles may include: Food Science and Dietetics; Food Product Development; and Food Product Processing.

Food Service and Hospitality (Pathway 201)

4361   Food and Nutrition

This concentration course expands on the comprehensive core and prepares students to understand the scientific principles of nutrition, the relationship of nutrition to health and well-being, and careers related to food and nutrition. Instruction includes nutrition and health, safety and emergencies, food safety and sanitation, meal management, food preparation, food purchasing, food in culture, the science of food and nutrition, food costs and production, and food technology. This course provides a solid background for a wide range of careers food science, dietetics and nutrition, as well as food service and hospitality. Course titles may include: Nutritional Science; Foods and Nutrition; Foods; Food, Nutrition and Meal Management; Culinary Arts I.

4420   Food Service and Hospitality Services

A capstone course that prepares students with food production, preparation, and service skills for employment institutional, commercial, or independently owned food establishments or other food and hospitality industry occupations. Instruction includes topics such as planning, selecting, storing, purchasing, preparing, testing, serving and selling of quality food and food products; nutritive values; safety and sanitation; use and care of commercial equipment; management of food establishments; cost and profitability analysis; side work and customer orders; and handling cash and credit transactions. Course titles may include: Careers in Food Service and Hospitality; Advanced Culinary Arts; Restaurant Marketing and Management; and ProStart I-II.

This code should be used in place of retired code 4106.

4421   Food and Beverage Production and Preparation

A capstone course that prepares individuals with the skills, attitudes and knowledge needed for employment in food and beverage production and preparation occupations. Instruction includes such topics as customer relations; industry awareness; sanitation and food handling; nutrition; standardized recipes and measurements; tools, utensils, appliances and equipment; and operational procedures. Students develop skills to select and use proper equipment, supplies and procedures to produce a variety of food products to be sold or served; plan menus and arrange for equipment, decorations, entertainment, transportation and storage of food. Course titles may include: Food and Beverage Production; Fundamentals of Food Service Production; Feast Lab; Catering and Production; and Baking and Pastry.

Hospitality, Tourism, and Recreation (Pathway 202)

4441 Hospitality, Tourism and Recreation

This is a capstone course that prepares students for employment in occupations in hospitality, tourism and recreation. Instruction includes providing hospitality services in diverse settings to meet the needs of a wide variety of clients. Instruction may include but not be limited to eco-tourism; guest services; geography of the continents; customs and culture of countries as tourist destinations; special documentation needed for international travel; planning events to client specifications; recreational opportunities related to on-site and off-site attractions; and environmental and ecological principles. Course titles may include: Introduction to Hospitality and Tourism; and Careers in Hospitality, Tourism and Recreation.

This code should be used in place of retired code 4110.

4442 Hotel and Lodging Services

A capstone course that prepares students with the skills, attitudes and knowledge needed for employment in the lodging industry and refines their related knowledge and skills. Topics covered typically include lodging terminology, the history of lodging, marketing, property management, guest psychology and relationships, lodging operations, food and beverage services, convention services, and other topics related to support services within the lodging industry. This program provides a strong background for careers in Hospitality, Tourism, and Recreation as well as Lodging and Hotel Operations. Course titles may include: Introduction to the Lodging Industry; Lodging and Tourism; Hotel and Lodging Services; and Lodging and Hotel Operations.

This code should be used in place of retired code 4117.

4443 Travel Related Services

A capstone course that prepares individuals with the skills, attitudes and knowledge needed for employment in travel-related service occupations. Instruction includes such topics as business management; life management; transferability; industry awareness and policies; security and emergency procedures; salesmanship and guest satisfaction; computer applications; geography, culture and customs; reservations and ticketing; travel itineraries; international travel; and technology used in the industry. Course titles may include: Introduction to Travel and Tourism; Travel Related Services; World Travel and Tourism; and Eco-tourism.

4444 Theme Parks, Attractions and Events

A capstone course that prepares individuals with the skills, attitudes and knowledge needed for employment in theme parks, attractions, outdoor recreation, exhibitions and event-planning occupations. Instruction includes planning trade shows, fairs, and conferences; outdoor recreation and management; financial transactions; salesmanship; guest services and satisfaction; culture and customs; computer and industry technology; eco-tourism, client information; and planning specialized events to include themes, timelines, budgets, target audiences, objectives, agendas and public relations. Course titles may include: Principles of Event Planning; Attractions, Events and Related Services; and Recreation, Amusement, and Attractions.

Information and Communication Technologies Sector

Information Support and Services (Pathway 170)

4615   Office Systems and Technologies

This course is project-based designed to provide students with hands-on use of spreadsheets, word processing and presentation applications while studying computer concepts such as cloud computing and the Internet. The effective use of technology and Internet resources is used to further develop teamwork, communication and presentation skills in a variety of formats. These applications may be taught through a wide variety of units of study, which may include topics like: Internet Safety, Career Exploration and Financial Literacy. Course titles may also include: Computer Technology; Business Computer Information Systems; Computer Applications.

This code should be used in place of retired codes 4603, 4649.

4633   Computer Repair and Support

This course will explore workplace safety, customer relations, and help ticket documentation. Students will also learn various computer operating systems such as Linux, computer maintenance, electrical measurements and energy conservation, basic troubleshooting, and virus protection. Students will also be introduced to various devices such as tablets, laptops and mobile devices; and, network architecture and Internet technologies, as well as careers in the IT industry. This course will prepare students for internships working at a helpdesk, or in a computer repair shop. Course titles may also include: Information Technology Essentials; Computer Service Technology.

4632   Digital Literacy

This course teaches students how to use a computer or communication device to effectively and critically navigate, evaluate and create information using a range of information technologies and sources available from the Internet. Students recognize and use the power of digital technologies to manipulate and transform digital media, to distribute it pervasively, and to easily adapt them to new forms. Students enhance their ability to read for knowledge, write coherently, and think critically about the written word. Course titles may also include: Internet Safety.

Networking (Pathway 172)

4604   Network Engineering

This course prepares students for jobs as network technicians and helps them develop skills required for computer technicians provides a basic overview of routing and remote access, addressing, and security. It also familiarizes students with servers that provide email services, web space, and authenticated access. Students learn about the soft skills required for help desk and customer service positions, and help them prepare for industry certification exams. Students perform a great deal of hands-on work on routers, switches, and firewalls as they learn to design, build, and maintain data networks using with some of the most powerful enterprise network technologies of the day. The course covers some of the most powerful technologies used on enterprise networks including wireless networks, virtual LANs (VLANs), Spanning-Tree Protocol (STP), traffic management with access control lists (ACLs), dynamic routing, and wide area network (WAN) technologies. Course titles may also include: Network Design, Installation & Engineering; Introduction to Networking.

4646   Network Security

This course provides an in-depth study of Network Security fundamentals and provides a comprehensive overview of network security, including computer forensics. Students will gain the knowledge and skills required to identify risk and participate in risk mitigation activities; provide infrastructure, application, operational, and information security; apply security controls to maintain confidentiality, integrity, and availability; identify appropriate technologies and products; and operate with an awareness of applicable policies, laws, and regulations.

Software and Systems Development (Pathway 174)

4619   Computer Programming for Solving Applied Problems

This course provides students with the fundamental knowledge of computer programming for solving applied problems. Students learn how a computer works and structured programming for software development. The topics include programming constructs, data types and declaration of variables, expressions and operators, selection statements, repetition, flowcharts for algorithm development, functions, arrays, and processing data files. Considerable attention is devoted to program design, task decomposition, testing, debugging, and software reuse. Students write computer programs with graphical plotting in an integrated development environment. Through problem-based projects, students develop critical thinking, problem solving, computational thinking, effective communication, and team work skills. The emphasis of the course is on algorithm development and computer programming for solving applied problems in science, technology, engineering and math.

4634   Exploring Computer Science

This course provides students with foundational knowledge of computer science. Students will explore topics of human computer interaction, problem solving, web design, computer programming, data modeling, and robotics. Throughout the course, students will understand the algorithmic underpinnings of computer applications and gain technical expertise using computational tools. Course titles may also include: Introduction to Computer Science A; Computer Principles; Introduction to Information and Communication Technologies; Introduction to Computer Technologies.

2470   AP Computer Science A

This course emphasizes object-oriented programming methodology with a concentration on problem solving and algorithm development, and is meant to be the equivalent of a first-semester college-level course in computer science. Students apply discrete programming skills to make a video game, a virtual pet, a sound editor, and will explore careers in programming, including wireless applications for iPhone, Android, and iPad apps. This course follows the College Board's AP Computer Science curriculum, so that students can take the AP Computer Science A exam in the spring.

4605   Web Site Development

This course will help students learn to develop Web sites using Hypertext Markup Language version 5 (HTML5) and Cascading Style Sheets (CSS). Students learn to write code manually, use graphical user interface (GUI) authoring tools and how to insert images, create hyperlinks, add tables, forms, video, and audio to Web pages. Students also learn how to use HTML5 and JavaScript Application Programming Interfaces (APIs) to extend the functionality of Web pages, such as geo-location, drag-and-drop, canvas, and offline Web applications. Other topics include validating your HTML code, recognizing the importance of search engine optimization (SEO), using style sheets extensively to format Web page content, and implementing fundamental design concepts. Throughout the course, students learn how Web sites are developed as managed projects and identify e-commerce solutions and relate Web site development to business goals. Course titles may also include: Website Design and Development; Essential Web Skills.

4647   Robotic Technologies

This course introduces students to the working principles and foundational knowledge of robotics. Students learn to control a single robot and multiple robots by graphical user interface, pose teaching, and object-oriented programs. Students write robotics programs to perform various tasks based on the sensory information of the robot. Through hands-on problem-based projects, students develop critical thinking, problem solving, effective communication, and team work skills. Robots are used as platforms to engage students in collaboratively learning science, technology, engineering, and math. This course emphasizes hands-on robotics activities with a concentration on algorithm development for solving problems in math and science.

4648   **Social and New Media Technologies**

This course explores social networking, consumer behavior; practices of advertising and foundation, processes and goals of marketing in relation to internet and social media tools such as Twitter, Facebook, websites, email, Moodle, blogging, mobile, etc. This course will prepare students for internships in a business setting. Course titles may also include: 21st Century Communications

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4636   **Multimedia and Animation**

This course explores the integration of digital media including computer graphics, video production, audio production and animation. Students work on Multimedia projects from concept (content gathering/research) to project completion (authoring/transmission) and focus on the media needed by small and large companies for marketing and corporate communication purposes. Students develop and demonstrate skill through creation of multimedia productions and presentations on venues such as in portfolios, web productions, and live presentations. This course prepares students to work in teams and deploy projects for community organizations and businesses. Course titles may also include: Multimedia I, Business Information Multimedia Management; Electronic Media.

4607   **3D Media Design 1**

This course will provide instruction to students on how to code and test animations; implement standard graphics programming techniques for object movement that mimic the laws of physics; know and understand the linear and higher-order algebraic equations underlying the paths of moving objects; know and understand the 2-D and 3-D mathematics underpinning the four spatial transformations: translation, rotation, reflection and scaling; implement effective graphics and graphical user interfaces; design and implement effective event-handling strategies for internal events and for input from keyboard, mouse and other input devices; incorporate digital and multimedia effects programmatically; design algorithm solutions; code, execute, test and debug components; develop programs using abstract data types and object-oriented programs; create structured programs in one or more languages using conditional control structures, methods (procedures, functions), parameters, variables, iteration, recursion and file input/output methods.

4635   **Graphic Communications**

This instructional provides students with an understanding and appreciation for graphic design and advertising applications. The historical framework of graphic design and an analysis of visual communication problems are covered. Design principles and effective visual communication techniques are explored by combining digital text and images in various hands-on projects that are displayed on the Internet and on mobile devices using industry software. Students learn to capture images and develop skills of camera operation, lens choice, depth of field and motion considerations and lighting. Students develop critique skills based on the application of the principles of design. Course titles may also include: Photography.

4606   **Computer Graphics and Media Technology**

This course provides students with the opportunity to explore the capability of the computer to produce visual imagery and to apply graphic techniques to various fields, such as advertising, TV/Video and architecture. This course may emphasize the development of digitally generated or computer enhanced media. Typical topics include modeling, simulation, animation and image retouching.

4631   **Database Design and SQL Programming**

This two-part course teaches data modeling and Structured Query Language (SQL). In the database design curriculum, students learn to analyze complex business scenarios and create a data model, a conceptual representation of an organization's information. In the database programming with SQL curriculum, students implement their database design by creating a physical database using SQL, the industry-standard database programming language. Upon completion of this course, students have the opportunity to take an exam to earn the industry certification Oracle Database SQL Certified Expert.

Games and Simulations (Pathway 175)

4616   Computer Programming and Game Design

This course explores the history, art, and science of the game development process through hands on projects using a wide range of software. Students work in teams to design and program their own custom games in class, in both 2-D and 3-D environments. The course examines 3-D modeling, 2-D animation, level design, sound effects, player psychology, mathematics for gaming, and game logic/programming.

4617   Game Design and Development

This course introduces students to the analysis, design, and creation of interactive three dimensional animation and games. This is a hands-on course that begins with an extensive overview of 3-D graphics, explaining the basic components of video game design; modeling, texturing, lighting, animation, and rules of game play. Using industry software, students will complete individual and group projects that require the problem solving and practical application of course competencies to create simple games.

Manufacturing and Product Development Sector

Introductory/Core (Pathway 214)

5940   **Exploring Technology (General Industrial Arts)**

This broad-based course provides middle school students with an integrated, common educational core. Its focus is on career guidance, general safety, power and energy technology, construction technology, manufacturing technology, communications technology, and tools and machines. As a result of participation in this program, students who are entering high school will be able to make informed educational decisions relating to career choices. Representative course titles could include: Industrial Arts, Exploring Industrial Arts, etc.

This code should be used in place of retired code 5626.

5633   **Exploration of Manufacturing Occupations**

This course introduces and exposes students to the career opportunities pertaining to the processing and production of goods. Course topics   vary and may include (but are not limited to) systems pertinent to the manufacturing process, properties of various raw materials, and the methods used to transform materials into consumer products. Course activities depend upon the careers being explored; course topics may include entrepreneurship, labor laws, and customer service.

5955   **Manufacturing Technology (Metal Shop)**

This course is a study of the information and skills that relate to manufacturing processes, organizations and occupations. A variety of materials, tools, and processes are used to give students a look at the important industrial and technical concepts of today and tomorrow.

Graphic Production Technologies (Pathway 210)

5634　　　Graphic Production Technologies

This course provides students with an understanding of printing and manufacturing processes and systems common to careers in the graphic production and printing technology industries. Representative topics include the principles of design composition, graphic design and layout, typography, image generation and file preparation, photography, digital imaging, prepress preparation, printing and screen printing technologies, binding and finishing processes, multimedia blending, and business and entrepreneurship principles. Representative course titles could include: Printing Press Operations, Bookbinding, etc.

This code should be used in place of retired codes 5753, 5761.

5756　　　Composition, Make-Up and Typesetting

This course prepares individuals to layout, compose, and make up typesetting and typecast by hand and by machine.

5762　　　Silk Screen Making and Printing

This course prepares individuals to make silk screens and to perform silkscreen printing operations.

5627　　　Advanced/Specialized Graphic Production Technologies

This course provides advanced students the opportunity to specialize in a particular area of interest, expand their expertise in a particular specialization and develop more advanced skills.

Machining and Forming Technologies (Pathway 212)

5637   Manufacturing—Comprehensive

This course introduces students to the various methods used to process and transform materials. Processing techniques covered usually include casting, forming, separating, assembling, and finishing and may also include an overview of management techniques in planning, organizing, and controlling various segments of the manufacturing process, including design, engineering, production, and marketing.

5625   Principles of Manufacturing and Design Technology

This course is designed for students planning technical careers. It includes units of study presented from one to two years. Each of the units deals with one principle as it applies in the four energy systems (mechanical, fluid, thermal, and electrical) that provide power for both simple and complex technological devices and equipment. The units also cover the mathematics needed to understand and apply the principles. They focus on work, rate, resistance, energy, power, and force transformers. The second year of instruction covers momentum, waves and vibrations, energy converters, transducers, radiation, optical systems, and time constraints.

5635   Machining and Forming Technologies

This course provides students with an understanding of manufacturing processes and systems common to careers in machine tool and material forming industries. Representative topics include work dimensions, testing the feeds and speeds of machines using precision measuring instruments such as layout tools, micrometers, and gauges; machining and heat-treating various metals; and laying out machine parts; the interpretation and layout of machine and formed-part prints; the cutting, shaping, fastening, and finishing of machine tools; casting, forging, molding, cold forming, and shearing processes. It prepares individuals to shape metal parts on machines such as lathes, grinders, drill presses, milling machines, shapers, and or to program and operate computerized numerical controlled machines. Representative course titles include: Machine and Forming Technology, Machine Tool Operation/Machine Shop, Computer Numerical Control, Metallurgy, Sheet Metal, Foundry, Industrial Ceramics Manufacturing, Plastic/Composites, etc.

This code should be used in place of retired codes 5603, 5605, 5607, 5611, 5613, 5614, 5615, 5604, 5609.

5628   Advanced/Specialized Machining and Forming Technologies

This course provides advanced students the opportunity to specialize in a particular area of interest, expand their expertise in a particular specialization and develop more advanced skills.

Welding and Materials Joining (Pathway 213)

5619 Welding Technology

This course provides students with a basic understanding of manufacturing processes and systems common to careers in welding and related industries. Representative topics include the introduction to interpretation and layout of welded and assembled-part prints. This introductory instructional program prepares individuals to use both gas welding and any combination of arc welding processes. Those processes may include shielded metal arc welding (SMAW), gas metal arch welding (GMAW), and gas tungsten arc welding (GTAW) to weld metal parts. It prepares individual for basic fabrication and assembly of a variety of products and includes instruction in layout. Representative course titles include: Introduction to Welding, Welding Technology I, Metal Fabrication, Welding Combination, Welding Electric, Welding Gas, etc.

This code should be used in place of retired codes 5608, 5616, 5617, 5618.

5639 Welding Technologies and Fabrication

This course provides students with an understanding of manufacturing processes and systems common to careers in welding and related industries. This instructional program prepares individuals to use both gas welding (OAW) and any combination of arc welding processes (SMAW, GMAW, GTAW) to weld metal parts and plan and lay out materials as specified by diagrams, blueprints, or written specifications. Representative topics include the interpretation and layout of welded and assembled-part prints, mechanical bonding, joining, cohesive bonding, adhesive bonding, and mechanical fastening. It prepares individuals to fabricate and assemble a variety of products and includes instruction in layout; the sequence of design; the construction of templates and fixtures; and the positioning, aligning, fitting, and welding of parts. Representative course titles include: Welding Technology, Metal Fabrication, Welding Combination, Welding Electric, Welding Gas, etc.

5620 Specialized Welding Program

The course prepares individuals to use submerged arc welding (SAW), flex-core arc welding (FCAW), plasma arc welding (PAW), laser beam welding (LBW), and other advanced welding processes.

5630 Advanced/Specialized Welding and Materials Joining

This course provides advanced students the opportunity to specialize in a particular area of interest, expand their expertise in a particular specialization and develop more advanced skill

Product Innovation and Design (Pathway 216)

5623   Exploring Manufacturing and Design

This course represents a contextualized, laboratory-based, integrated curriculum opportunity for all high school students to learn about communication, transportation, energy, production, biotechnology and integrated technology systems and processes that affect their lives. Students develop critical thinking skills through a variety of multimodal, problem-solving techniques. Integrated content focuses on demystifying technology; increasing student literacy, confidence, and competence in an age of rapidly advancing technology; and providing students with the basis for making wise academic and career choices.

This code should be used in place of retired code 5624.

5606   Jewelry Design, Fabrication and Repair (change name / pathway)

This course prepares individuals to design, fabricate and repair jewelry articles such as rings, brooches, pendants, bracelets and lockets. It includes instruction in model making, casting, engraving, polishing, stone setting, and ring fitting. It also includes instruction in soldering broken parts, reshaping and restyling old jewelry, and in the use of special jeweler's hand tools and machines.

5631   Drafting/Computer Aided Design

This course introduces students to and helps them refine the technical craft of drawing illustrations to represent and/or analyze design specifications, using examples drawn from industrial applications. This course is intended to help students develop general drafting skills, but place a particular emphasis on sectioning, auxiliary views, revolutions, and surface development. In these courses, students typically learn basic machining and fabrication processes as they draw schematic diagrams featuring cams, gears, linkages, levers, pulleys, and so on. CAD Design and Software introduce students to the computer-aided drafting systems available in the industry.

Crosswalk from old course code 5945

5636   Manufacturing/Materials/Processing/Production

This course exposes students to the tools, machines, and processes encountered in manufacturing and stress the analysis, testing, and processing of metals, plastics, woods, ceramics, and composite materials. These courses enable students to experience the process of translating and idea into a finished product with instruction in planning, designing, selecting materials, and using tools and machines.

This code should be used in place of retired code 5601.

5638   Product Development

This course provides students with the opportunity to focus on one or more areas of industrial technology, creatively pursuing new knowledge or solving a technological problem, by designing and building prototypes and working models. Students learn and apply appropriate information in order to complete a project.

5629   Advanced/Specialized Product Design and Innovation

This course provides advanced students the opportunity to specialize in a particular area of interest, expand their expertise in a particular specialization and develop more advanced skills.

This code should be used in place of retired code 5610.

Emerging Technologies in Manufacturing and Product Development (Pathway 215)

5632 **Emerging Technologies in Manufacturing and Product Development**
This course provides students the opportunity to learn about and work in new and innovative areas related to the Manufacturing and Product Development sector for which there is a documented and proven labor market demand.

Marketing, Sales, and Services Sector

Entrepreneurship and Innovation (Pathway 241)

4123   **Business Career Exploration**

This instructional program provides individuals with exploratory experiences related to career opportunities in business at entry, technical, and professional levels. These experiences explore careers in computer science and information processing, accounting and finance, business management, marketing, and entrepreneurship. The program provides information about employment and the education requirements for various business occupations, interest and aptitude assessment, and career and educational planning. The program also provides exploration in the following areas: business and consumer concepts, business computations, computer literacy, economic concepts, and scientific and technological developments.

4124   **Business Technologies**

This instructional program provides individuals with a foundation of knowledge, skills and attitudes common to a variety of business occupations. The program may address one or more of the following content areas: office technologies, business management software, Business Communications; Business Environment; Career Preparation and Job Acquisition; Financial Concepts, Business Functions; Human Resource Development; Leadership; Technology; Business Mathematics; and Business Law.

4125   **Entrepreneurship and Innovation I**

This course covers self-employment and entrepreneurship concepts. Details the importance of knowing global trends, your market niche, innovation and access to capital before starting a business. Includes leadership styles, traits of an entrepreneur, strategies for business start-up and growth, how management, innovation, financial and marketing skills are needed for success. Study of successful enterprise models and California entrepreneurs. Explore creation of innovative products and services. May include course titles such as Starting a Business, or Self Employment, or Are You an Entrepreneur? Human Resources Management or Small Business Issues.

This code should be used in place of retired code 4121.

4126   **Entrepreneurship and Innovation II**

This course covers self-employment and entrepreneurship concepts in more depth. Students create a business plan and a marketing plan. Research financing methods. Calculate financial projections in sales, income, expenses and taxes. Students serve an internship with business or create a company. Create and design an innovative 21st Century product or service. May include course titles such as Self-Employment, Social Entrepreneurship, Accessing Venture Capital, Starting a Business, or Writing Your Business Plan.

This code should be used in place of retired code 4114.

4132   **Small Business Services**

This course title provides a place for the various small business services topics at the local level, including small service business topics, such as Custodial Services, Pool and Spa Services, Bike Repair, Lawn Maintenance, and Floristry.

This code should be used in place of retired codes 5811, 5814, 5861, 5865, 5866.

Marketing (Pathway 244)

4123   Business Career Exploration

This instructional program provides individuals with exploratory experiences related to career opportunities in business at entry, technical, and professional levels. These experiences explore careers in computer science and information processing, accounting and finance, business management, marketing, and entrepreneurship. The program provides information about employment and the education requirements for various business occupations, interest and aptitude assessment, and career and educational planning. The program also provides exploration in the following areas: business and consumer concepts, business computations, computer literacy, economic concepts, and scientific and technological developments.

4124   Business Technologies

This instructional program provides individuals with a foundation of knowledge, skills and attitudes common to a variety of business occupations. The program may address one or more of the following content areas: office technologies, business management software, Business Communications; Business Environment; Career Preparation and Job Acquisition; Financial Concepts, Business Functions; Human Resource Development; Leadership; Technology; Business Mathematics; and Business Law.

4100   Advertising Services

A specialized course, concentrating on the field of advertising, using various media to send commercial messaging to customers, may include digital and graphics design. This instructional program prepares individuals to master marketing foundations and apply principles to the unique characteristics of the advertising services industry and perform functions and tasks related to creating, executing, transmitting, and evaluating commercial messages on the promotion and sale of products, services, and institutions.

Note: 4113- International Trade is now under the Business and Finance sector.

4127   Marketing and Business Fundamentals

This course is an overview of basics in economics, marketing and business concepts as well as business technologies. Course titles may include Business Basics, Understanding Marketing or 4630 Business Economics.

4128   Marketing I

The course covers the full spectrum of marketing concepts, and why target marketing and knowing customer needs is a competitiveness factor for business. It will provide an overview of product, place, price and people. Distinguish between the different components of marketing, including research, customer service, promotion, sales, advertising, branding, e-commerce, public relations. Course titles may include Beginning marketing, Business Communications.

4129   Marketing II

This course explores marketing concepts, strategies and products more deeply. Students will develop a marketing campaign and write a marketing plan.

4133   Specialized Marketing

This course has a specific career topic such as Sports Marketing, Hospitality Marketing and Management, Advanced Promotion Strategies, Market Research or Restaurant Marketing. This is not a beginning course.

Professional Sales (Pathway 243)

4123 Business Career Exploration

This instructional program provides individuals with exploratory experiences related to career opportunities in business at entry, technical, and professional levels. These experiences explore careers in computer science and information processing, accounting and finance, business management, marketing, and entrepreneurship. The program provides information about employment and the education requirements for various business occupations, interest and aptitude assessment, and career and educational planning. The program also provides exploration in the following areas: business and consumer concepts, business computations, computer literacy, economic concepts, and scientific and technological developments.

4124 Business Technologies

This instructional program provides individuals with a foundation of knowledge, skills and attitudes common to a variety of business occupations. The program may address one or more of the following content areas: office technologies, business management software, Business Communications; Business Environment; Career Preparation and Job Acquisition; Financial Concepts, Business Functions; Human Resource Development; Leadership; Technology; Business Mathematics; and Business Law.

4103 Financial Services

This instructional program prepares individuals to master marketing foundations and apply principles to the unique characteristics of the financial services industry and perform marketing functions/tasks in financial institutions such as commercial banks, savings and loans associations, credit agencies, credit unions, consumer-finance companies, collection agencies, security and commodity brokerages, and credit departments of business enterprises.

4106 Restaurant Marketing

This instructional program prepares individuals to master marketing foundations and apply principles to the unique characteristics of the restaurant industry and perform marketing functions and tasks in business enterprises engaged in food and beverage services.

4107 Retail Sales General Merchandise Retailing

This course covers basics of retail selling. Course tiles may include General Merchandising Retail, Apparel and Accessories, Automotive and Parts Sales. This instructional program prepares individuals to master marketing foundations and apply principles to the unique characteristics of the general merchandise retailing industry and perform marketing practices and tasks in general merchandise retail operations.

4115 E-commerce

The course details selling techniques using electronic media and the Internet. Understanding the purpose, process and components of effective online sales and purchasing. Course titles may include, Using Social Media, Web-Based Marketing, Selling on the Web.

4119 Customer Service Representative

This instructional program prepares individuals to provide customer services unique to a variety of industry and/or company environments. Customer services may include the following: opening and closing credit accounts; investigation and resolution of product or service problems of customers; arranging for repair or replacement of defective products; providing technical information to customers related to products or services sold; resolving customer complaints; contacting delinquent account customers; arranging for custom or specialized products or services for customers; providing inside and outside sales support services; and communicating with customers in writing and in person to assess/evaluate customer satisfaction.

4122   **Marketing Fundamentals**

This instructional program prepares individuals to perform basic marketing functions common to a variety of enterprises and provides foundational knowledge, skills and attitudes for advanced or specialized study in marketing. Students study marketing foundations and principles, including customer service, promotion, pricing, finance, selling, risk management, marketing information management, and product/service planning.

4130   **Professional Sales I**

This course prepares individuals to serve as agents or sales representatives to sell special lines of products to other businesses, factories, professional workers and public and private institutions. Understand the nature and scope of the functions associated with personal and business sales strategies, product knowledge, support activities and management of selling techniques. It will define the role of selling and business to business versus business to customer sales in various industries. Analyze customer/buyer behavior in the selling process. Course titles may include, Principles of Selling, Sales Representative.

4131   **Professional Sales II**

This course explores professional sales concepts more deeply, access and use marketing information to enhance sales activities and opportunities. Complete a strategic plan that includes establishing individual and company sales goals to guide activities of sales staff. Study three types of industry sales careers, pursue in depth study and experiential learning in a final field of study. Professional Sales do not include retail sales. Course titles may include Advanced Sales, Sales Representative, Real Estate Sales, Insurance Sales, Industrial or Manufacturing Sales, Wholesale Selling, or Pharmaceutical Sales or Food marketing.

Public Services Sector

Legal Practices (Pathway 231)

The Legal Practices Pathway prepares high school students for work in entry-level positions in legal services through classroom instruction, hands-on training, and community experience. In addition, it prepares students for college and, eventually, a career in legal services. The Legal Practices Pathway examines the unique nature of careers in law and the extensive legal system that affects nearly every aspect of government and society.

Crosswalk from old pathway name Legal and Government Services

5832   Introduction to Legal Careers

In this course students survey the range of legal careers including paralegals, attorneys, social justice advocates, mediators and other occupations. The course provides students with a basis for understanding the American political and legal systems, with a focus on legal ideas and the legal process, how the law works and the sources of US law. Legal research and writing are introduced. Course titles may include: Introduction to law, Foundations in Law, Socrates and the Law: Argument in an Athenian Jail; Legal assistance preparation.

This code should be used in place of retired codes 4621, 5854, 5853.

5834   Social Justice and Advocacy

This course is a study of the relationship between social problems, social policies, and social programs within historical, philosophical, and institutional contexts with an emphasis on social and economic justice and human rights. Students discuss substantive issues of law, democracy, and human rights, the relationship between social problems, social policies, and social programs within historical, philosophical, and institutional contexts with an emphasis on social and economic justice and human rights. Course titles may include: Examining the Role of Protest in a Democracy, Journey for justice in America, Law in action.

5845   Criminal Law

In this course students examine how statutes and policies are developed to safeguard society. Includes an analysis of civil rights and liberties, and the ways courts and legislators deal with constitutional questions. Course titles may include: Foundations in Criminal Justice, Journey for justice in America, Introduction to law,

This code should be used in place of retired code 5844.

5850   Civil Law

In this course students examine civil law and its application to everyday life. Includes various types of civil laws and the way such laws affect family, business and social decision making. Instruction includes the evolution of civil rights from those recognized in early interpretations of the Constitution through the Civil War to the present day and fundamentals of legal research, writing and citation. Course titles may include: Law in action, Government services policies and procedures.

5851   Constitutional Law

This course examines the constitutional basis and framework of the US legal system and gives students training in legal research and writing. Topics covered include legal history, federal and state court systems, and a survey of the US legal tradition. Instruction also includes the evolution of civil rights from those recognized in early interpretations of the Constitution through the Civil War to the present day. Students read and analyze stimulating case studies, discuss landmark decisions, conduct legal research, and write opinion papers. Course titles may include: Constitutional law A/B, Immigrants and the U.S. Constitution.

Public Safety (Pathway 232)

The Public Safety Pathway prepares high school students for work in entry-level positions in public safety and provides foundational education for students who wish to pursue security professional training at the post-secondary level. Students gain experience through project-based, hands-on training, and mentoring from industry and community partner organizations. The evolving integration of state Public Safety organizations with federal intelligence and security agencies, communication and data systems interoperability, coordination of effort, and the shared mission to protect the public post 9/11 are areas of emphasis for the pathway. The careers included in this pathway primarily address law enforcement services, emergency preparedness professionals, homeland and cyber security services, correctional services.

Crosswalk from old pathway Protective Services.

5846   Introduction to Public Safety Careers

This course introduces theories, principals and techniques used in occupations that fall under the heading of Public Safety including police, corrections and homeland security. Policies, procedures, and skills needed in services that provide for the safety and security of people and property and prevention of theft and damage are included. Course titles may include: Law enforcement occupations, Security services

This code should be used in place of retired codes 5849, and 5898.

5847   Law Enforcement Services

This course provides an introduction to the criminal justice system, focusing on state and federal laws designed to safeguard the public. Also included are analysis of civil rights guarantees, an introduction to the state and federal court system and an overview of the role of law enforcement personnel within the justice system. Students are introduced to the academic, personal, physical and psychological prerequisites for a career in law enforcement and the shared mission of local, state, federal and international safety agencies in safeguarding the public and property. Course titles may include: Criminal Justice, Criminal Law, Law enforcement occupations, Protective services policies and procedures.

5840   Forensic Science

This course includes basic and advanced courses that describe the role of science in solving crimes using an evidence-based system. Topics include the history and role of the forensic laboratory, scientific evidence gathering techniques, processing evidence, establishing hypotheses and drawing conclusions. Students will also explore career opportunities in criminalistics and administration of justice. Course titles may include: Advanced Forensic Science, Crime Scene Investigation, Curriculum for Forensic Science: a Biochemical Approach, Forensics Illustrated: Step Under the Tape.

This code should be used in place of retired code 5841.

5842   Corrections Occupations

This course describes the theories, principles, and techniques used in the development, administration and management of institutions whose purpose is the incarceration, behavior modification, rehabilitation, and return to society of legal offenders. Course titles may include Law enforcement occupations and Security services.

5843   Homeland Security

This course focuses on Homeland Security and examines the coordination of effort and the shared mission of local, state and federal public safety agencies and intelligence and security agencies to protect the public in a post-9/11 world. Topics covered include preventing terrorism, reducing vulnerability of critical infrastructure, identifying key resources, maintaining order, cyber security, managing border security, emergency response and technological interoperability for information sharing among public safety agencies. Course titles may include: Security, Civil Liberties and Terrorism; Security services.

Emergency Response (Pathway 233)

The Emergency Response pathway prepares students for careers that involve responding to crisis situations, of human and natural origin. Project-based assignments, job-site experiences, simulations, and interaction with emergency professionals provide learning opportunities. The pathway leads to preparation for work in entry-level positions after high school, foundational education for students pursuing post-secondary education and is often combined with certification training at many schools. Careers in this pathway include those in fire services, emergency medical services, wild land services, and emergency management

Crosswalk from old Protective Services pathway

5808 Firefighting Technology

This course is designed to prepare individuals for fighting fires and related tasks. Students will learn about fire protection organizations, use and handling of firefighting equipment and apparatuses, fire protection and safety, fire behavior and extinguishment methods, rescue and ventilation operations, fire control, and salvage and overhaul of structures. Wild land firefighting will also be taught in conjunction with other fire fighter concepts and competencies. Practical experience will be gained through live fire and simulated exercises. First Responder medical aid will also be a part of the course to provide the students with the knowledge and skills necessary to adequately assess and provide care for victims at the scene of injury. Course titles may include Fire Technology.

This code should be used in place of retired code 5839.

5809 First Responders Basic

The course provides the student with an outline of the EMS system, introduces assessment skills, as well as provides pathophysiology of common neurological, respiratory, and cardiac related emergencies. The course is a training course for emergency medical technicians performing as ambulance attendants. It covers techniques of emergency medical care presently considered within the responsibilities of the emergency medical technician, and emphasizes the development of student skills in recognition of symptoms of illnesses and injuries and proper procedures of emergency care. Emphasis is placed on patient assessment, communication, ambulance operations, and patient care in accordance with the California State Emergency Medical Services Agencies. Course titles may include Fire Science and EMT Basic.

5810 Introduction to Emergency Services

This course is the introductory course in the Emergency Services Pathway and prepares high school students for work in entry-level positions or to pursue advanced skill training in Emergency Services. Course content includes classroom instruction, hands-on training and community experience. This course is designed to provide students with an understanding of the variety of agencies, employment opportunities and necessary skill in the area of Emergency Services. The emphasis will be in the field of Fire Science and Emergency Medical Response, but includes wild land services, and emergency management.

5831 Fire Control and Safety

This course prepares individuals to function as fire control, prevention and safety specialists. It includes instruction in structural design and materials; meteorological factors impinging on fire situations; the chemistry of combustion; techniques for coping with fires; and procedures for handling hazardous materials (such as petroleum products and other volatile, explosive, or corrosive materials) either routinely or in an accident situation. Instruction includes methods for inspection of equipment and its proper use and for inspection of public and private property for safety conditions.

5833 Firefighting Occupations

This course prepares individuals to fight fires and control the outbreak of fires. It includes instruction in fire department organization; the use of water and other materials in firefighting and the use of equipment such as extinguishers, pumps, hoses, ropes, ladders, gas masks, hydrants, and standpipe and sprinkler systems. Instruction includes methods of entry and rescue; salvage practices and equipment; and fire and arson inspection and investigation techniques.

Transportation Sector

Operations (Pathway 223)

5673 Distribution and Logistics

Courses introduce students to careers that involve the planning, management and movement of people, materials and products using any of several modes of transport. Such careers may also involve infrastructure, vehicle service, maintenance and repair, and operating or managing facilities of goods being transported. Therefore, specific course topics vary widely and depend upon the careers being explored.

5687 Warehouse Operations

Courses convey the principles and processes underlying the receiving, loading and unloading, tracking, and storing of large quantities of materials. Course topics typically include a variety of logistical implications for moving materials by several different modes of transportation, safety and security, and appropriate storage techniques.

5656 Aviation and Aerospace Transportation Services

Courses provide students with an understanding of the science of flight and typically include the history, regulations and possible career paths within the aviation/aerospace industry. Courses typically cover physics, the relationships of weight and balance, principles of navigation and flight control, ground and airport operations and services, and Federal Aviation Agency regulations.

5662 Truck and Bus Driving

Courses provide students with knowledge and skills needed for employment as truck and bus drivers. Instruction includes operation of gas, diesel, electrical or other type of fuel or power plant powered trucks and buses. Both classroom and hands-on instruction is provided in basic operation and handling of vehicles, operation and minor servicing of the vehicle's power and control systems, loading cargo or passengers, reporting delays or accidents, verifying loads against shipping papers, keeping records of receipts and fares, maintaining logs, and observing laws and regulations governing vehicle operations.

Systems Diagnostics, Service, and Repair (Pathway 221)

5652   Introduction to Automotive

Courses provide students with the knowledge and skills to be better automobile owners and drivers and can also serve as the first phase of programs that ultimately prepare individuals for employment in industries that require servicing and maintenance of automotive/truck/aircraft/air-cooled gasoline-engine-powered equipment. Instruction includes but is not limited to the role of the automobile in the nation and the world's economy; employment opportunities, working conditions, and training requirements in occupations related to the automobile; the principles of operation of the basic automotive systems; and the basic servicing and maintenance of automotive systems.

5660   Small Vehicle Mechanics

Courses equip students with the knowledge and skill to repair, diagnose, service and maintain engines in small vehicles (e.g., motorcycles, all-terrain vehicles, snowmobiles, and mopeds). Topics may also include (but not limited to) maintaining frames and suspension, wheels and brakes, drive trains; servicing fuel, exhaust, and electrical systems; performing tune-ups; and maintaining and repairing engines. Instruction also includes damage repair and refinishing.

5661   Small Engine Mechanics

Courses provide students with knowledge and skills to service and recondition small engines, typically emphasizing two-and four-cycle engines. Students will learn how to troubleshoot and repair speed controls, lubrication, ignition, fuel, power transfer, cooling, exhaust, and starting systems; use hand, power and overhaul tools; and read and interpret service manuals and parts catalogs. Applications may include lawn mowers, tractors, tillers, power tools, gardening equipment, chain saws, etc.

5668   Automotive Service

Courses provide students with the knowledge and skills in a laboratory-based, integrated curriculum that emphasizes preventative auto maintenance and automobile troubleshooting. Course content typically includes tune-up, oil change, and lubrication skills; tire replacement, alignment, and balancing; and basic knowledge of brake, cooling, electrical, emission, fuel, ignition, steering, suspension, and transmission systems.

This code should be used in place of retired code 5665.

5669   Advanced Automotive Service

Courses provide students with advanced level knowledge and skills to diagnose, service and repair vehicles and support systems such as engines, brakes, cooling, drive trains, electrical/electronics components, emission, fuel, ignition, steering, suspension and transmissions. Course topics often include the comprehension and use of repair manuals and data systems, safety, and employability skills.

This code should be used in place of retired codes 5670, 5671, 5672, 5674, 5675, 5676, 5678, 5680, 5682, and 5684.

5655   Automotive Mechanics, Comprehensive

Courses provide students with the knowledge and skills to diagnosis and repair automotive engines and support systems such as automatic transmissions and transaxles, brakes, electrical systems, engine performance systems, engine heating and air-conditioning systems, manual drive trains and axles, and suspension and steering systems. Course topics may also include comprehension and use of repair manuals, data acquisition, safety, shop management and employability skills.

5653   Aircraft Mechanics

Courses provide students with knowledge and skills for employment as an airframe technician, power plant technician or combination of airframe and power (A & P) technician. Typical instruction includes inspection, repair, service and overhaul of airplane parts, including engines, propellers, instruments, airframes, fuel and oil tanks, control cables, and hydraulic units. This course is designed to meet Federal Aviation Administration (FAA) licensure requirements.

5657 **Diesel Equipment Mechanics**

Courses provide students with knowledge and skills to diagnose, maintain, and repair diesel engines and related systems. Specific course topics may include principles underlying diesel engines, analyzing electrical circuits and systems, troubleshooting and repairing cooling systems, testing and repairing air conditioning charging systems, reading and interpreting service manuals, and identifying the principles and components of fuel injection systems; repair and replacement of water pumps, generators, governors, auxiliary and accompanying power units and controls; transmissions, drive lines, and drive axles; brakes, tires, and wheels; steering and suspension systems; electrical and lighting systems; hydraulics and pneumatics; safety codes and regulations; and general shop skills, including brazing and welding.

5658 **Heavy Equipment Mechanics**

Courses provides students with knowledge and skills to prepare them with field and shop maintenance and repair of heavy-duty and construction equipment, including earth-moving and materials-handling equipment, and instruction in the inspection, maintenance, and repair of tracks, wheels, tires, and brakes. Instruction also covers operating controls, transmissions, drive systems and drive axles, hydraulic and pneumatic systems, electrical and electronic circuitry, engines, and general shop skills, including welding and brazing.

5659 **Marine Mechanics**

Courses provide students with knowledge and skills to diagnose, service, maintenance and repair inboard and outboard marine engines, including but not limited to electrical, mechanical, power transfer, hydraulic, fuel and cooling systems as applied to boat and/or ship engines; boat rigging; trailers; and safe, efficient work practices.

5683 **Rail Technologies**

Courses provide students with the knowledge and skills necessary to enter into various jobs available in Rail. Course topics may include (but not limited to) freight car repair, use of hand and power tools, cutting torches and welding equipment, pre-trip inspections, applying and releasing hand brakes, operating track switches, coupling air hoses, inspecting cars, and using radio communications to control train movement.

5667 **Emerging Technologies in Transportation**

Courses provide students with knowledge and skills in the areas of any new and emerging Transportation technologies not covered in existing coursework.

5677 **Alternative Fuel Technologies**

Courses provide students with knowledge and skills regarding various alternative fuel vehicles including, but not limited to Electric, Fuel Cell, Hybrid/Electric, Hydrogen Fuel, Compressed Natural Gas, Liquid Natural Gas, Ethanol and Methanol Fuel vehicles. Environmental concerns, legislation, safety, applications and their integrated systems from various manufacturers as well as the development of new technology will be discussed. Students develop critical thinking skills through a variety of multimodal, problem-solving techniques. Integrated content focuses on demystifying technology; increasing student literacy, confidence and competence in an age of rapidly advancing technology; providing students with the basis for making wise academic and career choices.

5681 **Parts & Service**

Courses provide students with the knowledge and skills of working at a parts counter and/or as a service writer in a repair facility and/or other aftermarket retailers. Courses may cover (but not limited to) parts knowledge, integrated computer management software, scheduling, inventory control, hazardous materials, warranty documentation requirements, customer service, dispatching and invoicing.

5688 **Automotive Specialty, other combinations**

Courses provide knowledge and skills in specialty programs not otherwise described.

5698 **Other Transportation Technologies**

This designation is for an instructional program/course in Transportation that is not described above.

Structural Repair and Refinishing (Pathway 220)

5663 Repair & Refinishing, Comprehensive

Courses provide students with knowledge and skills regarding the repair and refinishing of damaged or used vehicles (planes, trains, boats and automobiles). Course content may include (but not limited to) stretching and shrinking sheet metal; welding skills; frame and metal straightening; repair of fiberglass and synthetic materials; removing, repairing, and installing parts such as panels, hoods, doors, and windows/glass; preparing vehicles and vehicle surfaces for refinishing; painting; applying body fillers; and estimating material and labor costs.

5664 Structural Repair

Courses provide students with knowledge and skills regarding repair of damaged or used vehicles (planes, trains, boats and automobiles, etc.). Course content may include, but are not limited to stretching and shrinking sheet metal, welding skills, frame and metal straightening; repair of fiberglass and synthetic materials; removing, repairing and installing parts, plastics and adhesives, mechanical and electrical components, structural analysis and damage repair, and nonstructural analysis and damage repair.

5666 Painting and Refinishing

Courses provide students with knowledge and skills regarding surface preparation; spray gun operation; paint mixing, matching and applying; solving paint application problems; causes and cures for finish defects; and safety precautions.

5685 Upholstery

Courses provide students with the knowledge and skills of vehicle upholstery from layout and design to creation and installation. Courses may cover (but not limited to) seat reconstruction, covers, visors, leather and vinyl repair, basic seam construction, insert construction, seat reconstruction, trim panels, carpets, convertible tops, vinyl tops, sun visors, head liners.