2022/2023

Secondary Pathways for Colorado

Career & Technical Education

Learning that works for Colorado
CTE®

Revised: December 2022

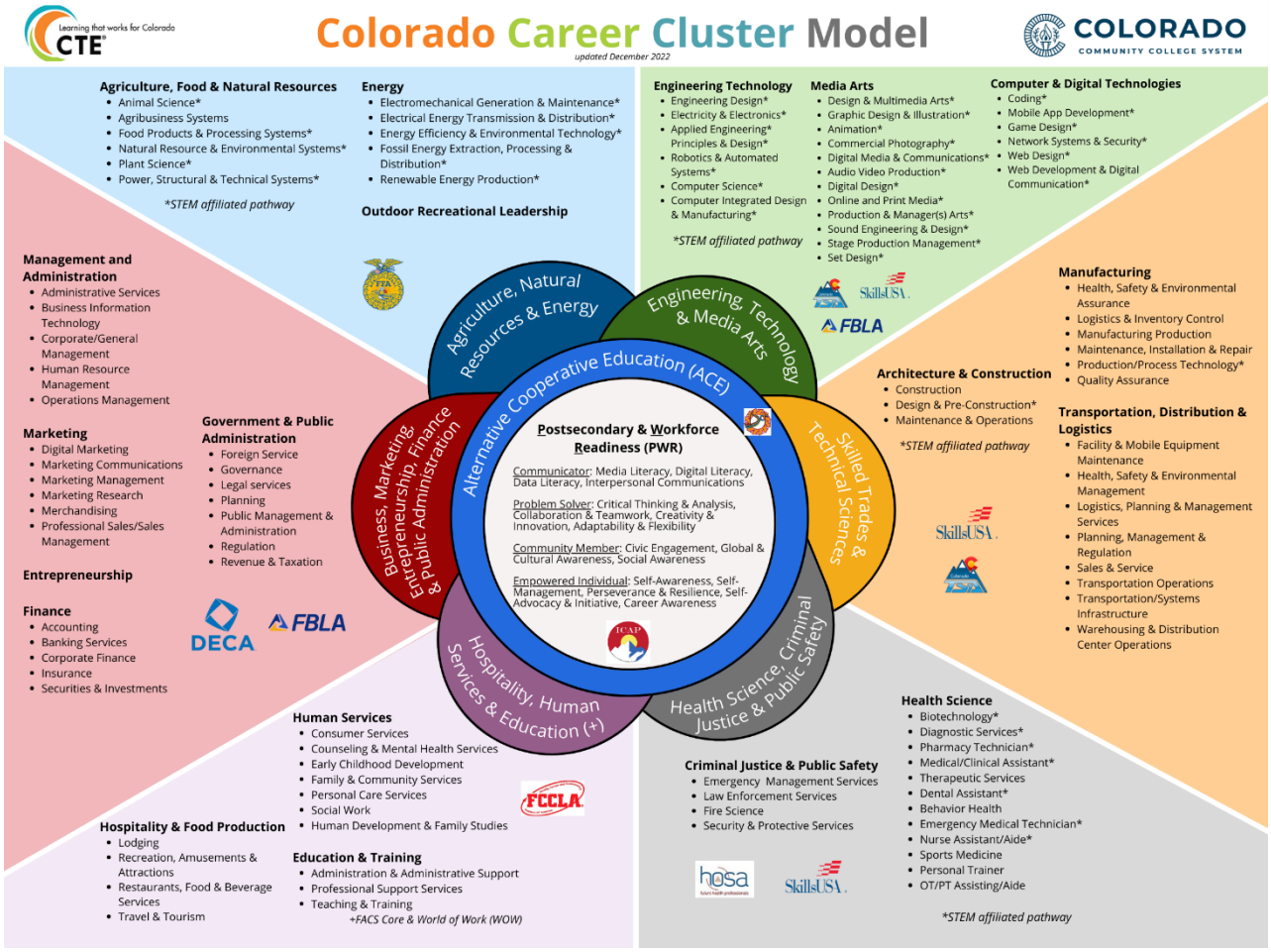
Contents

General Pathway Information

To better align offerings across the state and meet the new Perkins V requirements, Colorado Career and Technical Education (CTE) developed the following pathways for our secondary program areas.

This document is organized by Program Director Area, Career Cluster, and then Pathway.

Please visit here to dive deeper into Clusters and Pathways: [Educator – Colorado Career and Technical Education](#) and [PATHWAYS – Colorado Career and Technical Education](#)



Alternative Cooperative Education (ACE)

Alternative Cooperative Education (ACE) Career & Technical Education (CTE) is a multi-occupational pathway that facilitates individualized, developmentally appropriate programming necessary to support CTE students successfully. This includes students identified as Special Populations[1].

ACE CTE Programming is developed through collaboration with educators, business representatives and community stakeholders. The collaboration creates locally responsive, relevant work-based & school-based learning experiences. ACE CTE students will demonstrate competency in Postsecondary Workforce Readiness (PWR)[2] that lead to technical skill attainment[3] in any chosen occupation with a focus on high wage[4] occupations or high skill in high demand industries that promote self-sufficiency.

1. **Special Populations** (per Perkins V Authorization) is defined as:
    - Individuals with disabilities, Individuals from economically disadvantaged families, Individuals preparing for non-traditional fields, Single parents, including single pregnant women, Out-of-workforce individuals, English learners, Homeless individuals, Youth who are in, or have aged out of the foster care system; Youth with a parent who is a member of the armed forces and/or is on active duty.
2. **Postsecondary Workforce Readiness (PWR)** competencies include:
    - **Communicator:** Media Literacy, Digital Literacy, Data Literacy, Interpersonal Communications
    - **Problem Solver:** Critical Thinking & Analysis, Collaboration & Teamwork, Creativity & Innovation, Adaptability & Flexibility
    - **Community Member:** Civic Engagement, Global & Cultural Awareness, Social Awareness
    - **Empowered Individual:** Self-Awareness, Self-Management, Perseverance & Resilience, Self-Advocacy, Initiative and Career Awareness
3. **Technical Skill Attainment** is defined as: the knowledge and skills determined by Career & Technical Standards and competency measures that are mastered by the student in a CTE program. This verification can be completed by delivering educator/employer formal assessment & evaluation; performance based assessment or from artifacts reflecting work experience accumulated in a portfolio, among other verification models; including, but not limited to: developmentally appropriate completion of a CTE course sequence and skills outlined in individual training plans for work based learning.
4. **High Wage**: As determined by the 2006 Perkins Authorization. It refers to "wages greater or equal to the current state set minimum wage". This term may also be replaced with: Real World Employment or Livable Wage as seen fit. Both replaceable terms speak to efforts in ACE CTE programming that support students with supplying the readiness to succeed in todays' economy (however the 'today' looks in current environments).

Successful **C**areer **S**tudents of **C**olorado (SC)[2] is the Colorado based CTSO for students in ACE programs. This is a unique state-only CTSO. CTE students in ACE programming experience the ultimate goals of developing skills in the areas of self-knowledge, human relations,employability, career awareness, independent living, transition planning, leadership, community service and demonstrate Postsecondary Workforce Readiness (PWR) competencies. Visit the website: ACE-(SC)2

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Alternative Cooperative Education (ACE) Cluster

ACE CTE Pathway (998005)

Credential: ACE CTE

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
CD I – ACE Career Development I – Career Planning	**CD II** – ACE Career Development II – Job Seeking	**CD III** – ACE Career Development III – Job Keeping	**CAP** – ACE Capstone/Portfolio Based/Culminating Course
WE I – ACE In-School Work-Based Learning	**WE II** – ACE Community Work-Based Learning	**WE III** – ACE Intentional Work-Based Learning	**LAB** – ACE CTE Pathway Lab
PWR I – ACE Success Foundations	**PWR II** – ACE Success Systems	**PWR III** – ACE PWR Applications	*** As seen developmentally appropriate, WE, CD, PWR, CL, and FL course sequences can be expanded and fit a Level 4 here*
CL I – ACE Computer Literacy: Introduction to Computers	**CL II** – ACE Computer Literacy: Software applications	**CL III** – ACE Computer Literacy: Operating Systems	
FL I – ACE Financial Literacy	**FL II** – ACE Business Management & Entrepreneurship	**LAB** – ACE CTE Pathway Lab	

ACE CTE Pathway Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

CAP – ACE Capstone/Portfolio Based/Culminating Course

Students critique and formulate skills to complete a multifaceted learning portfolio that serves as a culminating academic and intellectual experience for students in pathway programs. Instruction and experiences may include: topic selection, portfolio creation, community connections; employability skills such as: oral communication, public speaking, research skills, computer literacy, teamwork; the academic planning skills such as: self-sufficiency and goal setting, and; postsecondary workforce readiness skills that will help prepare them for college, modern careers, and adult life. Students will demonstrate levels of knowledge and skill for the environmental expectations of postsecondary options and intentional academic planning based on self-awareness and career exploration.

This course is designed to meet or exceed the current Colorado Graduation Guideline menu option for Capstone.

CD I – ACE Career Development I – Career Planning

As developmentally appropriate, this course (or series of courses) is designed for students to create an individual, initial career plan that outlines steps to reach their career goal. Students will identify a career goal based upon results of various assessments, i.e. interest survey, aptitude evaluation, academic skills, learning styles, work preferences, etc. Students will also investigate the training and educational requirements (academic planning & postsecondary options) for their chosen career field. Students should be able to articulate short-term action necessary to achieve the goal(s) in their career plan; including intentional academic planning, high school choices based on self-awareness, career exploration and postsecondary aspirations. Whenever possible, computer literacy skills, and leadership skills tied to a CTSO should be embedded into the curriculum.

CD II – ACE Career Development II – Job Seeking

As developmentally appropriate, this course (or series of courses) is designed to teach skills needed for entry into the workforce. Students will demonstrate successful job search strategies. Students will demonstrate employability skill ability to accurately complete job applications, write a resume ask for letters of recommendation. Students will examine model interviews and then participate in their own interview simulations. Students will be able to advocate for accommodations or adaptations necessary to be successful on the job. Students will be knowledgeable of the environmental expectations of the workplace. Additionally, students will be introduced to personal financial literacy skills including: financial planning, budgeting, saving, credit, paycheck calculation, and taxes. Students practice appropriate communication, teamwork, problem-solving while working in a group environment. Whenever possible, computer literacy skills, and leadership skills tied to a CTSO should be embedded into the curriculum.

CD III – ACE Career Development III – Job Keeping

As developmentally appropriate, this course (or series of courses) is designed for students to learn about various employability skills necessary to meet and exceed employer expectations on the job by developing workplace skills such as interpersonal communication, teamwork, leadership, critical thinking and ethical decision making in the workplace. Students will evaluate employee benefit plans (medical, dental, vision, worker's compensation, unemployment, retirement plan, employee discounts, educational incentives, etc.). Additionally, students will recognize opportunities for advancement on the job. Students will become familiar with workplace laws and policies including: Child Labor Laws, Fair Labor Act, Equal Employment Opportunity, Workplace Safety (OSHA), Americans with Disability Act (disability disclosure as appropriate), Sexual Harassment (definition, scenarios, appropriate behavior, policies and procedures). Whenever possible, computer literacy skills, and leadership skills tied to a CTSO should be embedded into the curriculum.

CL I – ACE Computer Literacy: Introduction to Computers

As developmentally appropriate, this course (or series of courses) is designed for students to identify the parts and functions of the parts of personal computers. This course will enhance the development of hand-eye coordination by mouse usage and basic keyboarding skills such as text production and use of the function keys. Students will be introduced to such varied topics as use of an internet browser, how to establish and maintain an email account, text messaging, and social media. Students will also learn how to navigate basic word processing programs, use established databases and search engines to find information on the internet as well as copy, save and print documents from various sources. Whenever possible, the appropriate use and safety of social media, internet ethics and exploration should be embedded into the curriculum.

CL II – ACE Computer Literacy: Software applications

As developmentally appropriate, this course (or series of courses) is designed for students to expand their knowledge of Microsoft Windows and Office Suite applications. Students will receive hands-on experience in MS Windows, Word, Excel, PowerPoint and other programs. Topics covered include working with files, creating and formatting documents, form letters and mailing labels, advanced table techniques and managing long documents. This course will also cover computer history, hardware, software and operating concepts. Students will analyze and critique web applications associated with securing employment, such as job applications and employment search sites. Whenever possible, the appropriate use and safety of social media, internet ethics and exploration should be embedded into the curriculum.

CL III – ACE Computer Literacy: Operating Systems

As developmentally appropriate, this course (or series of courses) is designed to help students apply their knowledge of personal computer operating systems. MS Windows and other operating systems will be studied. Topics and practice will include installing, configuring, troubleshooting, maintaining and repairing operating systems within the application being taught. This course may also include an introduction to programming, coding and robotics concepts as aligned to student's post-secondary pathway. Whenever possible, the appropriate use and safety of social media, internet ethics and exploration should be embedded into the curriculum.

FL I – ACE Financial Literacy

This course focuses on personal financial literacy. As developmentally appropriate, this course (or series of courses) is designed for students to learn and practice financial literacy, decision-making, and management skills for their personal and professional lives. Students will create and modify budgets according to new circumstances. Students will be practicing basic banking activities such as check writing, debit card use, deposits and keeping track of a spending register and explore online banking and banking apps and compare and contrast several types financial institutions. Students will examine the benefit and detriment of managing credit. Students will apply practical application of fiscal management topics such as renting vs owning, mortgage calculators, new car vs used car purchase, how to get a car loan, financial calculator use, understanding payroll deductions and benefits, income tax and filing taxes, and comparing a nd contrasting insurance possibilities. Students will demonstrate knowledge of FAFSA, loans, grants scholarships and other postsecondary financial supports. They will examine the many ways to invest money and participate in simulations involving investing. Whenever possible, computer literacy skills and leadership skills tied to a CTSO should be embedded into the curriculum.

FL II – ACE Business Management & Entrepreneurship

This course serves as an application of financial literacy, management of business and entrepreneurship. As developmentally appropriate, this course (or series of courses) is designed for students to learn and practice financial literacy, decision-making, and management skills for their personal and professional lives. Students will understand and practice basic strategies to develop a business plan and organize and manage a business venture; accounting methodologies, budgeting and bookkeeping procedures customer service, team building, and supervisory skills; and business and community networking strategies. They will become familiar with ownership and management structures and leadership styles. Students will develop a business plan and organize and manage a business venture. Whenever possible, computer literacy skills and leadership skills tied to a CTSO should be embedded into the curriculum.

LAB – ACE CTE Pathway Lab

As developmentally appropriate, this course is meant to serve as a support class to ACE CTE students who are co-enrolled in a specific CTE cluster sequence. The ACE teacher serves as the learning success coordinator—filling the gaps in learning that a student may need to succeed in a CTE Sequence of courses. Ideally, this support would allow the student to complete a specific CTE cluster pathway. The ACE Teacher does not supply the technical skill content. Students will demonstrate levels of self-awareness, career exploration, academic planning based upon Postsecondary aspirations and realistic options as well as employability skills.*This course is NOT to be delivered as a credit recovery, study hall or access/study skills course. This course MUST be linked directly to a CTE program."

PWR I – ACE Success Foundations

This course focuses on personal/self-awareness. This class is designed to help students explore and develop the personal and academic skills that are foundational to successful transition into

the working world. Teachers will facilitate students learning and implementing academic discipline skills, mindsets, and behaviors for successful academic course completion, and help them to identify methods for setting goals for personal improvement and continuous growth in an academic area, and explain the purpose of fundamental tools used to pursue a career path.

Students will select critical thinking skills to make informed, ethical, and socially responsible choices and will also work on implementing essential routines for physical and mental health maintenance and personal safety, including emotion regulation, positive communication skills, decision-making, goal setting, time management, advocacy, problem solving, conflict resolution, self-awareness, personal responsibility, work ethic, stress management, and appropriate personal/social and conflict resolution skills. Students will investigate how all of these factors influence successful career habits.

Students will also have the opportunity to determine personal interests, talents, goals and preferences for potential careers, and explore the connection between those interests and postsecondary workforce aspirations and options.

PWR II – ACE Success Systems

This course focuses on self and social awareness. This class is designed to help students understand the relationship of their individual talents, interests, and dreams with others around them. Teachers will facilitate an understanding of personal learning styles, self - management, how skills and beliefs within multiple environments (peer, school, home) influence postsecondary options and workforce readiness.

Students will monitor and practice skills including personal responsibility, interpersonal skills such as but limited to: collaboration, cooperation, social responsibility/citizenship, problem solving, work ethic, stress management, and how they are applied in a group/social environment.

This course will allow students to identify specific environmental factors that influence their physical, emotional, and mental health in relation to their career choice, and evaluate how applying critical thinking skills, collaboration, group problem solving, conflict resolution, and personal responsibility can impact any related social setting success.

Students may match potential career opportunities in career clusters or plan a career path based on personal interests, goals, talents and preferences.

PWR III – ACE PWR Applications

This class is designed to help students acquire the skills necessary for successful transition to their post-secondary working life.

Students will learn to apply critical thinking and academic knowledge in order to create plans and potential solutions for problems in the workplace and community, and assess the pros and cons of personal decisions based on their anticipated impact on self, peers, employers, and community.

The course content will allow students to examine the concepts of money management, budgeting, consumer awareness, housing/apartment living, paying for and gaining entry into post-secondary training, stress management, learning how to successfully move out, living on your own, finances, and acquiring and securing post-secondary housing options.

WE I – ACE In-School Work-Based Learning

(As a pre-requisite, students should have already taken or be simultaneously enrolled in the ACE Career Development (CD I-III) course sequence) As developmentally appropriate, this course (or series of courses) is designed for students to develop basic employment skills by participating in an in-school work/school based enterprise experience. A training plan and evaluation (to be filled out by the supervisor/employer) will be developed listing job specific technical skills the student will learn during the experience. Hours worked will be documented. Students will demonstrate levels of self-awareness, career exploration, postsecondary option knowledge and employability skills. ACE teachers serves as a coach and mentor checking in with supervisor/employer regularly.

WE II – ACE Community Work-Based Learning

(As a pre-requisite, students should have already taken or be simultaneously enrolled in the ACE Career Development (CD I-III) course sequence) As developmentally appropriate, this course (or series of courses) is designed for students to develop basic employment skills by participating in an in-school work/school based enterprise experience. A training plan and evaluation (to be filled out by the supervisor/employer) will be developed listing job specific technical skills the student will learn during the experience. Hours worked will be documented. Students will demonstrate levels of self-awareness, career exploration, postsecondary option knowledge and employability skills. ACE teachers serves as a coach and mentor checking in with supervisor/employer regularly.

WE III – ACE Intentional Work-Based Learning

(As a pre-requisite, students should have already taken or be simultaneously enrolled in the ACE Career Development (CD I-III) course sequence) A training plan and evaluation (to be filled out by the supervisor/employer) will be developed listing job specific technical skills the student will learn during the experience. Hours worked will be documented. Students will demonstrate levels of self-awareness, career exploration, academic planning based off of postsecondary aspirations and realistic options, employability skills, and environmental expectations. ACE teachers serves as a coach and mentor checking in with supervisor/employer regularly.

Agriculture, Natural Resources & Energy

Through agricultural education, students are provided opportunities for leadership development, personal growth and career success. Agricultural education instruction is delivered through three major components:

- Classroom/Laboratory instruction (contextual learning)
- Supervised Agricultural Experience programs (work-based learning)
- Student leadership organizations
  - — National FFA Organization
  - — National Young Farmer Educational Association
  - — National Post-secondary Agricultural Student Organization

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Colorado Future Farmers of America (FFA) is for youth from 14 to 22 years of age enrolled in agriculture education. The largest student youth organization in America, the FFA is both an intracurricular and integral part of the complete CTE agriculture education program. The Colorado Young Farmer Education Association is a statewide organization of people enrolled in the Young Farmer Program. The Young Farmer Program is usually conducted by local CTE agriculture instructors in addition to their regular high school or college agriculture classes.

Visit the website: ffa.cccs.edu

Agriculture Food & Natural Resources Cluster

Agriculture Business Pathway (109999)

Credential AFNR

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Agriculture (A/B)	Principles of Ag Business (A/B)	Agriculture sales and Marketing	Principles of Ag Econ (AGE 102)
			Introduction to Computers (CIS 118)
			Fundamentals of Ag Business (AGB 102)
			WBL in Agriculture
			Agriculture Capstone
			Ag Leadership
			WBL Apprenticeship

Industry credentials available in this pathway

Personal Financial Literacy – ICEV
OSHA 10 hour
Employment Professionals Career Preparedness (ICEV)
Professional Communications (ICEV)
Personal Financial Literacy (ICEV)
National Safe Tractor and Machinery Operations
CPASS Comprehensive Agriculture

Animal Science Pathway (109999)

Credential AFNR

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Agriculture (A/B)	Principles of Animal and Veterinary Sciences (A/B)	Animal Production (A/B)	Advanced Animal Production Management (A/B)
		Intermediate Veterinary Science (A/B)	Advanced Veterinary Science (A/B)
		Equine Science	Intro to Animal Science (ASC 100)
			Fundamentals of Ag Business (AGB 102)
			WBL in Agriculture
			Agriculture Capstone
			Ag Leadership
			WBL Apprenticeship

Industry credentials available in this pathway

Animal Science (CPASS)
Animal Science (ICEV)
Vet Science (ICEV)
CVMA (CVA)
OSHA 10 hour
Employment Professionals Career Preparedness (ICEV)
Professional Communications (ICEV)
Personal Financial Literacy (ICEV)
National Safe Tractor and Machinery Operations
CPASS Comprehensive Agriculture

Food Science Pathway (109999)

Credential AFNR

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Agriculture (A/B)	Principles of Food Science	Food Processing & Safety (A/B)	Fundamentals of Ag Business (AGB 102)
	Principles of Food Production		WBL in Agriculture
			Agriculture Capstone
			Ag Leadership
			WBL Apprenticeship

Industry Certifications that can be obtained through this Pathway

Food Safety & Science (ICEV)
Meat Evaluation (ICEV)
OSHA 10 hour
Employment Professionals Career Preparedness (ICEV)
Professional Communications (ICEV)
Personal Financial Literacy (ICEV)
National Safe Tractor and Machinery Operations
CPASS Comprehensive Agriculture

Natural Resources/ Environmental Science Pathway (109999)

Credential AFNR

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Agriculture (A/B)	Principles of Natural Resource Management (A/B)	Forestry Management	Range Ecology
		Wildlife and Fish Management	Colorado Watershed Management
			Fundamentals of Ag Business (AGB 102)
			WBL in Agriculture
			Agriculture Capstone
			Ag Leadership
			WBL Apprenticeship

Industry credentials available in this pathway

Ecology Conservation and Management (ICEV)
OSHA 10 hour
Employment Professionals Career Preparedness (ICEV)
Professional Communications (ICEV)
Personal Financial Literacy (ICEV)
National Safe Tractor and Machinery Operations
CPASS Comprehensive Agriculture

Plant Science Pathway (109999)

Credential AFNR

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Agriculture (A/B)	Principles of Plant Science (A/B)	Crop Production & Management	Irrigation & Water Management
	Principles of Horticulture Science (A/B)	Soil Science	Landscape Construction & Maintenance
		Greenhouse Production	Urban Farm Management
		Floriculture (A/B)	Irrigation & Water Management
			General Crop Production (AGY 100)
			Fundamentals of Ag Business (AGB 102)
			WBL in Agriculture
			Agriculture Capstone
			Ag Leadership
			WBL Apprenticeship

Industry credentials available in this pathway

Plant Science (CPASS)
Plant Science (ICEV)
Floral Design (ICEV)
ALCC Passport to Certification
Private Pesticide Applicators License (CDA)
OSHA 10 hour
Employment Professionals Career Preparedness (ICEV)
Professional Communications (ICEV)
Personal Financial Literacy (ICEV)
National Safe Tractor and Machinery Operations
CPASS Comprehensive Agriculture

Agriculture Power / Structure & Technology Pathway (109999)

Credential AFNR

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Agriculture (A/B)	Principles of Ag Power, Structure and Technical Systems (A/B)	Advanced Welding Technology	Metal Fabrication
		Structure Design & Fabrication	Plumbing & Electrical Installation
		Agriculture Engine Technology (A)	Agriculture Engine Technology (B)
		Industrial Maintenance Technology	Advanced Engine Technology
			Applied Ag Tech
			Appropriate Concurrent Enrollment Courses in AME, WEL, or CON
			General Crop Production (AGY 100)
			Fundamentals of Ag Business (AGB 102)
			WBL in Agriculture
			Agriculture Capstone
			Ag Leadership
			WBL Apprenticeship

Industry credentials available in this pathway

Welder Qualification & Certification (AWS)
Small Gas Engines (ICEV) SGE Technician (Briggs & Stratton)
Engine, Hydraulics & Electrical (EETC)
OSHA 10 hour
Employment Professionals Career Preparedness (ICEV)
Professional Communications (ICEV)
Personal Financial Literacy (ICEV)
National Safe Tractor and Machinery Operations
CPASS Comprehensive Agriculture

Agriculture Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Advanced Animal Production Management A/B

Students will focus on the care, maintenance, and management of livestock and companion animal species. Advanced techniques in animal behaviors and handling, routine administration and surgical procedures, governmental regulations and programs, animal identification protocols and procedures, HACCP analysis and monitoring, and facilities equipment for large, small, and exotic/alternative animal production will be developed. Current animal agricultural issues will be research and addressed. The scientific processes of observation, hypothesizing, data gathering, interpretation, analysis, and application will be included. Career opportunities and education preparation will be examined. Learning activities are varied with classroom. Laboratory and field experiences will be required.

Engine & Equipment Technology C

This course continues to build on previous learning of equipment system operation. Focus will be on electrical / electronic systems and the hydraulic system. content includes understanding of system design, reading schematics and troubleshooting of system operations along with identification of electrical and hydraulic components, and their application on equipment and implements

Advanced Veterinary Science A
Advanced Veterinary Science B

Students will focus on advanced animal behavior and handling, positioning and restraint for surgical procedures, pharmacology, Asepsis, hospital and surgical procedures, antibiotics and antibiotic resistance, laboratory testing and procedures as well as veterinary technologies. Current animal agricultural issues will be researched and addressed. The scientific processes of observation, hypothesizing, data gathering, interpretation, analysis and application will be included. Career opportunities and educational preparation will be examined. Learning activities are varied with classroom, laboratory and field experiences will be included.

Advanced Welding Technology

Advanced Welding Technology is an advanced course educating students in the advanced skills and knowledge in metal fabrication. Students will build on the skills and competencies presented in prerequisite courses. Students will learn cutting and welding applications of increasing complexity used in the manufacturing/metal fabrication industry. Students will be proficient in fundamental safety practices in welding, general industry-based metal fabrication skills, multiple welding processes, project management, quality control methods and further advanced welding/metal fabrication technology and processes.

Ag Leadership

This course provides for the application of leadership and communication skills developed in previous courses in the ag Program of Study. Students will apply identified skills and competencies through planning, conducting and evaluation of activities, events and programs through the FFA organization as well as other ag related associations.

Agriculture Capstone

This course allows for advanced work in any ag Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Agriculture Engine & Equipment Technology A

This course will consist of the basic theory and maintenance of the internal combustion engine primarily small engines. Including principles of electricity as it relates to electric starters, alternators and batteries. Also including wheel bearings and wiring on equipment, such as trailers and tractors. Course also includes safety, maintenance and the fundamentals of operation and calibration of basic farm machinery, equipment and vehicles. Students will gain basic understanding and interpretation of technical manuals. This course will also offer career opportunities and information based on industry experts. Class time will be divided between hands-on activities in the shop and classroom instruction.

Agriculture Engine & Equipment Technology B

This course builds on the systems and information gained in Agriculture Engines Technology I. This course will use the fundamentals of small engines and move to the use of technical drawings and manuals for diagnosis, and service of the systems and components of all types of power engines such as outdoor power equipment, motorcycles, generators, and irrigation engines. Other course topic includes multi-cylinder engines, hydraulics, and electric motors. This course is designed to provide hands-on and practical application for employment in the engine technology industry. Instruction includes the repair and service of cooling, air, fuel, lubricating, electrical, ignition, and mechanical systems and small engine overhauls.

Agriculture Sales and Marketing

The selling and marketing of real-life agriculture products will be the focus of the class. The student will learn step-by-step sales techniques, stage presence, self-evaluation of voice, habits, abilities in sales, and understanding of sales careers. In marketing of the products; topics covered include market research, trade, competition and pricing in relation to the development of a marketing plan for commodities or other agricultural products or services. Students will continue progress in FFA Leadership skills as well as strengthening their Supervised Agricultural Experience.

Animal Production
A/B

Students will gain knowledge, skill and understanding in a variety of systems of production as well as the care, management and handling of livestock and companion animal species. Nutrients and nutrition, types of feeds, balancing rations, herd health management, common diseases, parasites, disease treatment and prevention, reproductive management, routine administration techniques and basic animal handling will be the topics covered in this course. Current animal agricultural issues will be researched and addressed. The scientific processes of observation, hypothesizing, data gathering, interpretation, analysis and application will be included. Career opportunities and educational preparation will be examined. Learning activities are varied with classroom, laboratory and field experiences will be included.

Applied Ag Tech

The Applied Agriculture Technology course provides students with the opportunity to focus on topic areas related to the use of technology in agriculture, applying technological processes to solve real problems and developing the knowledge and skills to design, modify, use, and apply technology appropriately. Students may design and assemble projects and learn to work with different digital applications to complete tasks as seen in the agriculture industry.

Colorado Watershed Management

This course expands student learning to the principals of Colorado water and the management practices. Students will gain knowledge in career development, leadership, personal development, communications, ecology, Colorado water law, and meterology.

Crop Production & Management

Students in this class will cover topics in sustainable agriculture, planting, soil preparation, integrated pest mgt, Harvest, handling and storing according to current industry standards, development of production plans, food/biosecurity, fertilizer mgt, and water mgt. 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.

Equine Science

This course is designed to introduce students to the scientific principles of equine animal systems and to the equine industry. Competencies will cover basics of the equine industry, breeds, selection, form to function, care and management, soundness, health, reproduction, feeding, facilities, production systems and management systems.

Floriculture
A/ B

Floriculture is a one or two semester long class in which students will learn about the production, arrangement, and retailing of flowers. Classification and identification of common plants used in the floral industry will be taught. The class will include numerous labs where fresh, silk, and dried flowers are used to design corsages, wedding bouquets, table flower arrangements, and seasonal holiday decorations. The course will also highlight developing

communication skills, business principles, and leadership skills in the floriculture 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.

Food Processing & Safety A
Food Processing & Safety B

Food Products and Processing focuses on the food processing industry with special emphasis on the handling, processing and marketing of food products. In addition, understand procedures that ensure safety, sanitation and quality of food products. Students will develop knowledge and skills regarding career opportunities, entry requirements and industry expectations.

Forestry Management

This course expands student learning to the principals of forestry. Students will gain knowledge in career development, leadership, personal development, communications, ecology, biology and temporal forest environments.

Fundamentals of Ag Business (AGB 102)

Focuses on the foundational aspects of the primary agriculture business areas including economics, management, marketing, sales and finance in an applied manner. Current events in agriculture are discussed with emphasis on application to agribusiness.

General Crop Production AGY 100

Focuses on production and adaptation of cultivated crops, principles affecting growth, development, management, and utilization.

Greenhouse Production

This advanced course offers instruction in greenhouse production. Units of study include plant identification, greenhouse management, integrated pest management, propagation, growing media, growing greenhouse crops, horticulture mechanics, Agribusiness units will cover operating a horticultural business, pricing work, advertising, and sales. 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.

Horticulture Science HLT 100

Introduces students to the principles of the plant science as they relate to horticulture. The course emphasizes the application of plant sciences to the propagation, improvement, culture and utilization of horticultural plants.

Industrial Maintenance Technology

This course covers application of power and technical systems in industrial settings. Content covers basic application of electrical circuitry, motors & controls, hydraulic & pneumatic, & mechanical systems.

Intermediate Veterinary Science AB

Students will develop knowledge, skill and understanding in the biological processes and physiological systems found in livestock and companion animal species pertaining to Animals & Society, Animals in Research, Veterinary Laws & Ethics, Common Veterinary Medical Equipment, Veterinary Medical Terms & Terminology, Basic Canine & Feline Anatomy, External Anatomy of Livestock: Terms & Terminology, Circulatory & Respiratory Systems , Digestive System, Endocrine, Immune & Integumentary Systems, Nervous, Skeletal & Muscular Systems. Current animal agricultural issues will be researched and addressed. The scientific processes of observation, hypothesizing, data gathering, interpretation, analysis and application will be included. Career opportunities and educational preparation will be examined. Learning activities are varied with classroom, laboratory and field experiences will be included.

Introduction to Agriculture A/ B

An introductory course for first year agriculture education students. This course introduces students to the foundational principles of agriculture, food and natural resources. Students will gain knowledge in career development, leadership, personal development, communications, animal science, plant science, natural resources, food science, power/structure and agribusiness.

Introduction to Animal Science (ASC 100)

Studies the basic fundamentals of livestock production pertaining to principles of breeding, genetics, nutrition, health, and physiology of beef, sheep, swine, dairy, and horses. Focuses on the Animal Science Industry in general and each species industry in regard to history, current situation, and future direction.

Introduction to Computers (CIS 118)

This course allows for advanced work in any ag Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Irrigation & Water Management

This course will focus on water law, irrigation systems, design and installation, transpiration and water use, irrigation scheduling, chemigation and fertigation, water quality. 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.

Landscape Construction & Maintenance

Landscape Management course provides instruction that incorporates plant science, soil and media mixtures, plant identification and optimal environments, and landscape design, installation, and maintenance of new and existing landscapes. Participation in FFA student organization activities and Supervised Agricultural Experience (SAE) projects is an integral coursecomponent for leadership development, career exploration and reinforcement of academic concepts.

Metal Fabrication

This course entails the application of basic metal welding skills to the construction of items through the fabrication process. Skills include project blueprint development, welding blueprint symbols interpretation, bill of materials, fabrication process determination, construction skills and quality control.

Plumbing & Electrical Installation

Students will acquire knowledge and basic skills in electrical and plumbing technologies including how to identify and use power and hand tools; how to be safe on the jobsite and when using hand and power tools. Plumbing skills will include how to identify, fit, and use industry relevant plumbing pipe materials such as copper, PVC, poly, etc. Plumbing system design and troubleshooting will also be addressed. In addition, students will be introduced to gas, drainage, and water supply systems and continue their knowledge of workplace basics and green technologies. Skills in the electrical area include electrical theory, tool identification and use, electrical codes, installation of electrical equipment, and the reading of electrical drawings, schematics, and specifications.

Principles of Ag Business
A/ B

In this course student will be comparing and contrasting business models and identifying the advantages and disadvantages to owners and customers within the agribusiness chains. Students will show an understanding of basic recordkeeping skills and applications in an agribusiness. Components include the general journal, balance sheet, cash flow statements, financial statements, reconciliation of accounts, net worth, income statements, and profit and loss statements. Students will understand how these records can allow for business decisions within an agribusinesses or Supervised Agriculture Experience(SAE) program.

Principles of Ag Econ (AGE 102)

Focuses on economic principles and decision-making by consumers, firms and government with emphasis on their application to the food, fiber and natural resource sectors of the economy. This is a statewide Guaranteed Transfer course in the GT-SS1 category

Principles of Ag Power, Structure and Technical Systems A/B

This is an introductory course educating students to the basic skills and knowledge in construction and land management. This course covers topics including safety, project management, land site management, irrigation and drainage and agriculture structures and

components. Upon completion of this course, proficient students will be prepared for more advanced coursework in agricultural mechanics.

Principles of Animal and Veterinary Sciences A/B

Students will develop knowledge, skills and understanding in the biological processes and physiological systems found in livestock and companion animal species including anatomy and physiology, growth and development, muscular and skeletal systems, integumentary system, respiratory and circulatory systems, nervous system, lymphatic and endocrine systems and excretory system. The scientific processes of observation, hypothesizing, data gathering, interpretation, analysis and application will be included. Career opportunities and educational preparation will be examined. Learning activities are varied with classroom, laboratory and field experiences will be included.

Principles of Food Production

Identify changes and trends in local and global food systems while understanding the selection, evaluation and inspection of existing food systems. Learn about the production and distribution channels of both animal and plant products while also recognizing the role of marketing in the food industry.

Principles of Food Science

Apply principles of nutrition, biology, chemistry and human behavior to the food we eat every day. Refine skills in measurement, following recipes, interpreting food labels and identifying safe storage and processing techniques.

Principles of Horticulture Science A/B

This course is designed to introduce students to the horticulture industry. Major units of instruction include horticulture research, horticultural careers, plant anatomy, seed germination, plant propagation, growing media, pest management, hydroponics, identifying horticultural plants, soil science, growing greenhouse crops. Improving industry standard workplace 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.

Principles of Plant Science A/B

Plant Science provides students with knowledge and information about the growth, development, and reproduction of plants used for food, fiber, and beautification. Topics may include plant anatomy and physiology, plant growth processes such as photosynthesis, propagation (reproduction) methods, taxonomy and classification, and plant identification. The course will also highlight developing communication skills, leadership skills, and incorporate a survey of the careers within the plant science 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.

Principles of Natural Resource Management A/B

An introductory course for agriculture education students pursuing careers in Natural Resources and Environmental Sciences. This course expands student learning to the foundational principles of ecology including the fields of geology, meteorology, biology and chemistry related to the conservation, natural resources, and fish and wildlife management. Students will gain knowledge in career development, leadership, personal development, communications, and environmental science.

Range Ecology

This course expands student learning to the principals of rangeland ecology. Students will gain knowledge in career development, leadership, personal development, communications, ecology, and resource management.

Soil Science

Focuses on formation, physical properties, chemical properties, land classification and mgt of soils emphasizing conditions that affect plant growth. 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.

Structure Design & Fabrication

Students will gain knowledge and skills needed to enter the workforce or to prepare for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in safety, reading/creating construction drawings, tool ID and usage, building material ID and usage, building codes, and framing.

Urban Farm Management

This course will focus on purpose, site identification, land access, soil quality, water resources, infrastructure for both indoor and outdoor growing operations, production strategies, market development, and financing as it applies to Urban Farming. 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.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

WBL in Agriculture

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Wildlife and Fish Management

This course expands student learning to the principals of wildlife management. Students will gain knowledge in career development, leadership, personal development, communications, ecology, biology, zoology and trends in wildlife management in relation to outdoor recreation.

Water Quality Management Pathway (150506)

Credential: Ag

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Environmental Systems: Water (A/B)	Advanced Studies Water Quality (A/B)	AP Environmental Science (A/B)	WBL Apprenticeship

Industry credentials available in this pathway

C & D Water Quality Management

Water Quality Management Pathway Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Advanced Studies Water Quality AB

Advanced Studies in Water Quality is a lab-based course that explores the biochemistry of water quality throughout all phases of water and wastewater treatment. Students will apply an understanding of science and engineering practices along with biology and environmental systems to test, analyze, and treat water and wastewater. Advanced Water Quality topics may include an in-depth investigation of microorganisms, growth and tropic curves related to algae, the nitrogen cycle, and/or nitrification, and fecal coliform contamination as well as related human health concerns.

AP Environmental Science AB

Advanced Studies in Water Quality is a lab-based course that explores the biochemistry of water quality throughout all phases of water and wastewater treatment. Students will apply an understanding of science and engineering practices along with biology and environmental systems to test, analyze, and treat water and wastewater. Advanced Water Quality topics may include an in-depth investigation of microorganisms, growth and tropic curves related to algae, the nitrogen cycle, and/or nitrification, and fecal coliform contamination as well as related human health concerns.

Environmental Systems: Water AB

Environmental systems is a lab-based course that explores the relationship between natural resources, biogeochemical cycles, ecology, and human activities. This course allows students the opportunity to engage in a deep study of a particular resource and/or system. Students will draw upon their backgrounds in chemistry, biology, and earth systems in order to understand the integrated and complex manner in which environmental interactions occur. Students will also demonstrate a variety of science and engineering practices and laboratory analysis skills as they plan and conduct investigations, analyze data, and communicate results.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Energy Pathway (151701)

Credential: Energy

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Energy Technologies (A/B)	Energy Industry Fundamentals (A/B) Power & Energy Tech I A/B	Electricity/Electronics	AP Environmental Sciences Energy WBL Energy Leadership Energy Capstone WBL Apprenticeship

Concurrent Enrollment:

CIS 118 Intro to PC Applications

Industry credentials available in this pathway:

CEWD EIF
NABCEP Energy Practitioners

Cluster Cross Over:

Electronic DC/AC - ETMA
Power and Energy Technology I A/B - Skills Trade

Energy Pathway Course Descriptions

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AP Environmental Science A/B

AP Environmental Science is designed by the College Board to provide students with the scientific principles, concepts, and methodologies required to understand the interrelationships of the natural world, identify and analyze environmental problems (both natural and human made), evaluate the relative risks associated with the problems, and examine alternative solutions for resolving and/or preventing them. Topics covered include science as a process, ecological processes and energy conversions, earth as an interconnected system, the impact of humans on natural systems, cultural and societal contexts of environmental problems, and the development of practices that will ensure sustainable systems.

Electricity / Electronics A/B

This course introduces the basic concepts of electronics including the fundamentals of Direct Current (DC), Alternating Current, AC, and robotics. Topics include basic circuits, voltage, current and resistance measurement, Ohm's Law, series and parallel circuits, magnetism, motors and generators, electromagnetic induction, and robotics. Electronic theory is reinforced through breadboarding circuits in the lab. Students fabricate printed circuit board projects. Utilization of electronic test equipment is emphasized. ETMA Course

Energy Industry Fundamentals A/B

This science CTE course provides a broad understanding of the energy industry with specific focus on the delivery of energy to all users in the United States. It provides a broad understanding of the how and why of generating energy and all the steps necessary to transmit and distribute the energy to businesses and homes across the country. The course provides connection to careers in the energy industry as well as structure of the utility industry, emerging energy technologies and their role as future energy sources.

Energy Capstone

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Energy Leadership

This course provides for the application of leadership and communication skills developed in previous courses in the Energy Program of Study. Students will apply identified skills and competencies through planning, conducting and evaluation of activities, events and programs through the FFA organization as well as other ag related associations.

Energy WBL

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Introduction to Energy A/B

Competencies taken from the US Department of Energy - Energy Literacy- Essential Principles and Fundamental Concepts for Energy Education. This course offers basic units of the physical and biological process of energy. It also covers how energy can affect our daily lives.

Power and Energy Technology (Industrial Maintenance) – Skilled Trades

Power and energy is a fundamental study of conventional energy sources and the generation and conversion of energy to power. Emphasis will be placed on heat engines or internal combustion engines, the control of mechanisms, solar energy, electricity, and the future sources of energy.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Outdoor Recreation Leadership (310601)

Credential: ORL or Education/Training

Level 1	Level 2	Level 3	Level 4
Exploration of Outdoor Recreation A/B	Backpacking	Wilderness Survival Skills	White Water Rafting
Wilderness First-Aid	Outdoor Leadership	Mountain Orientation	White Water Rafting Guide
Leave No Trace	Rock Climbing	Snow Orientation	Basic Search & Rescue
Backcountry Navigation	Wilderness First Responder	River Orientation	Mountaineering Leadership
Backcountry Cooking	Bike Tech 2 A/B	Mountain Biking	Effective Teaching
Bike Tech 1 A/B		Ice Climbing	Starting a small business
Snow Tech		Kayaking	Marketing for Small Business
			Managing a Small Business
			WBL in Outdoor Rec

Warren Tech/Red Rocks Community College aligned

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Exploration of Outdoor Recreation (A/B)	Outdoor Leadership 1	Outdoor Leadership 4	Outdoor Leadership 6
	Outdoor Leadership 2	Outdoor Leadership 5	Outdoor Leadership 7
	Outdoor Leadership 3	Outdoor Leadership 6	Outdoor Leadership 8
			Outdoor Leadership 9
			Outdoor Leadership 10
			Outdoor Leadership 11
			Outdoor Leadership 12
			Outdoor Leadership 13

TEOS/ PPCC aligned

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Wilderness First-Aid (HWE 103)	Backpacking (OUT 143)	Wilderness Survival Skills (OUT 108)	White Water Rafting (OUT 138)
Wilderness Ethics (OUT 134)	Outdoor Leadership (REC 211)	Mountain Orientation (OUT 112)	White Water Rafting Guide (OUT 139)
Leave No Trace (OUT 136)	Rock Climbing (OUT 131)	Snow Orientation (OUT 115)	Basic Search & Rescue (OUT 167)
Back Country Navigation (OUT 102)	Wilderness First Responder (HWE 129)	River Orientation (OUT 116)	Mountaineering Leadership (OUT 211)
Back Country Cooking (OUT 144)		Mountain Biking (OUT 126)	Effective Teaching (EDU 222)
		Ice Climbing (OUT 129)	Starting a Small Business (SBM 101)
		Kayaking (OUT 137)	Marketing for Small Business (SBM 108)
			Managing a Small Business (SBM 110)

Industry credentials available in this pathway

Outdoor Recreation Leadership Pathway Course Descriptions

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Back Country Cooking (OUT 144)

Focuses on menu planning, nutritional requirements for wilderness camping, and meal preparations. Includes cooking a backcountry meal.

Back Country Navigation (OUT 102)

Teaches efficient backcountry navigation in a field-based or classroom setting using topographic maps and other appropriate navigation tools.

Backpacking (OUT 143)

Provides skills related to wilderness travel and outdoor adventure. Emphasizes knowledge of backpacking skills, survival techniques, proper physical conditioning, route finding, equipment selection, and an understanding and respect for the environment. The course incorporates lecture and discussion sessions followed by a weekend trip in the mountains.

Basic Search & Rescue (OUT 167)

Covers the basic fundamentals required for search and rescue in a wilderness environment. Includes tracking techniques and field trips.

Bike Tech I

This one year course is the first stage of a two-year sequence designed to introduce and excite students about career pathways within the bicycle industry and prepare them for entry-level positions as bicycle technicians and retail associates.

Bike Tech II

Bike Tech II builds upon level 1 and is the second part of a two-year sequences designed to introduce students to career pathways within the bicycle industry, other industries, and prepare them for entry level positions as bicycle technicians/mechanics and/or sales/customer service.

Effective Teaching (EDU 222)

Focuses on strategies for becoming an effective teacher. Topics include course goals and objectives, the first day, planning a lesson, higher levels of thought, test design and grading, assessment, and teaching and learning styles.

Exploration of Outdoor Recreation A
Exploration of Outdoor Recreation B

Students are introduced to the field of Outdoor Recreation and its activities.

Ice Climbing I (OUT 129)

Introduces technical (roped) ice climbing, including equipment selection and safety, knots,

belaying and climbing, rappelling and climbing safety.

Kayaking (OUT 137)

Provides basic kayak and water reading skills. The students will learn boating safety, hazard evaluation, terminology, whitewater river reading skills, paddling strokes, bracing techniques, peel out and eddy turns, and rescue and self rescue techniques including wet exits, Eskimo rescues and introduction to and practice of the Eskimo roll.

Leave No Trace Cert. (OUT 136)

Introduces the student to the principles of Leave No Trace and prepares students to teach Leave No Trace curriculum in a variety of outdoor and urban settings. This class is a must for guides, outfitters, outdoor educators, agency employees, scout/youth group leaders, or anyone who cares about minimizing impact on the Colorado backcountry.

Managing a Small Business (SBM 110)

Provides an overview of the managing process as it applies to the small business. Relevant topics include setting goals, managing people, and managing processes. This course includes practical application of the principles of small business management.

Marketing for Small Business (SBM 108)

Provides an overview of the marketing functions applied to a small business. Relevant topics include the marketing mix, developing objectives, planning a marketing strategy, identifying target markets, and analyzing competition. This course includes practical application of the principles of small business management.

Mountain Biking (OUT 126)

Introduces basic mountain biking skills and techniques. The primary emphasis is to gain an understanding of the basic principles of mountain biking. Students develop skills and techniques for all riding situations, review bicycle anatomy, and basic maintenance and repairs.

Mountain Orientation (OUT 112)

Emphasizes camp and travel skills within a mountain environment as a self-contained group. Areas of study include backpacking skills, safety procedures, ecology, geology, geography, safe and efficient travel, Leave No Trace principles, and group dynamics.

Mountaineering Leadership (OUT 211)

Develop the knowledge, ability and leadership skills necessary to instruct and safely lead a group on a mountaineering experience.

Outdoor Leadership (REC 211)

Introduces the development, acquisition, and application of outdoor leadership skills and knowledge. Focuses on the latest information philosophy, and techniques necessary to safely conduct outdoor programs and expeditions as an outdoor leader. Skills are applied under actual

field conditions. Emphasizes minimal impact camping, wilderness ecology, judgment and decision making, group dynamics and trip logistics. These skills enhance effectiveness as an outdoor leader.

Outdoor Leadership 01

Preparing students for careers in the field of Outdoor Leadership. This course introduces students to strategies for outdoor leadership including effective planning, decision-making, conflict resolution, teamwork, communication, as well as the technical skills needed for effectively guiding backpacking trips. This OL1 includes the following courses:

1. Backpacking (OUT 143)
2. Leave No Trace Trainer Cert. (OUT 136) Part 1 of 2
3. Outdoor Leadership (PRA 218) Part 1 of 4

Outdoor Leadership 02

Building on the skills from OL1, Outdoor Leadership 2 further equips students for careers in the field of Outdoor Leadership. This course introduces the skills needed to effectively facilitate challenge course experiences as well as the foundational skills needed to assess, manage, and treat injuries/illnesses in a backcountry setting. This OL2 includes the following courses:

1. Challenge Course Facilitation (OUT 216)
2. Wilderness First Aid (HWE 121)

Outdoor Leadership 03

Building on the skills from OL1 and OL2, Outdoor Leadership 3 further equips students for careers in the field of Outdoor Leadership. This course introduces students to the techniques, methods, and equipment necessary for effective backcountry cooking as well as managing the risks associated with cooking in a backcountry setting. OL3 also introduces students to wilderness ethics and various styles, methods, and theories of outdoor leadership. This OL3 includes the following courses:

1. Backcountry Cooking (OUT 144)
2. Wilderness Ethics (OUT 134) Part 1 of 2
3. Outdoor Leadership (PRA 218) Part 2 of 4

Outdoor Leadership 04

Building on the skills from OL1, OL2, and OL3, Outdoor Leadership 4 further equips students for careers in the field of Outdoor Leadership. This course furthers students' understanding of wilderness ethics and provides continued opportunities to develop and teach Leave No Trace curriculum. OL4 covers essential skills related to risk identification, assessment, and management. It also equips students with the foundational skills of orienteering, route finding, and navigation. OL4 includes the following courses:

1. Wilderness Ethics (OUT 134) Part 2 of 2
2. Risk Management of Outdoor Professional (OUT 135)
3. Leave No Trace Trainer Cert. (OUT 136) Part 2 of 2
4. Orienteering and Route Finding (OUT 107)

Outdoor Leadership 05

Building on the skills from OL1, OL2, OL3, and OL4, Outdoor Leadership 5 further equips students for careers in the field of Outdoor Leadership. This course introduces survival skills and continues development of students' abilities as outdoor leaders. OL5 includes the following courses:

1. Wilderness Survival Skills (OUT 108)
2. Outdoor Leadership (PRA 218) Part 3 of 4

Outdoor Leadership 06

Building on the skills from OL1, OL2, OL3, OL4, and OL5, Outdoor Leadership 6 further equips students for careers in the field of Outdoor Leadership. This course covers the essential skills of rock climbing and provides opportunities for students to practice their outdoor leadership skills by leading and teaching others. OL6 includes the following courses:

1. Rock Climbing I (OUT 131)
2. Outdoor Leadership (PRA 218) Part 4 of 4

Outdoor Leadership 07

Building on OL1-OL6, Outdoor Leadership 7 focuses on refining the outdoor leadership skills needed to effectively plan and implement classes, courses, and client based experiences. This course will include at least one course from the following list:

1. Effective Teaching (EDU 222)
2. Rock Climbing II (OUT 132)
3. Wilderness Ethics (OUT 134)
4. Swift Water Rescue Tech I (OUT 140)
5. Survival Plants Fall I (OUT 157)
6. Special Topics (OUT 175)
7. Scuba Diving (OUT 201)
8. Open Water Diver (OUT 202)
9. Paddle Sports (OUT 237)
10. Special Topics (OUT 275)
11. Resource Interpretation (PRA 205)
12. Principles of Outdoor Recreation (REC 210)
13. Outdoor Recreation Programming (REC 212)
14. Starting a Small Business (SBM 101)

Outdoor Leadership 08

Building on OL1-OL7, Outdoor Leadership 8 focuses on refining the outdoor leadership skills needed to effectively plan and implement classes, courses, and client based experiences. This course will include at least one course from the following list:

1. Effective Teaching (EDU 222)
2. Wilderness First Responder (HWE 129)
3. Desert Orientation (OUT 113)
4. Canyon Orientation (OUT 114)
5. Rock Climbing II (OUT 132)

6. Technical Canyoneering (OUT 133)
7. Wilderness Ethics (OUT 134)
8. Swift Water Rescue Tech I (OUT 140)
9. Survival Plants Fall I (OUT 157)
10. Special Topics (OUT 175)
11. Scuba Diving (OUT 201)
12. Open Water Diver (OUT 202)
13. Paddle Sports (OUT 237)
14. Special Topics (OUT 275)
15. Resource Interpretation (PRA 205)
16. Advanced Resource Interpretation (PRA 255)
17. Principles of Outdoor Recreation (REC 210)
18. Outdoor Recreation Programming (REC 212)
19. Starting a Small Business (SBM 101)
20. Marketing for a Small Business (SBM 108)
21. Managing a Small Business (SBM 110)

Outdoor Leadership 09

Building on OL1-OL8, Outdoor Leadership 9 focuses on refining the outdoor leadership skills needed to effectively plan and implement classes, courses, and client based experiences. This course will include at least one course from the following list:

1. Effective Teaching (EDU 222)
2. Wilderness First Responder (HWE 129)
3. Desert Orientation (OUT 113)
4. Canyon Orientation (OUT 114)
5. Snow Orientation (OUT 115)
6. Ice Climbing I (OUT 129)
7. Technical Canyoneering (OUT 133)
8. Wilderness Ethics (OUT 134)
9. Introduction to Winter Sports (OUT 145)
10. Alpine Skiing I (OUT 149)
11. Alpine Skiing II (OUT 150)
12. Snowshoeing (OUT 151)
13. Snowboarding I (OUT 152)
14. Snowboarding II (OUT 153)
15. Avalanche Awareness Level I (OUT 168)
16. Avalanche Awareness Level II (OUT 169)
17. Special Topics (OUT 175)
18. Scuba Diving (OUT 201)
19. Alpine Ski Instructor (OUT 250)
20. Snowboard Instructor (OUT 251)
21. Special Topics (OUT 275)
22. Resource Interpretation (PRA 205)
23. Advanced Resource Interpretation (PRA 255)

24. Principles of Outdoor Recreation (REC 210)
25. Outdoor Recreation Programming (REC 212)
26. Starting a Small Business (SBM 101)
27. Marketing for a Small Business (SBM 108)
28. Managing a Small Business (SBM 110)

Outdoor Leadership 10

Building on OL1-OL9, Outdoor Leadership 10 focuses on refining the outdoor leadership skills needed to effectively plan and implement classes, courses, and client based experiences. This course will include at least one course from the following list:

1. Effective Teaching (EDU 222)
2. Wilderness First Responder (HWE 129)
3. Mountaineering (OUT 101)
4. Winter Wilderness Survival Skills (OUT 109)
5. Desert Orientation (OUT 113)
6. Canyon Orientation (OUT 114)
7. Snow Orientation (OUT 115)
8. Ice Climbing I (OUT 129)
9. Wilderness Ethics (OUT 134)
10. Introduction to Winter Sports (OUT 145)
11. Alpine Skiing I (OUT 149)
12. Alpine Skiing II (OUT 150)
13. Snowshoeing (OUT 151)
14. Snowboarding I (OUT 152)
15. Snowboarding II (OUT 153)
16. Avalanche Awareness Level I (OUT 168)
17. Avalanche Awareness Level II (OUT 169)
18. Special Topics (OUT 175)
19. Scuba Diving (OUT 201)
20. Alpine Ski Instructor (OUT 250)
21. Snowboard Instructor (OUT 251)
22. Special Topics (OUT 275)
23. Resource Interpretation (PRA 205)
24. Advanced Resource Interpretation (PRA 255)
25. Principles of Outdoor Recreation (REC 210)
26. Outdoor Recreation Programming (REC 212)
27. Starting a Small Business (SBM 101)
28. Marketing for a Small Business (SBM 108)
29. Managing a Small Business (SBM 110)

Outdoor Leadership 11

Building on OL1-OL10, Outdoor Leadership 11 focuses on refining the outdoor leadership skills

needed to effectively plan and implement classes, courses, and client based experiences. This course will include at least one course from the following list:

1. Effective Teaching (EDU 222)
2. Wilderness First Responder (HWE 129)
3. Mountaineering (OUT 101)
4. Winter Wilderness Survival Skills (OUT 109)
5. Desert Orientation (OUT 113)
6. Canyon Orientation (OUT 114)
7. Snow Orientation (OUT 115)
8. Ice Climbing I (OUT 129)
9. Rock Climbing II (OUT 132)
10. Technical Canyoneering (OUT 133)
11. Wilderness Ethics (OUT 134)
12. Introduction to Winter Sports (OUT 145)
13. Alpine Skiing I (OUT 149)
14. Alpine Skiing II (OUT 150)
15. Snowshoeing (OUT 151)
16. Snowboarding I (OUT 152)
17. Snowboarding II (OUT 153)
18. Avalanche Awareness Level I (OUT 168)
19. Avalanche Awareness Level II (OUT 169)
20. Special Topics (OUT 175)
21. Scuba Diving (OUT 201)
22. Open Water Diver (OUT 202)
23. Paddle Sports (OUT 237)
24. Alpine Ski Instructor (OUT 250)
25. Snowboard Instructor (OUT 251)
26. Special Topics (OUT 275)
27. Resource Interpretation (PRA 205)
28. Advanced Resource Interpretation (PRA 255)
29. Principles of Outdoor Recreation (REC 210)
30. Outdoor Recreation Programming (REC 212)
31. Marketing for a Small Business (SBM 108)
32. Managing a Small Business (SBM 110)

Outdoor Leadership 12

Building on OL1-OL11, Outdoor Leadership 12 focuses on refining the outdoor leadership skills needed to effectively plan and implement classes, courses, and client based experiences. This course will include at least one course from the following list:

1. Effective Teaching (EDU 222)
2. Wilderness First Responder (HWE 129)
3. Mountaineering (OUT 101)
4. Desert Orientation (OUT 113)
5. Canyon Orientation (OUT 114)

6. Rock Climbing II (OUT 132)
7. Technical Canyoneering (OUT 133)
8. Wilderness Ethics (OUT 134)
9. Swift Water Rescue Tech I (OUT 140)
10. Survival Plants Spring I (OUT 158)
11. Special Topics (OUT 175)
12. Scuba Diving (OUT 201)
13. Open Water Diver (OUT 202)
14. Paddle Sports (OUT 237)
15. Special Topics (OUT 275)
16. Resource Interpretation (PRA 205)
17. Advanced Resource Interpretation (PRA 255)
18. Principles of Outdoor Recreation (REC 210)
19. Outdoor Recreation Programming (REC 212)
20. Starting a Small Business (SBM 101)
21. Marketing for a Small Business (SBM 108)
22. Managing a Small Business (SBM 110)

Outdoor Leadership 13

Outdoor Leadership 13 is a supplemental course offered periodically. This course seeks to further equip students for careers in the field of Outdoor Leadership. OL13 can be taken by any student taking OL1 - OL12. This course contains a concentrated field experience and is focused on a specific activity or environment. OL13 includes at least one of the following courses:

1. Desert Orientation (OUT 113)
2. Canyon Orientation (OUT 114)
3. Snow Orientation (OUT 115)
4. Mountain Biking (OUT 126)

River Orientation (OUT 116)

Emphasizes camp and travel skills in whitewater river environments as a self-contained group. Areas of study include boat handling skills, safety procedures, ecology, geology, geography, safe and efficient travel, Leave No Trace principles, and group dynamics.

Rock Climbing (OUT 131)

Introduces basic rock climbing, improving dexterity, problem solving skills and the physical work capacity of an individual. Enables the student to gain an understanding of the general principles of climbing; how equipment works and how it is used; basic climbing skills and techniques; safety and climbing etiquette and terminology.

Snow Orientation (OUT 115)

Emphasizes camp and travel skills within a winter environment as a self-contained group. Areas of study include backpacking skills, safety procedures, ecology, geology, geography, safe and efficient travel, Leave No Trace principles, and group dynamics.

Starting a Small Business (SBM 101)

White Water Rafting (OUT 138)

White Water Rafting Guide (OUT 139)

Wilderness Ethics (OUT 134)

Wilderness First Responder (HWE 129)

Wilderness First-Aid (HWE 103)

Wilderness Survival Skills (OUT 108)

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Business, Marketing, Entrepreneurship and Finance

The Business, Marketing, Entrepreneurship and Finance Education programs are designedto meet the labor market needs of Colorado's business and industry.

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DECA is a national organization for secondary students enrolled in Marketing Education. DECA is an inner-curricular student-centered organization designed as an integral part of the classroom instructional program of marketing education that motivates students to learn marketing competencies preparing students to be skilled, employable workers in the field of marketing. All chapters and the national organization are guided in their plans and activities by advisory committees of marketing education instructors, alumni members, school administrators, and business professionals.

website: www.coloradodeca.org

Future Business Leaders of America (FBLA) is a national career and technical education student organization for secondary students preparing for careers in business or careers in business education. Future Business Leaders of America (FBLA) is the largest career student business organization in the world. Each year, FBLA-PBL helps over 230,000 members prepare for careers in business. FBLA inspires and prepares students to become community-minded business leaders in a global society through relevant career preparation and leadership experiences.

Website: www.coloradofbla.org

Business, Marketing, Entrepreneurship and Finance Clusters

Business Administration Pathway (529999)

Credential: Business

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Business and Marketing Essentials[2]	Principles of Accounting/Finance[2, 3]	Social Media for Business	Entrepreneurship[3]
Introduction to Business[2, 3]	Principles of Marketing[2, 3]	Event Marketing/Communications	Intro to Entrepreneurship
Introduction to Economics[1]	Fundamentals of Accounting[2]	Consumer Behavior	Leadership
Introduction to PC Applications[1, 4]	Accounting Principles 1[2]	Principles of Advertising	Corporate Ethics and Social Responsibility
Ethical Leadership[1]	College Accounting (AICPA)[2]	International Marketing	Project Management in Organizations
Personal Finance[1]		Strategic Marketing	Project Management in Action
		Legal Environment of Business	Human Resources Management
		Business Communications	Tax Help Colorado Practicum
		Business Statistics	School-Based Enterprise – Operations Management
		Principles of Macroeconomics (AP)	School-Based Enterprise – Retail
		Principles of Microeconomics (AP)	WBL: Business
		Principles of Management	WBL: Marketing
		Introduction to Programming[4]	WBL: Finance
		Web Design 1[4]	WBL Accounting
		Adobe Photoshop[4]	IB Business Management (HL)[5]

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
		Adobe InDesign[4]	WBL Apprenticeship
		Graphic Design[4]	
		AP Computer Science Principles[4]	
		Advanced PC Applications[4]	
		Microsoft Office Specialist (MOS) Certification	
		Principles of Finance	
		Introduction to Finance	
		Managerial Finance	
		Accounting Principles 2	
		Tax Help Colorado	
		IB Business Management (SL)[5]	

1 Discretionary Level 1 course; all programs must start with a Level 1 Business Course (Intro to Business or Business and Marketing Essentials); Discretionary courses are optional.

2 These fundamental classes can be taught in a semester or over a year (A/B)

3 These classes are part of the Business Core

4 A maximum of three (3) IT or Media focused courses can be applied to the Business Administration Pathway.

**Educators must be credentialed in IT Pathway to teach these courses*

5 IB courses are year-long

Industry credentials available in this pathway

Visit the Career Development Incentives Program Approved Programs List for available credentials

High School of Business Pathway (529999)

Credential: Business

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
HSB Principles of Business	HSB Principles of Marketing		HSB Business Strategies
HSB Economics	HSB Principles of Finance		
HSB Leadership[1]	HSB Principles of Management		
HSB Wealth Management[1]			

1 Optional course

Industry credentials available in this pathway

HSB Industry Certification

Digital Marketing Pathway (529999)

Credential: Business

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Business	Principles of Marketing	Social Media for Business	Marketing Analytics
		Digital Marketing	WBL Apprenticeship
		Consumer Behavior (1) E-Commerce (1)	

1. Option to choose E-Commerce or Consumer Behavior to complete pathway

Industry credentials available in this pathway on the CDIP listing: Grow with Google: Digital Marketing & E-commerce, Google Ads Certification, Salesforce CRM, and AMA Professional Certification in Digital Marketing.

Business Administration Pathway Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Accounting Principles 1
Accounting Principles 1 A
Accounting Principles 1 B

This course introduces accounting principles for understanding the theory and logic that underlie procedures and practices for business organizations. Major topics include the accounting cycle for service and merchandising companies, internal control principles and practices, notes and interest, inventory systems and costing, and plant and intangible asset accounting.

Accounting Principles 2
Accounting Principles 2 A
Accounting Principles 2 B

This course continues the application of accounting principles to business organizations. Major topics include corporate equity and debt financing, investments, cash flow statements, financial analysis, budgeting, cost and managerial accounting.

Adobe InDesign

Introduces students to InDesign, a page layout program which integrates seamlessly with other Adobe design programs. InDesign delivers creative freedom and productivity to DTP. Class discussions and independent projects supplement hands-on classroom work.

Adobe Photoshop

Concentrates on the high-end capabilities of Adobe Photoshop as an illustration, design and photo retouching tool. Students explore a wide range of selection and manipulation techniques that can be applied to photos, graphics, and videos. Course competencies and outline follow those set out by the Adobe Certified Associate exam in Visual Communication Using Adobe Photoshop.

Advanced PC Applications

Emphasizes solving business problems by integrating data from all of the software applications that facilitate the production of useful information. Advanced capabilities of a PC software applications suite are utilized. Printed documents, reports, slides, and forms are produced to communicate information.

AP Computer Science Principles

Introduces the foundations of computer science with a focus on how computing powers the world. Along with the fundamentals of computing, you will learn to analyze data, create technology that has a practical impact, and gain a broader understanding of how computer science impacts people and society.

Business and Marketing Essentials
Business and Marketing Essentials A
Business and Marketing Essentials B

Business and Marketing Essentials (Standard), an introductory business and marketing course, enables students to acquire a realistic understanding of business processes and activities. Students examine fundamental economic concepts, the business environment, and primary business activities. They develop an understanding of and skills in such areas as customer relations, economics, emotional intelligence, financial analysis, human resources management, information management, marketing, operations, professional development, and strategic management. Throughout the course, students are presented ethical dilemmas and problem-solving situations for which they must apply academic and critical-thinking skills

Business Communications

Emphasizes effective business writing and cover letters, memoranda, reports, application letters, and resumes. This course includes the fundamentals of business communication and an introduction to international communication

Business Statistics

Focuses on statistical study, sampling, organizing and visualizing data, descriptive statistics, probability, bi-nominal distributions, normal distributions, confidence intervals, linear regression, and correlation.

College Accounting (AICPA)

College Accounting uses an integrated approach to teach accounting. Students first learn how businesses plan for and evaluate their operating, financing and investing decisions and then how accounting systems gather and provide data to internal and external decisions makers. This year-long course covers all the learning objectives of a traditional college level financial accounting course, plus those from a managerial accounting course. Topics include an introduction to accounting, accounting information systems, time value of money, and accounting for merchandising firms, sales and receivables, fixed assets, debt and equity. Other topics include statement of cash flows, financial ratios, cost-volume profit analysis and variance analysis.

Consumer Behavior

Enables the student to understand the variables that affect consumer behavior in the marketplace and the implications of this knowledge for marketing decisions and strategies.

Corporate Ethics and Social Responsibility

Examines the concept of ethical corporate responsibility and how an organization's resources, including individual employees and work groups of the corporation, identify and respond to social and ethical problems. Included in the course are topics of corporate ethics and social responsibility, how these concepts apply to business and management principles, and the individual corporate citizen's involvement with making ethical decisions.

Customer Service

Enables students to learn the relationship of self to customers, problem solve and understand the importance of communicating with customers. Specific emphasis is given to managing customer expectations by building customer rapport and creating positive outcomes.

Digital Marketing

Explores the digital marketing environment from both a consumer and business perspective. This course provides an overview of various online business models and delves into digital advertising and social media marketing techniques and technologies. This course applies research and strategic marketing techniques in the digital marketplace to improve customer relationship management.

Entrepreneurship

Teaches entrepreneurs planning skills from the development of a conceptual business to an actual comprehensive business plan. This practical approach includes one-on-one counseling with the instructor and professional volunteer counselors. Guest speakers are an integral part of the course. Additional topics include marketing strategies and tactics, liability protection, growth management, financial management and projections, networking, and funding options.

Ethical Leadership

Ethical Leadership is a principles-based ethics course introducing students to key leadership and ethical knowledge and skills, including integrity, trust, accountability, transparency, fairness, respect, rule of law, and viability. Throughout the course, students apply ethical principles to contemporary, real-world situations that teens and young adults often encounter in school, at home, with friends, and in entry-level job positions. They examine the concept of ethical leadership and strengthen their leadership and ethical decision-making skills through the planning, implementation, and evaluation of a class service-learning project.

Event Marketing/Communications

Defines the importance and role of marketing, media and public relations in the event planning industry. Identify marketing and communication tools such as social media, promotional events, networking and blogs. Design a marketing plan to include target market research, communication tools, objectives, strategies, and implementation.

Fundamentals of Accounting
Fundamentals of Accounting A
Fundamentals of Accounting B

Introduces accounting fundamentals with emphasis on the procedures and practices used in business organizations. Major topics include the accounting cycle for service and merchandising companies, including end-of-period reporting.

Graphic Design

Focuses upon the study of design layout and conceptual elements concerning graphic design projects such as posters, advertisements, logos, and brochures

Human Resources Management

Provides an overview of the contemporary issues, theories, and principles used to effectively manage human resources. Topics covered include job analysis and design, talent acquisition and retention, planning and recruiting human resources, selecting employees, job placement, employee training and performance management, selecting employees, compensation and benefits, and retaining employees.

HSB Business Strategies

This project-based business course develops student understanding and skills in such areas as business law, entrepreneurship, financial analysis, human resources management, and strategic management. By planning, organizing, staffing, directing, leading, and controlling business activities, students acquire a realistic understanding of what is required to open and successfully run a business. They conduct situational, market, and competitive analyses; select a target market; develop a business plan; recruit, interview, select, and hire staff; supervise staff; control use of resources; and evaluate the results of the business effort. Throughout the course, students make decisions and use problem-solving skills. Formal reflection is an on-going component of the course.

HSB Economics

This project-based business course develops student understanding and skills in such areas as economics, entrepreneurship, operations, and professional development. Through seven projects, students acquire an understanding and appreciation of economic decision-making in the business world and augment their knowledge of entrepreneurial contributions. Current technology will be used to acquire information and to complete the projects. Throughout the course, students are presented problem-solving situations for whichthey must apply academic and critical-thinking skills.

HSB Leadership

This project-based leadership course develops student understanding and skills in such areas as communication skills, emotional intelligence, operations, and professional development. Students acquire an understanding and appreciation of the need for leadership skills. The capstone activity of the course is the implementation of a service-learning project. Throughout the course, students are presented problem-solving situations for which they must apply academic and critical-thinking skills. Formal reflection is an on-going component of the course.

HSB Principle of Business

This project-based business course develops student understanding and skills in such areas as business law, economics, financial analysis, human resources management, information management, marketing, operations, and strategic management. Through the use of projects, students acquire an understanding and appreciation of the business world. They develop a business analysis report, conduct an environmental scan of the local business community, and investigate business activities. Current technology will be used to acquire information and to complete the projects. Throughout the course, students are presented problem-solving situations for which they must apply academic and critical-thinking skills. Formal reflection is an on-going component of the course.

HSB Principles of Finance

Principles of Finance furthers student understanding of two specific business activities—accounting and finance—that were introduced in an earlier High School of Business course, Principles of Business. Through team activities and a semester-long corporate investment project, students make connections between accounting and finance. Students acquire an understanding of financial statements, calculate financial ratios, and make corporate financial management decisions based on their analysis of that financial data. In addition, students apply the concepts of operating and overhead costs, internal accounting controls, and budgets to their class business. Lastly, cost/benefit analysis is introduced as an element of financial planning and decision-making.

HSB Principles of Management

Principles of Management furthers student understanding of management that was introduced in an earlier High School of Business™ course, Principles of Business. Through individual and team activities and a semester-long project, students make connections between management and business success. Students acquire an understanding of legal and ethical issues associated with management; initiate, plan, implement and control, and close a project; motivate team members; delegate work; develop a chain of command; coordinate work efforts; and interpret statistical findings.

HSB Principles of Marketing

This project-based business course develops student understanding and skills in such areas as channel management, marketing-information management, market planning, pricing, product/service management, promotion, and selling. Through the use of seven projects, students acquire an understanding and appreciation of marketing activities. Current technology will be used to acquire information and to complete the projects. Throughout the course, students are presented problem-solving situations for which they must apply academic and critical-thinking skills.

HSB Wealth Management

This project-based financial literacy course develops student understanding and skills in such areas as economic decision-making, time value of money, financial management, and types of investments. Students acquire an understanding and appreciation of the need for personal financial management and investing. The course content is sequenced for students to develop a full understanding of their role and responsibility in their financial future. Throughout the course, students are presented problem-solving situations for which they must apply academic and critical-thinking skills.

IB Business Management (SL)

IB Business and Management courses prepare students to take the International Baccalaureate Business and Management exam at either the Standard or Higher Level. In keeping with Individual and Society courses, IB Business and Management promotes problem-solving by identifying the problem, selecting and interpreting data, applying appropriate analytical tools, and recommending solutions by evaluating their quantitative and qualitative implications. These courses also equip students with knowledge and understanding of business terminology, concepts and principles.

IB Business Management (HL)

IB Business and Management courses prepare students to take the International Baccalaureate Business and Management exam at either the Standard or Higher Level. In keeping with Individual and Society courses, IB Business and Management promotes problem-solving by identifying the problem, selecting and interpreting data, applying appropriate analytical tools, and recommending solutions by evaluating their quantitative and qualitative implications. These courses also equip students with knowledge and understanding of business terminology, concepts and principles.

International Marketing

Enables the student to explore the international marketing for U.S. products, and to explore the increasing competitive international environment and recent changes in the environment that have challenged U.S. business. The course is designed to make the reader an "informed observer" of the global marketplace and enable him/her to develop skills to make marketing decisions in a global context.

Introduction to Ecommerce

Provides an introduction to electronic commerce and the business trends in the dynamic e-commerce environment. This course covers the definition of e-commerce, technology and software requirements, security issues, electronic payment, and marketing strategies. This course focuses on what to expect in business-to consumer (B2C) and business-to-business (B2B) e-commerce markets when creating an e-business.

Intro to Entrepreneurship

Explores the business skills, personality traits, and commitment necessary to successfully plan, launch, and grow an entrepreneurial venture. This course will cover the challenges and rewards of entrepreneurship. This course will cover the role of entrepreneurial businesses in the United States and the world and their impact on our national and global economy.

Intro to PC Applications

This course introduces basic computer terminology, file management, and PC system components. Provides an overview of office application software including word processing, spreadsheets, databases, and presentation graphics. Includes the use of a web browser to access the Internet.

Intro to Programming

Focuses on a general introduction to computer programming. This course emphasizes the design and implementation of structured and logically correct programs with good documentation. It is centered on basic programming concepts, including control structures, modularization, and data processing. A structured programming language is used to implement program designs. It emphasizes the writing of multiple programs following the software development process, from start to finish, including design, implementation, and testing.

Introduction to Business
Introduction to Business A
Introduction to Business A CC
Introduction to Business B
Introduction to Business B CC

Introduces the application of fundamental business principles to local, national, and international forums. This course examines the relationship of economic systems, governance, regulations, and law upon business operations. It surveys the concepts of career development, business ownership, finance and accounting, economics, marketing, management, operations, human resources, regulations, and business ethics.

Introduction to Economics

This course is a survey of economics. It is designed as a beginning economics class. The course covers economics theories, supply and demand, national income accounting, money and banking, market structures and contemporary economic issues

Introduction to Finance

Examines the financial markets, financial instruments and the actors in these markets. The course covers the use of time value of money and other financial models to value different types of capital, financial data to analyze performance and to examine capital budgeting alternatives and analyzes working capital needs and costs.

Leadership

Focuses on the leadership skills for contemporary organizations. Covers development and communication a shared vision to motivate and empower employees to manage conflict, to negotiate, and to develop teams.

Legal Environment of Business

Emphasizes public law, regulation of business, ethical considerations, and various relationships existing within society, government, and business. Specific attention is given to economic regulation, social regulation, labor-management issues, environmental issues, and contract fundamentals. This course analyzes the role of law in social, political, and economic change business environments.

Managerial Finance

Examines the concepts and techniques used to analyze financial accounting information for managerial planning, decision-making, and control. Additionally, the course discusses decision-making relating to the areas of budgets, forecasts, cost volume production, Return on Investment (ROI) and financial statements.

Marketing Analytics

Investigates marketing analytics through the optics of a marketing professional. The course focuses on the foundation of marketing analytics by demonstrating an understanding of data management, exploring data analysis and visualization, comparing and contrasting, developing, evaluating and interpretation of models, communicating results to colleagues, clients and executives, and integrating analytics into an organization within a marketing context.

Microsoft Office Specialist (MOS) Certification

Microsoft Office Specialist is a course designed to prepare students to take one or more of the Microsoft Office Specialists exams. Students may prepare to take exams in Microsoft Word, Excel, and PowerPoint, or additional Microsoft products. The course competencies and outline follow those set out by the Microsoft Office Specialist exam.

Personal Finance

Surveys the basic personal finance needs of most individuals and introduces the personal finance tools useful in planning and instituting a successful personal financial philosophy. The course emphasizes the basics of budgeting, buying, saving, borrowing, career planning, investing, retirement planning, estate planning, insurance, and income taxes.

Principles of Accounting/Finance
Principles of Accounting/Finance A
Principles of Accounting/Finance B

Introduces accounting fundamentals with emphasis on the procedures and practices used in business organizations. Major topics include the accounting cycle for service and merchandising companies, including end-of-period reporting.

Principles of Advertising

Examines the principles and practices of advertising and its relationship to business in order to promote a business or organization. Areas of major emphasis include advertising principles, strategies, media, copy and layout, and ethical considerations.

Principles of Finance

Provides factual knowledge of financial institutions and the monetary system used in the United States in relationship to the global economy. Examines tools and techniques such as capital budgeting, time value of money, analysis of financial statements, cost of capital, and risk analysis to analyze business decisions, plan and determine project and firm value, and evaluate sources of financing.

Principles of Macroeconomics (AP)

Focuses on the study of the national economy, emphasizing business cycles and long-run growth trends. Explores how macroeconomic performance is measured, including Gross Domestic Product and labor market indicators. Examines the saving-investment relationship and its relationship to Aggregate Supply and Aggregate Demand. Discusses money and banking, international trade, fiscal and monetary policy. Explores the macroeconomic role of the public sector.

Principles of Management

Provides an overview of the principles of management. Emphasis is on the primary functions of planning, organizing, staffing, leading and controlling with a balance between the behavioral and operational approaches.

Principles of Marketing
Principles of Marketing A
Principles of Marketing B

Presents the analysis of theoretical marketing processes and the strategies of product development, pricing, promotion and distribution, and their applications to businesses and the individual consumer.

Principles of Microeconomics (AP)

Focuses on the study of individual decision making, emphasizing households, business firms and industry analysis. Explores market models, including competition, monopoly, monopolistic competition and oligopoly. Examines market failure and related efficiency criteria for government intervention. Explores public policy, including labor market issues, poverty and the environment.

Project Management in Action

Introduces major activities and tools in Project Management related to resources, risk and quality. There is a heavy focus to provide how to manage the human element of project management. Specific Project Management tools and methodologies are introduced and used.

Project Management in Organizations

Investigates the concepts and applicability of project management within organizations. It examines the unique nature of the project management structure including its emphasis on integrated decision making throughout a lifecycle of a product from the planning, implementing,

monitoring, and controlling phases. Emphasis is on the processes of initiating, planning, executing, controlling, and closing activities of project management.

School-based Enterprise – Operations/Management

This course focuses on all facets of starting and managing a school-based enterprise. Focus will include writing a business plan, holding interviews, and establishing operating policies and procedures. Building a solid framework of work-based learning for the student.

School-based Enterprise – Retail

This course is an entrepreneurial operation in a school setting that provides goods/services to meet the needs of a market. Students will learn hands-on retail procedures including customer service, advertising, sales, merchandising and math.

Social Media for Business

Teaches students how to use social media as a business strategy and covers how to match that strategy with the goals of the business. This course addresses current trends, ethics, regulations, legal challenges, strategy, content development, and change management. This course helps students develop a better understanding of how marketing with social media is similar to and different from traditional marketing and how to best use online methods to further business goals.

Strategic Marketing

Illustrates the connections between a market-driven strategy, customer satisfaction, and profitable growth. Students will examine how marketing strategies are developed and executed within both small and large organizations. The course will emphasize strategy development, implementation, and evaluation.

Tax Help Colorado

Prepares the students for preparation of federal and state income tax returns for individuals. Emphasis is placed on form preparation with the use of tax software.

Tax Help Colorado Practicum

This course allows students to prepare actual federal and state income tax returns for individuals in the real time environment.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

WBL: Accounting
WBL: Business
WBL: Finance

WBL: Marketing

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Web Design 1

Introduces web site planning, design and creation utilizing HTML through industry-standard development tools [may list specific software]. Emphasis is placed on applying stylistic decisions using cascading style sheets. Web based considerations regarding color, typography, aesthetics, user interface design, and process integration with visual-based design tools will be explored.

Hospitality, Administration/Management, General Pathway (520901)

Credential: Business

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Marketing	Introduction to Hospitality	Management in Hospitality Industry	Internship
Customer Service	Planning for Special Events		WBL Apprenticeship
Event Marketing/Communications	Introduction to Sales		
	Principles of Sales		

Industry credentials available in this pathway

AHLEI

Hospitality, Administration/Management, General Pathway Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Customer Service

Enables students to learn the relationship of self to customers, problem solve and understand the importance of communicating with customers. Specific emphasis is given to managing customer expectations by building customer rapport and creating positive outcomes.

Event Marketing/Communications

Defines the importance and role of marketing, media and public relations in the event planning industry. Identify marketing and communication tools such as social media, promotional events, networking and blogs. Design a marketing plan to include target market research, communication tools, objectives, strategies, and implementation.

Internship

Exposes the learner to the practical application of course studies in the hospitality industry. The course consists of practical experience in a hotel, restaurant, convention center, resort, tourism operation, or other professional opportunity in the hospitality industry.

Introduction to Hospitality

Introduces learners to careers and the organization and structure of the Hospitality Industry including: hotels, restaurants, non-commercial food service, travel and tourism, conventions and meetings, clubs and other food service entities. Topics include exploring career opportunities, understanding the world of Hotels and Restaurants, Food Service Organizational structures, an introduction to the Meetings Industry, and analyzing the size and scope of the Noncommercial Foods segment.

Introduction to Sales

Enables the student to understand and develop a solid foundation of the Fundamentals of Selling. This includes the nature of selling, the steps in the selling process and delivering an effective product demonstration and/or sales presentation.

Management in Hospitality Industry

Describes the history, development, and operation of the hospitality industry including careers in the industry, management practices, accounting procedures, destinations and lodging.

Planning for Special Events

Provides a basic knowledge of the planning and development of an event or meeting, including the budgeting, arranging of entertainment and catering, and the lodging of participants.

Principles of Marketing

Presents the analysis of theoretical marketing processes and the strategies of product development, pricing, promotion and distribution, and their applications to businesses and the individual consumer.

Principles of Sales

Enables the student to understand and develop ethical sales techniques and covers the role of selling in the marketing process. Areas of emphasis include behavioral considerations in the buying and selling process and sales techniques.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Engineering, Technology, & Media Arts

Science, Technology, Engineering and Math are driving our global marketplace. We need to ensure today's learners and tomorrow's leaders are passionate about all the possibilities these areas of study hold.

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The Colorado Technology Student Association (COTSA) is a national non-profit organization devoted exclusively to the needs of elementary, middle and high school students with a dedicated interest in technology. Involvement in TSA benefits teachers as well as students. Relating class activities to local, regional, state and national technology oriented competitive events can be highly motivational for students. The natural interaction between teachers and students provides an excellent learning environment, while working toward common goals.

website: www.coloradotsa.org

Media Arts Cluster

Design & Multimedia Arts Pathway (090702)

Credential: Audio/Video/Film Technology, Journalism & Broadcasting

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Foundations of Design, Multimedia Arts, & Digital Communications (A/B)	Graphic Design & Illustration I (A/B)	Graphic Design & Illustration II (A/B)	Work-Based Learning: Design & Multimedia Arts (A/B)
Digital Media (A/B)	Animation I (A/B)	Animation II (A/B)	Capstone: Design & Multimedia Arts (A/B)
	Commercial Photography I (A/B)	Commercial Photography II (A/B)	Practicum in Commercial Photography (A/B)
		Adobe Photoshop (A/B)	Any Concurrent Enrollment Courses related to Digital & Media Arts
		Adobe Illustrator (A/B)	WBL Apprenticeship
		Adobe InDesign (A/B)	

Industry credentials available in this pathway

Adobe Certified Professional 2021 (options in Photoshop, InDesign, Illustrator, Animate)

Adobe XD Credential

Digital Media & Communications Pathway (090702)

Credential: Audio/Video/Film Technology, Journalism & Broadcasting, Visual Arts & Design

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Foundations of Design, Multimedia Arts, & Digital Communications (A/B)	Audio/Video Production I (A/B)	Audio/Video Production II (A/B)	Work-Based Learning: Digital Media & Communications (A/B)
Digital Media (A/B)	Digital Audio Technology I (A/B)	Digital Audio Technology II (A/B)	Capstone: Digital Media & Communications (A/B)
	Graphic Design & Illustration I (A/B)	Graphic Design & Illustration II (A/B)	Practicum in Digital Media & communications (A/B)
	Reporting (A/B)	Filmmaking (A/B)	Any Concurrent Enrollment Courses related to Digital Media & Communications
	Print Media I (A/B)	Editing (A/B)	WBL Apprenticeship
	Online Media I (A/B)	Print Media II (A/B)	
	Television Production (A/B)	Online Media II (A/B)	
	Broadcast Production (A/B)	Adobe Photoshop (A/B)	
		Adobe Illustrator (A/B)	
		Adobe InDesign (A/B)	
		Any Concurrent Enrollment Courses related to Digital Media & Communications	

Industry credentials available in this pathway

Adobe Certified Professional 2021 (options in Photoshop, InDesign, Illustrator, Animate)
Adobe XD Credential

Technical Theatre/Theatre Design and Technology (500502)

Credential: Audio/Video/Film Technology, Journalism & Broadcasting, Performing Arts, Media Arts

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Foundations of Design, Multimedia Arts, & Digital Communications (A/B)	Broadcast Production (A/B)	Filmmaking (A/B)	Any Concurrent Enrollment Courses related to Technical Theatre/Theatre Design and Technology
Foundation of Production Design & Performance (A/B)	Television Production (A/B)	Sound Engineering and Design (A/B)	Capstone: Technical Theatre/Theatre Design and Technology (A/B)
	Audio/Video Production I (A/B)	Stage Production Management (A/B)	Work-Based Learning: Technical Theatre/Theatre Design and Technology (A/B)
	Technical Theatre (A/B)	Set Design (A/B)	
	Introduction to Sound Mixing (A/B)		
	Performance & Communications (A/B)		

Industry credentials available in this pathway

OSHA 10 hour General Industry Training Department of Labor card
OSHA 30 hour General Industry Training Department of Labor card
USITT eSET BACKstage Exam
USITT eSet Level 1: Basic Terms and Safety Exam
USITT eSet Level 2: Audio Exam, Costume Exam, Lighting and Electrics Exam, Projections Exam, Rigging Exam, Wardrobe Exam
USITT eSet Level 3: Practical Exam

Media Arts Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Adobe Illustrator A
Adobe Illustrator B

This course concentrates on the high-end capabilities of Adobe Illustrator as an illustration, design and vector drawing tool. Students learn how to use the tools to create digital artwork that can be used in web design, print media, and digital screen design.

Adobe Illustrator A
Adobe Illustrator B

This course concentrates on the high-end capabilities of Adobe Illustrator as an illustration, design and vector drawing tool. Students learn how to use the tools to create digital artwork that can be used in web design, print media, and digital screen design.

Adobe Photoshop A
Adobe Photoshop B

This course concentrates on the high-end capabilities of Adobe Photoshop as an illustration, design and photo retouching tool. Students explore a wide range of selection and manipulation techniques that can be applied to photos, graphics, and videos.

Animation I A
Animation I B

Animation I is an introduction to traditional animation. This course covers essential knowledge, skills, and concepts required for postsecondary fields of study. Upon completion of this course, students are able to describe various careers within animation, as well as admission requirements for postsecondary fields of study in Colorado. Students will digitally create both 2D animations and 3D computer-generated animations. The basic principles of design and animation will be covered that have been used by professionals. Students will have drawing assignments to help them in character design, layout, and story development. With the approval of the instructor, students may have the choice to complete major projects in either 2D or 3D.

Animation II A
Animation II B

Animation II allows students to apply knowledge of animation to complete fully developed projects that may be used in their portfolio. With the approval of the instructor, students may have a chance to complete major projects in 2D or 3D. Students will have the opportunity to further their progression by learning acting techniques, lip sync, advanced walk/run/jump cycles, rigging 2D and 3D characters using bones, forward kinematics, inverse kinematics, soft-

body dynamics, cloth and clothing, and special effects (smoke, fire, fog). Students may also have an opportunity to explore other related areas including motion graphics, visualizations, interactive applications, and game simulations. In addition to at least one major individual project, students will combine their talents in a group project. Students are expected to create animated shorts that can be seen in the community.

Audio/Video Production I A
Audio/Video Production I B

This course explores the Audio and Video production industry and its post-secondary educational and career opportunities. Students will gain job-specific training for entry level employment in audio, video, television, and motion picture careers. Professional grade equipment and software will be used in the creation of student lead productions. Students will be involved in every aspect of several class and small group audio, video, and film style production projects with emphasis on TV studio broadcasting and news production projects. Students will also be encouraged to participate as studio crew for district productions outside of school hours.

Audio/Video Production II A
Audio/Video Production II B

This course explores the Audio and Video production industry and its post-secondary educational and career opportunities. Students will gain job-specific training for entry level employment in audio, video, television, and motion picture careers. Professional grade equipment and software will be used in the creation of student lead productions. Students will be involved in every aspect of several class and small group audio, video, and film style production projects with emphasis on TV studio broadcasting and news production projects. Students will also be encouraged to participate as studio crew for district productions outside of school hours.

Broadcast Production A
Broadcast Production B

In Broadcast Production course, students will examine the techniques and technologies involved in creating multicamera shoots for the news and narrative broadcast television genres. Students will explore the unique logistical, structural, and aesthetic methodologies that distinguish broadcast production from other types of production.

Capstone: Design & Multimedia Arts A
Capstone: Design & Multimedia Arts B

This course allows for advanced work in the Design & Multimedia Arts Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Capstone: Digital Media & Communications A
Capstone: Digital Media & Communications B

This course allows for advanced work in the Digital Media & Communications Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Capstone: Technical Theatre/Theatre Design and Technology A

Capstone: Technical Theatre/Theatre Design and Technology B

This course allows for advanced work in the Technical Theatre/Theatre Design and Technology Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Commercial Photography I A
Commercial Photography I B

This photography course focuses on studio-based photography. Students will learn basic DSLR camera operations, framing and the art of styling and lighting for professional photo shoots. Projects will include various print advertisements and studio work. Students will learn about careers in related to commercial photography and the postsecondary programs and requirements within Colorado. Some examples of jobs in this area are photographer, graphic designer and stylist. Students will complete a number of projects and design pieces to be added to personal portfolios.

Commercial Photography II A
Commercial Photography II B

Course emphasizes the needs of commercial photographers with regard to technical expertise, creativity, and professional equipment. Technical aspects include film to digital transfer, lighting, digital image manipulation, alternative processes, large format camera work and stock photography. Creative exploration of subject matter, lighting, color theory and other psychological characteristics in the development of images are studied. A variety of photographic equipment is utilized for the studio and on location. Students are expected to create a portfolio of work for both print and electronic formats.

Digital Audio Technology I A
Digital Audio Technology I B

Digital Audio Technology I is designed to provide students interested in audio production careers such as audio for radio and television broadcasting, audio for video and film, audio for animation and game design, music production and live sound, and additional opportunities and skill sets. Digital Audio Technology I does not replace Audio/Video Production courses but is recommended as a single credit, co-curricular course with an audio production technical emphasis. This course can also be paired with Digital Media. Students will be expected to

develop an understanding of the audio industry with a technical emphasis on production and critical-listening skills.

Digital Audio Technology II A
Digital Audio Technology II B

Digital Audio Technology II was designed to provide additional opportunities and skill sets for students interested in audio production careers such as audio for radio and television broadcasting, audio for video and film, audio for animation and game design, and music production and live sound. Digital Audio Technology II does not replace Audio Video Production courses but is recommended as a single credit, co-curricular course with an audio production technical emphasis. Students will be expected to develop an understanding of the audio industry with a technicalemphasis on production and critical-listening skills.

Digital Media A
Digital Media B

In Digital Media, students will analyze and assess current and emerging technologies, while designing and creating multimedia projects that address customer needs and resolve a problem. Students will implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. The knowledge and skills acquired and practiced will enable students to successfully perform and interact in a technology-driven society. Students will enhance reading, writing, computing, communication, and critical thinking and apply them to the IT environment.

Editing A
Editing B

This course is recommended for students who have completed Reporting and who want to develop their leadership skills while expanding on various modes of reporting and creating presentations in multiple platforms for specific audiences. Instruction will be paired with hands-on lab experiences.

Filmmaking A
Filmmaking B

Students learn how to use digital video editing software to create, edit, and save movies. Students create movies using digital video clips, digital photos and music. The basics of shooting good video, capturing video from a camera to a computer, creating movies for the web, and creating a finished product will be covered.

Foundations of Design, Multimedia Arts, & Digital Communications A
Foundations of Design, Multimedia Arts, & Digital Communications B

Student are introduced to the variety of programs and occupations in the arts, audio/video technology, and communications systems. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.

Foundations of Production Design & Performance A
Foundations of Production Design & Performance B

Students are introduced to the variety of programs and occupations in the arts, audio/video technology, and production. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.

Graphic Design & Illustration I A
Graphic Design & Illustration I B

This entry level course is for training in the visual communication portion of all media businesses. Students learn about a career in the many kinds of media and graphic design and illustration jobs. Digital photography and working towards the intermediate level use of image editing and drawing programs are strongly focused upon in this class. This is helpful for any future photographer, videographer, animator or advertiser. Students will begin developing a high quality portfolio for college or design school.

Graphic Design & Illustration II A
Graphic Design & Illustration II B

Design portfolios are expanded upon and improved in this second year of Graphic Design and Illustration. There is study of college art and media programs. More time is spent learning advanced concepts in illustration and the advertising and media business as well as new software programs while continuing to hone skills in image editing and digital photography. Large format printing of projects is common in this class. Students may select an area of visual communication to begin specializing in during this year of study. It is a high level of media study where specializations such as motion graphics may begin.

Introduction to Sound Mixing A
Introduction to Sound Mixing B

This course introduces students to setup and take down of audio equipment, sound check, and management of audio volume and sound quality of various productions. Standards in this course include career exploration, an overview of the history and evolution of sound mixing.

Online Media I A
Online Media I B

Students demonstrate their understanding of a variety of programs and occupations in online media using digital tools that are widely available in professional media work. Focus is on producing content for online consumer-oriented platforms. Instruction will be paired with hands-on lab experiences in community reporting, both verbal and visual.

Online Media II A
Online Media I B

This course is recommended for students who have completed Online Media I and who want to develop their leadership skills while expanding on various modes of reporting and creating online media for specific audiences and online consumer-oriented platforms. Instruction will be paired with hands-on lab experiences.

Performance & Communications A
Performance & Communications B

This course introduces students to methods of performance and performance-dependent careers. Though performance is a significant part of this course, further topics include financial awareness, promotion and marketing, and management and leadership.

Practicum in Commercial Photography A
Practicum in Commercial Photography B

This course is recommended for students who have completed Commercial Photography II. This course is meant to serve students interested in further development of a professional portfolio in addition to further development of skills and technical knowledge. Students will be expected to further develop knowledge and awareness of the industry of commercial photography. Instruction may be delivered through lab-based classroom experiences and/or career preparation opportunities.

Practicum in Digital & Communications A
Practicum in Digital & Communications B

This course is recommended for students who have completed Print Media II or Online Media II. This course is meant to serve students interested in further development of a professional portfolio in addition to further development of skills and technical knowledge. Students may further develop leadership and management skills that are expected in professional media work. Students will be expected to further develop knowledge and awareness of the industry of digital media. Instruction may be delivered through lab-based classroom experiences and/or career preparation or internship opportunities.

Print Media I A
Print Media I B

Students demonstrate their understanding of a variety of programs and occupations in print media using digital tools that are widely available in professional publication work. Focus is on producing content for reader-oriented publications. Instruction will be paired with hands-on lab experiences in community reporting, both verbal and visual.

Print Media II A
Print Media II B

This course is recommended for students who have completed Print Media I and who want to develop their leadership skills while expanding on various modes of reporting and creating print media for specific audiences. Instruction will be paired with hands-on lab experiences in community reporting.

Reporting A
Reporting B

Students are introduced to the variety of programs and occupations in audio/video technology, and communications and media systems. Students will demonstrate an understanding of how to gather information that may be published in print or online media. Instruction will be paired with hands-on lab experiences in community reporting, both verbal and visual.

Set Design A
Set Design B

Emphasizes two- and three-dimensional drawing and designs and color theory. Students construct 3-D models and a theatrical stage set.

Sound Engineering & Design A
Sound Engineering & Design B

Students learn how to use digital video editing software to create, edit, and save movies. Students create movies using digital video clips, digital photos and music. The basics of shooting good video, capturing video from a camera to a computer, creating movies for the web, and burning finished DVDs will be covered.

Stage Production Management A
Stage Production Management B

This course introduces students to various areas of management within the stage production industry which include stage manager (working with assistants, actors, and directors), theater manager (advertising, box office sales, public relations), human resources (training, hiring, safety, compensation, law), and financial manager (payroll and budget).

Technical Theatre A
Technical Theatre B

Introduces methods of constructing and painting scenery and properties, operating stage lighting and sound equipment, and implementing costumes and multimedia. This course explores the proper procedures of serving on stage crews.

Television Production A
Television Production B

TV producers work behind the camera, putting together the different elements of the broadcast and making sure that everything works together smoothly. This course covers the essential components of TV broadcast production, including the use of microphones, cameras, video tape recorder-editors, switchers and lighting equipment. The basics of editing and chroma key (blue screen) techniques are also introduced. Students gain practical experience producing their own video projects in the studio.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Work Based Learning: Design & Multimedia Arts A
Work Based Learning: Design & Multimedia Arts B

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Work Based Learning: Digital Media & Communications A
Work Based Learning: Digital Media & Communications B

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Work Based Learning: Technical Theatre/Theatre Design and Technology A

Work Based Learning: Technical Theatre/Theatre Design and Technology B

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Computer & Digital Technologies Cluster

Coding Pathway (110101)

Credential: Information Technology

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Computer Science Foundations (A/B)	Coding I (A/B)	Coding II (A/B)	Work Based Learning: Coding (A/B)
PLTW Computer Science Essentials (A/B)	AP Computer Science Principles (A/B)	Mobile App Development (A/B)	Capstone: Coding (A/B)
Introduction to PC Applications (A/B)	PLTW Computer Science Principles (A/B)	Game Design (A/B)	Any Concurrent Enrollment Coding Course
		AP Computer Science A (A/B)	WBL Apprenticeship
		PLTW Computer Science A (A/B)	
		Any Concurrent Enrollment Coding Course	

Industry credentials available in this pathway

OpenEDG PythonInstitute PCEP (Python Certified Entry-level Programmer)

OpenEDG Python Institute PCAP (Python Certified Associate Programmer)

OpenEDG Python Institute PCPP (Python Certified Professional Programmer)

Networking Systems & Security Pathway (110101)

Credential: Information Technology

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Computer Science Foundations (A/B)	Cybersecurity I (A/B)	Cybersecurity II (A/B)	Work Based Learning: Networking Systems & Security (A/B)
PLTW Computer Science Essentials (A/B)	AP Computer Science Principles (A/B)	Networking (A/B)	Capstone: Networking Systems & Security (A/B)
Introduction to PC Applications (A/B)	PLTW Computer Science Principles (A/B)	PLTW Cybersecurity (A/B)	Cabling and Internetworking (A/B)
	Coding I (A/B)	Operating Systems (A/B)	IT Clinical Internship (A/B)
	Computer Systems (A/B)		Any Concurrent Enrollment Cybersecurity Course
			Any Concurrent Enrollment Networking Systems Course
			WBL Apprenticeship

Industry credentials available in this pathway

CompTIA A+, CompTIA Network +, CompTIA Security +, CompTIA CySA+ (Cybersecurity Analyst intermediate level)
Cisco Certified Network Associate (CCNA), Cisco Certified Network Professional (CCNP), Cisco Certified CyberOps Associate (CBROPS), Cisco Certified CyberOps Professional (CBRCOR)
(ISC)2 Entry Level Cybersecurity Certification

Web Design Pathway (110101)

Credential: Information Technology

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Computer Science Foundations (A/B)	Web Design Foundations (A/B)	Web Site Development (A/B)	Work Based Learning: Web Design (A/B)
PLTW Computer Science Essentials (A/B)	AP Computer Science Principles (A/B)	Mobile App Development (A/B)	Capstone: Web Design (A/B)
Introduction to PC Applications (A/B)	PLTW Computer Science Principles (A/B)	Adobe Photoshop (A/B)	Any Concurrent Enrollment Web Design Course
		Adobe Illustrator (A/B)	
		Adobe InDesign (A/B)	
		AP Computer Science A (A/B)	

Industry credentials available in this pathway

CancanIT Certification (HTML5, CSS3, Javascript)
Adobe Certified Professional (options for Dreamweaver, InDesign, Photoshop, Illustrator)

Computer & Digital Technologies Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Adobe Illustrator A
Adobe Illustrator B

This course concentrates on the high-end capabilities of Adobe Illustrator as an illustration, design and vector drawing tool. Students learn how to use the tools to create digital artwork that can be used in web design, print media, and digital screen design.

Adobe InDesign A
Adobe InDesign B

This course concentrates on the high-end capabilities of Adobe InDesign as a print and digital media publication tool. Students explore a wide range of selection and manipulation techniques that can be applied to works for publication.

Adobe Photoshop A
Adobe Photoshop B

This course concentrates on the high-end capabilities of Adobe Photoshop as an illustration, design and photo retouching tool. Students explore a wide range of selection and manipulation techniques that can be applied to photos, graphics, and videos.

AP Computer Science A A
AP Computer Science A B

AP Computer Science A is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures.

AP Computer Science Principles AAP
Computer Science Principles B

AP Computer Science Principles is an introductory college-level computing course. Students cultivate their understanding of computer science through working with data, collaborating to solve problems, and developing computer programs as they explore concepts like creativity, abstraction, data and information, algorithms, programming, the internet, and the global impactof computing.

Cabling and Internetworking ACabling
and Internetworking B

Cabling & Internetworking is an advanced course intended to equip students with the conceptual and practical skills necessary to install voice and data network cabling. This course emphasizes industry standards, types of media and cabling, physical and logical networks, and signal transmission. Upon completion of this course, proficient students will have skills in cable termination, reading network design documentation, pulling and mounting cable, setting up telecommunications rooms, basic cable testing and troubleshooting.

Capstone: Coding A
Capstone: Coding B

This course allows for advanced work in the Coding Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student.It may include project-based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with theindividual student.

Capstone: Networking Systems & Security A
Capstone: Networking Systems & Security B

This course allows for advanced work in the Networking Systems & Security Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end ofprogram industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Capstone: Web Design A
Capstone: Web Design B

This course allows for advanced work in the Web Design Program of Study. This advanced workcan be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Coding I A
Coding I B

Coding I is a course intended to teach students the basics of computer programming. The course places emphasis on practicing standard programming techniques and learning the logic tools and methods typically used by programmers to create simple computer applications. Upon completion of this course, proficient students will be able to solve problems by planning multistep procedures; write, analyze, review, and revise programs, converting detailed information from workflow charts and diagrams into coded instructions in a computer language;and will be able to troubleshoot/debug programs and software applications to correct malfunctions and ensure their proper execution.

Coding II A
Coding II B

Coding II challenges students to develop advanced skills in problem analysis, construction of algorithms, and computer implementation of algorithms as they work on programming projectsof increased complexity. In so doing, they develop key skills of discernment and judgment as they must choose from among many languages, development environments, and strategies for the program life cycle. Course content is reinforced through numerous short- and long-term programming projects, accomplished both individually and in small groups. These projects are meant to hone the discipline and logical thinking skills necessary to craft error-free syntax for the writing and testing of programs. Upon completion of this course, proficient students will

demonstrate an understanding of the programming language using high-level languages such as Python, Java, Javascript, C, C#, C++.

Computer Science Foundations A
Computer Science Foundations B

Computer Science Foundations (CSF) is a course intended to provide students with exposure to various information technology occupations and pathways such as Networking Systems, Coding, Web Design, and Cybersecurity. Upon completion of this course, proficient students will be ableto describe various information technology (IT) occupations and professional organizations. Moreover, they will be able to demonstrate logical thought processes and discuss the social, legal, and ethical issues encountered in the IT profession. Depending on the focus area, proficient students will also demonstrate an understanding of electronics and basic digital theory; project management and teamwork; client relations; causes and prevention of Internetsecurity breaches; and writing styles appropriate for web publication. Upon completion of the CSF course, students will be prepared to make an informed decision about which Information Technology program of study to pursue.

Computer Systems A
Computer Systems B

Computer Systems is an intermediate course designed to prepare students with work-related skills and aligned certification in the information technology industry. Content provides studentsthe opportunity to acquire knowledge in both theory and practical applications pertaining to hardware, operating systems, safe mode, command prompt, security, networking, printers, peripheral devices, laptops, mobile devices, troubleshooting, and customer service management. Upon completion of the course, proficient students will have acquired skills and knowledge to install, configure, and maintain computer systems. Students who are proficient in this course will be eligible to pursue the IT industry-standard credential, CompTIA's A+ certification.

Cybersecurity I A
Cybersecurity I B

Cybersecurity I is a course intended to teach students the basic concepts of cybersecurity. The course places an emphasis on security integration, application of cybersecurity practices and devices, ethics, and best practices management. The fundamental skills in this course cover bothin house and external threats to network security and design, how to enforce network level security policies, and how to safeguard an organization's information. Upon completion of this course, proficient students will be able to demonstrate and understanding of cybersecurityconcepts, identify fundamental principles of networking systems, understand network infrastructure and network security, and be able to demonstrate how to implement variousaspects of security within a networking system.

Cybersecurity II A
Cybersecurity II B

Cybersecurity II challenges students to develop advanced skills in concepts and terminology of cybersecurity. This course builds on previous concepts introduced in Cybersecurity I while expanding the content to include malware threats, cryptography, wireless technologies and

organizational security. Upon completion of this course, proficient students will be able to demonstrate and understanding of cybersecurity ethical decisions, malware threats, how to detect vulnerabilities, principles of cryptology, security techniques, contingency plan techniques,security analysis, risk management techniques, and advanced methods of cybersecurity.

Game Design A
Game Design B

Game Design combines problem-solving techniques with computer game design and implementation to introduce the student to basic gaming and computer science concepts. Students design, implement, and test computer games using software that allows for basic game creation through a wide variety of game creation tools.

Introduction to PC Applications A
Introduction to PC Applications B

This course introduces basic computer terminology, file management, and PC system components. Provides an overview of office application software including word processing, spreadsheets, databases, and presentation graphics. Includes the use of a web browser to access the Internet.

Mobile App Development A
Mobile App Development B

Mobile App Development is a course intended to teach students the basic concepts and skills of mobile app design. The course places an emphasis on the history of mobile technologies, design and development methodologies, code for mobile applications, application lifecycles, APIs, mobile device controls, user interfaces, deployment, publishing for mobile devices, developer tools, and career development. Upon completion of this course, proficient students will demonstrate an understanding of mobile app development concepts.

Networking A
Networking B

Networking is an advanced course designed to emphasize the conceptual and practical skills necessary to design, manage, and diagnose network hardware and software. Upon completion of this course, proficient students will identify types of networks, understand the layers of the open systems interconnection (OSI) model, prevent security risks, and apply troubleshooting theory to the successful execution of networking tasks. Course content covers transmission control protocol, internet protocol, wired and wireless topologies, switching and routing, network hardware, wireless networking, and network operating systems (NOS). Upon completion of this course, proficient students will be prepared to sit for the CompTIA Network+exam.

PLTW Computer Science A A
PLTW Computer Science A B

Computer Science A (CSA) builds on the basic skills learned in Computer Science Principles (CSP) to teach students authentic Android app development. Students in this course continue to hone their communication and collaboration skills while learning to use a variety of tools. The primarygoal of the course is to create independent thinking app developers; every unit in this course builds on

students' prior knowledge and skills until they are able to complete an app development cycle independently from the ground up

PLTW Computer Science Essentials A
PLTW Computer Science Essentials B

PLTW CSE introduces students to coding fundamentals through an approachable, block-based programming language where they will have early success in creating usable apps. As students sharpen their computational thinking skills, they will transition to programming environments that reinforce coding fundamentals by displaying block programming and text based programming side-by-side. Finally, students will learn the power of text-based programming asthey are introduced to the Python® programming language.

PLTW Computer Science Principles A
PLTW Computer Science Principles B

Computer Science Principles (CSP) is a PLTW course to implement the College Board's new AP CS Principles framework. Students work in teams to develop computational thinking and solve problems. The course does not aim to teach mastery of a single programming language but aims instead to develop computational thinking, to generate excitement about the field of computing, and to introduce computational tools that foster creativity. The course also aims to build students' awareness of the tremendous demand for computer specialists and for professionals in all fields who have computational skills. Each unit focuses on one or more computationally intensive career paths. The course also aims to engage students to consider issues raised by the present and future societal impact of computing.

PLTW Cybersecurity A
PLTW Cybersecurity B

PLTW Cybersecurity gives students a broad exposure to the many aspects of digital and information security, while encouraging socially responsible choices and ethical behavior. It inspires algorithmic thinking, computational thinking, and especially, "outside-the-box" thinking.Students explore the many educational and career paths available to cybersecurity experts, as well as other careers that comprise the field of information security.

Robotics & Automated Systems A
Robotics & Automated Systems B

Robotics & Automated Systems is an applied course for students who wish to explore how robots and automated systems are used in industry. Upon completion of this course, students will have an understanding of the historical and current uses of robots and automated systems; programmable circuits, interfacing both inputs and outputs; ethical standards for engineering and technology professions; and testing and maintenance of robots and automated systems.

Web Design Foundations A
Web Design Foundations B

This course is intended to develop fundamental skills of the basic web design and development process, project management and teamwork, troubleshooting and problem solving, and interpersonal skill development.

Web Site Development A
Web Site Development B

Web Site Development builds on the skills and knowledge gained in Web Design Foundations to further prepare students for success in the web design and development fields. Emphasis is placed on applying the design process toward projects of increasing sophistication, culminating in the production of a functional, static website. As students work toward this goal, they acquirekey skills in coding, project management, basic troubleshooting and validation, and content development and analysis. Artifacts of the work completed in this course will be logged in a student portfolio demonstrating mastery of skills and knowledge. Upon completion of this course, proficient students will be prepared to pursue a variety of postsecondary programs in the computer sciences, sit for industry certification, or apply their skills in a eCapstone Web Design Practicum or Work-Based Learning Web Design course.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Work Based Learning: Coding A
Work Based Learning: Coding B

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Work Based Learning: Networking Systems & Security AWork Based Learning: Networking Systems & Security B

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Work Based Learning: Web Design A
Work Based Learning: Web Design B

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Engineering Cluster

Engineering & Technology Pathway (140101)

Credential: Engineering and Technology

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
PLTW: Introduction to Engineering Design (A/B)	PLTW: Principles of Engineering (A/B)	Applied Engineering Design (A/B)	Work Based Learning: Engineering & Technology (A/B)
PLTW: Introduction to Drafting Design & Concepts (A/B)	Principles of Engineering & Technology (A/B)	Robotics & Automated Systems (A/B)	Capstone: Engineering & Technology (A/B)
	Introduction to Technical Drawing/Design (A/B)		PLTW Engineering Design and Development (A/B)
	AP Computer Science Principles (A/B)	Electronics DC/AC (A/B)	Any Concurrent Enrollment Courses Related to Engineering & Technology
	PLTW: Computer Science Principles (A/B)	AP Computer Science A (A/B)	WBL Apprenticeship
	PLTW: Digital Electronics (A/B)	PLTW: Aerospace Engineering (A/B)	
	Coding I (A/B)	PLTW: Civil Engineering & Architecture (A/B)	
	Digital Electronics (A/B)	PLTW: Computer Integrated Manufacturing (A/B)	
	Introduction to Engineering Design (A/B)	PLTW: Computer Science A (A/B)	
		PLTW: Environmental Sustainability (A/B)	

Industry credentials available in this pathway

Certified Solidworks Associate (CSWA)
Certified Solidworks Professional (CSWP)
Certified Solidworks Advanced Professional (CSWPA) in Drawing Tools, Mold Making, Sheet Metal, Surfacing, Weldments.
Autodesk Certified Associate (CAD) using Fusion 360
Autodesk Certified Associate (CAM) using Fusion 360
Autodesk Certified Professional (Autocad)
Autodesk Certified Professional (Revit)

Engineering Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

AP Computer Science A AAP Computer Science AB

AP Computer Science A is an introductory college-level computer science course. Students cultivate their understanding of coding through analyzing, writing, and testing code as they explore concepts like modularity, variables, and control structures.

AP Computer Science Principles A
AP Computer Science Principles B

AP Computer Science Principles is an introductory college-level computing course. Students cultivate their understanding of computer science through working with data, collaborating to solve problems, and developing computer programs as they explore concepts like creativity, abstraction, data and information, algorithms, programming, the internet, and the global impact of computing.

Applied Engineering Design A
Applied Engineering Design B

Applied Engineering Design is an applied course for students interested in further developing their skills as future engineers. This course covers knowledge, skills, and concepts required for postsecondary engineering and technology fields of study. Upon completion of this course, proficient students are able to explain the differences between scientists and engineers, understand the importance of ethical practices in engineering and technology, identify components of control systems, create simple free body diagrams, use measurement devices employed in engineering, conduct basic engineering economic analysis, follow the steps in the engineering design process to complete a team project, and effectively communicate design solutions to others.

Capstone: Engineering & Technology A
Capstone: Engineering & Technology B

This course allows for advanced work in the Engineering & Design Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Coding I A
Coding I B

Coding I is a course intended to teach students the basics of computer programming. The course places emphasis on practicing standard programming techniques and learning the logic tools and methods typically used by programmers to create simple computer applications. Upon completion of this course, proficient students will be able to solve problems by planning multistep procedures; write, analyze, review, and revise programs, converting detailed information from workflow charts and diagrams into coded instructions in a computer language; and will be able to troubleshoot/debug programs and

software applications to correct malfunctions and ensure their proper execution.

Digital Electronics A
Digital Electronics B

Digital Electronics is intended to provide students with an introduction to the basic components of digital electronic systems and equip them with the ability to use these components to design more complex digital systems. Proficient students will be able to (1) describe basic functions of digital components (including gates, flip flops, counters, and other devices upon which larger systems are designed), (2) use these devices as building blocks to design larger, more complex circuits, (3) implement these circuits using programmable devices, and (4) effectively communicate designs and systems. Students develop additional skill in technical documentation when operating and troubleshooting circuits. Upon completion of the Digital Electronics course, students will be able to design a complex digital system and communicate their designs.

Electronics DC/AC A
Electronics DC/AC B

This course introduces the basic principles of electronics including the fundamentals of Direct Current (DC), Alternating Current (AC), and robotics. Topics include basic circuits, voltage, current and resistance measurement, Ohm's Law, series and parallel circuits, magnetism, motors and generators, electromagnetic induction, and robotics. Electronic theory is reinforced through breadboarding circuits in the lab. Students fabricate printed circuit board projects. Utilization of electronic test equipment is emphasized.

Introduction to Drafting and Design Concepts A
Introduction to Drafting and Design Concepts B

This course offers students the opportunity to combine design principles with technology to produce authentic projects. The initial focus will be on developing an understanding of the visual elements and the principles of design. Students will study both two and three-dimensional applications and problems. Students will explore areas such as: graphic design, architectural design, landscaping design, manufacturing design and interior design. Students will use drafting skills to produce detailed working drawings, sectionals, auxiliary, fasteners, and simple architectural floor plans. Students will also work in design teams to create pattern development and design and produce prototypes. They will be introduced to computer design software such as Google Sketch, SolidWorks, AutoCAD, and ArchiCad.

Introduction to Engineering Design A
Introduction to Engineering Design B

Introduction to Engineering Design is a fundamental course in the Engineering and Technology Program of Study for students interested in developing their skills in preparation for careers in engineering and technology. The course covers essential knowledge, skills, and concepts required for postsecondary engineering and technology fields of study. Upon completion of this course, proficient students can describe various engineering disciplines, as well as admissions requirements for postsecondary engineering and engineering technology programs in Colorado.

They will also be able to identify simple and complex machines, calculate various ratios related to mechanisms, explain fundamental concepts related to energy, understand Ohm's Law, follow the steps in the engineering design process to complete a team project, and effectively communicate design solutions to others.

Introduction to Technical Drawing/Design A
Introduction to Technical Drawing/Design B

This yearlong course develops skills in drafting and design of structures and products. This is accomplished by introducing a design process of refining sketches through technical hand and computer-aided drafting. The use of a CAD-CAM program will allow students to visually apply creative design elements to specific projects.

PLTW: Aerospace Engineering A
PLTW: Aerospace Engineering B

The course deepens the skills and knowledge of an engineering student within the context of atmospheric and space flight. Students explore the fundamentals of flight in air and space as they bring the concepts to life by designing and testing components related to flight such as an airfoil, propulsion system, and a rocket. They learn orbital mechanics concepts and apply these by creating models using industry-standard software. They also apply aerospace concepts to alternative applications such as a wind turbine and parachute. Students simulate a progression of operations to explore a planet, including creating a map of the terrain with a model satellite and using the map to execute a mission using an autonomous robot.

PLTW: Civil Engineering & Architecture A
PLTW: Civil Engineering & Architecture B

In CEA students are introduced to important aspects of building and site design and development. They apply math, science, and standard engineering practices to design both residential and commercial projects and document their work using 3D architectural design software. Utilizing the activity-project-problem-based (APB) teaching and learning pedagogy, students will progress from completing structured activities to solving open ended projects and problems that require them to develop planning, documentation, communication, and other professional skills.

PLTW: Computer Integrated Manufacturing A
PLTW: Computer Integrated Manufacturing B

The course deepens the skills and knowledge of an engineering student within the context of efficiently creating the products all around us. Students build upon their Computer Aided Design (CAD) experience using Computer Aided Manufacturing (CAM) software. CAM transforms a digital design into a program that a Computer Numerical Controlled (CNC) mill usesto transform a block of raw material into a product designed by a student. Students learn and apply concepts related to integrating robotic systems such as Automated Guided Vehicles (AGV)and robotic arms into manufacturing systems.

PLTW: Computer Science A A
PLTW: Computer Science A B

Computer Science A (CSA) builds on the basic skills learned in Computer Science Principles (CSP) to teach students authentic Android app development. Students in this course continue to hone their communication and collaboration skills while learning to use a variety of tools. The primary goal of the course is to create independent thinking app developers; every unit in this course builds on students' prior knowledge and skills until they are able to complete an app development cycle independently from the ground up

PLTW: Computer Science Principles A
PLTW: Computer Science Principles B

Using Python as a primary tool, students learn the fundamentals of coding, data processing, data security, and task automation, while learning to contribute to an inclusive, safe, and ethical computing culture. The course promotes computational thinking, and coding fundamentals and introduces computational tools that foster creativity. Computer Science Principles helps students develop programming expertise and explore the workings of the Internet. Projects and problems include app development, visualization of data, cybersecurity, and simulation.

PLTW: Digital Electronics A
PLTW: Digital Electronics B

This course provides a foundation for students who are interested in electrical engineering, electronics, or circuit design. Students study topics such as combinational and sequential logic and are exposed to circuit design tools used in industry, including logic gates, integrated circuits, and programmable logic devices.

PLTW: Engineering Design & Development A
PLTW: Engineering Design & Development B

Engineering Design and Development (EDD) is the capstone course in the PLTW high school engineering program. It is an open-ended engineering research course in which students work in teams to design and develop an original solution to a well-defined and justified open-ended problem by applying an engineering design process. Students will perform research to select, define, and justify a problem. After carefully defining the design requirements and creating multiple solution approaches, teams of students select an approach, create, and test their solution prototype. Student teams will present and defend their original solution to an outside panel. While progressing through the engineering design process, students will work closely with experts and will continually hone their organizational, communication and interpersonal skills, their creative and problem-solving abilities, and their understanding of the design process.

PLTW: Environmental Sustainability A
PLTW: Environmental Sustainability B

Environmental Sustainability (ES) is a high school-level specialization course in PLTW Engineering. In ES, students investigate and design solutions to solve real-world challenges related to clean drinking water, a stable food supply, and renewable energy. Students are introduced to environmental issues and use the engineering design process to research and design potential solutions.

PLTW: Introduction to Engineering A
PLTW: Introduction to Engineering B

Through both individual and collaborative team activities, projects, and problems, students will solve problems as they practice common engineering design and development protocols such as project management and peer review. Students will develop skill in technical representation and documentation of design solutions according to accepted technical standards, and they will use current 3D design and modeling software to represent and communicate solutions. In addition, the development of computational methods that are commonly used in engineering problem solving, including statistical analysis and mathematical modeling, are emphasized. Ethical issues related to professional practice and product development are also presented.

PLTW: Principles of Engineering A
PLTW: Principles of Engineering B

Principles of Engineering (POE) is a foundation course of the high school engineering pathway. This survey course exposes students to some of the major concepts that they will encounter in a postsecondary engineering course of study. Through problems that engage and challenge, students explore a broad range of engineering topics, including mechanisms, the strength of materials and structures, automation, and kinematics. The course applies and concurrently develops secondary level knowledge and skills in mathematics, science, and technology.

Principles of Engineering & Technology A
Principles of Engineering & Technology B

Principles of Engineering and Technology is designed to introduce students to the STEM cluster for students interested in learning more about careers in engineering and technology. This course covers basic skills required for engineering and technology fields of study. Upon completion of this course, students are able to identify and explain the steps in the engineering design process. They can evaluate an existing engineering design, use fundamental sketching and engineering drawing techniques, complete simple design projects using the engineering design process, and effectively communicate design solutions to others.

Robotics & Automated Systems A
Robotics & Automated Systems B

Robotics & Automated Systems is an applied course for students who wish to explore how robots and automated systems are used in industry. Upon completion of this course, students will have an understanding of the historical and current uses of robots and automated systems; programmable circuits, interfacing both inputs and outputs; ethical standards for engineering and technology professions; and testing and maintenance of robots and automated systems.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Work Based Learning: Engineering & Technology A

Work Based Learning: Engineering & Technology B

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondaryeducation.

Family and Consumer Sciences

Family and Consumer Science programs stimulate students to manage the challenges of living and working in a diverse global society. Our unique focus is on families, work and their interrelationships. The mission of Family and Consumer Science education is to prepare students for family life, work life and careers in Family and Consumer Science by providing opportunities to develop the knowledge, skills, and behaviors needed for:

- Strengthening the well-being of individuals and families across the lifespan.
- Becoming responsible citizens and leaders in family, community and work settings.
- Promoting optimal nutrition and wellness across the lifespan.
- Managing resources to meet the material needs of individuals and families.
- Balancing personal, home, family and work lives.
- Using critical and creative thinking skills to address problems in diverse family, community and work environments.
- Successful life management, employment and career development.
- Functioning effectively as providers and consumers of goods and services.
- Appreciating human worth and accepting responsibility for one's actions and success in family and work life.

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Family, Career and Community Leaders of America (FCCLA) is the only national career and technical student organization with the family as its central focus. Since 1945, FCCLA members have been making a difference in their families, careers and communities by addressing important personal, work and societal issues through family and consumer sciences education. Today over 2400members in 140 chapters are active in Colorado through the opportunity to expand their leadership potential and develop skills for life.

website: fccla.cccs.edu

Family and Consumer Sciences Cluster

Hospitality and Food Production Pathway (190599)

Credential: Family and Consumer Sciences Secondary Endorsement or Hospitality Tourism or FCS Occupational Combined

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Career Pathways	Food Science 1	Baking and Pastry A	ProStart Youth Apprenticeship
Culinary Nutrition	Food Science 2	Baking and Pastry B	Work-Based Learning – FCS
Culinary Essentials 1	Catering 1		FCS Capstone
Culinary Essentials 2	Catering 2		WBLApprenticeship
Nutrition and Wellness	Culinary Arts 1 A	Culinary Arts 2 A	
Child and Adolescent Development	Culinary Arts 1 B	Culinary Arts 2 B	
Interpersonal Relationships	Lodging and Resort Management 1 A	Lodging and Resort Management 2 A	
Teen Choices	Lodging and Resort Management 1 B	Lodging and Resort Management 2 B	
Life Management	ProStart 1 A	ProStart 2 A	
Education Exploration	ProStart 1 B	ProStart 2 B	
Design Seminar	ProStart Business Economics 1	FCS Leadership A	
	ProStart Business Economics 2	FCS Leadership B	

Industry credentials available in this pathway

Serv Safe Food Handler

Serv Safe Manager

AAFCS Culinary Certifications

Human Services/Education and Training Pathway (130101)

Credential: Education & Training or Early Childhood Education. Please note that FACS Occupational Combined or a Family and Consumer Sciences Secondary Endorsement is acceptable for **level one and level four coursework ONLY**. To teach levels two and three, a teacher must have the appropriate CTE credential (either Early Childhood Education or Education and Training) and be adjunct instructor qualified, as these courses correlate to concurrent enrollment options.

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Career Pathways	Teacher Cadet 1 A	Teacher Cadet 2 A	Work-Based Learning – FCS
Culinary Nutrition	Teacher Cadet 1 B	Teacher Cadet 2 B	Introduction to Early Childhood Lab Techniques (ECE 102)
Nutrition and Wellness	Early Childhood Education 1011	Guidance Strategies for Young Children (ECE 1103)	FCS Capstone
Interpersonal Relationships	Para Professional Educator 1 A	Infant and Toddler Theory and Practice (ECE 1111)	WBL Apprenticeship
Teen Choices	Para Professional Educator 1 B	Para Professional Educator 2 A	
Life Management	Pathways2Teaching A	Para Professional 2 B	
Education Exploration	Pathways to Teaching B	FCS Leadership A	
Childhood and Adolescent Development		FCS Leadership B	

Industry credentials available in this pathway

AAFCS Education Fundamentals
ParaProfessional Completer Certificate
AAFCS Early Childhood Ed

Interior Design and Fashion Design Pathway (190999)

Credential: Family and Consumer Sciences Secondary Endorsement or Interior/Fashion Design Credential or FCS Occupational Combined

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Career Pathways	Fashion Design and Merchandising 1	Theatre Costume Design 1	Work-Based Learning – FCS
Design Seminar	Fashion Design and Merchandising 2	Theatre Costume Design 2	FCS Capstone
Interpersonal Relationships	Interior Design 1 – Residential	FCS Leadership A	WBL Apprenticeship
Teen Choices	Interior Design 1 – Commercial	FCS Leadership B	
Life Management			

Industry credentials available in this pathway

AAFCS Visual Arts and Design

American Sign Language Pathway (161603)

Credential: ASL Certification

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Career Pathways	American Sign Language 1	American Sign Language 3	American Sign Language 4
Education Exploration	American Sign Language 2		
Child and Adolescent Development			
Interpersonal Relationships			

Industry credentials available in this pathway

ASL Certification

Hospitality and Food Production Pathway Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

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American Sign Language 1

American Sign Language is a manual language which entails vocabulary, grammar, sentence structure, and body movement to express meaning for communication. Lessons or units also include cultural aspects to help the student understand and interact with the Deaf. Students are introduced to these aspects in units, which are ordered to build on the previous units. Lessons are structured around language needed or common life situations. Major concepts are reinforced through reading materials, video, cooperative learning activities, and long-term assignments.

American Sign Language 2

American Sign Language (ASL) is a manual language which entails vocabulary, grammar, sentence structure as well as body movement to express meaning for communication. ASL II will build upon ASL I with units including cultural aspects to help students understand and interact with the Deaf. Lessons are structured around language needed for common life situations.

American Sign Language 3

American Sign Language (ASL) is a manual language which entails vocabulary, grammar, sentence structure as well as body movement to express meaning for communication. ASL III will build upon ASL II with units including cultural aspects to help students understand and interact with the Deaf. Lessons are structured around language needed for common life situations.

American Sign Language 4

ASL IV continues from ASL I, II, and III to provide further study of American Sign Language (ASL) and its grammar, syntax, and cultural features. Helps students develop competency and fluency in the language. Variations in ASL are addressed. Provides the student with an opportunity to recognize the impact of Deaf Culture on emerging ASL Literature. Covers non-fiction, fiction, poetry, and drama depicted in readings and videotapes related to everyday lives of Deaf people. Develops insight and appreciation of Deaf literature and its implications for Deaf education.

Baking and Pastry A

This first semester course is intended for students interested in pursuing a career in the hospitality and culinary industry. Combining advanced food science, restaurant management, food preparation techniques, and real-world internship opportunities, students, through baking and pastry arts, students learn to develop their culinary skills and food knowledge to become employable and sought-after employees by local foodservice businesses.

Baking and Pastry B

This second semester course is intended for students interested in pursuing a career in the hospitality and culinary industry. Combining advanced food science, restaurant management, food preparation techniques, and real-world internship opportunities, students, through baking and pastry arts, students learn to develop their culinary skills and food knowledge to become employable and sought-after employees by local foodservice businesses.

Career Pathways

This course is designed to identify career interest areas based on your goals, individual skills, and aptitudes. Investigate interests, abilities and goals through various projects, and career testing procedures. Students will develop a usable education and career portfolio containing items necessary for post-secondary education and job search. Interact with professionals who work in various career areas through career panels, a job shadow, and a mock interview.

Catering 1
Catering 2

This two-semester program is designed for students with career interests in the food industry and owning their own catering business. This course develops skills in quantity food preparation, safety and sanitation, planning, customer service, business plans and entrepreneurship.

Child and Adolescent Development

This course's purpose is to acquire knowledge and understanding of child and adolescent development necessary to strengthen the well-being of children and families. Content focuses on perspectives of human development, research, and theories, understanding and nurturing development, and challenges to development.

Culinary Arts 1 A
Culinary Arts 1 B

Culinary Arts/Food Production incorporates a student-run restaurant open to the public focusing on operation, food preparation, customer service, front/back of the house experiences, food safety, and management.

Culinary Essentials 1

This course is designed to introduce students to a variety of culinary skills and food preparation. Through instruction and culinary lab practice, this class will provide an opportunity for students to learn food preparation and demonstrate food safety. Some topics include introductory culinary skills and preparation of items such as quick breads, yeast breads, and eggs; as well as meal and menu planning, nutrition, and food borne illnesses. Students will be able to: Demonstrate the correct procedures and techniques in introductory culinary labs. Analyze nutritional guidelines and plan menus that are nutritionally balanced. Demonstrate food safety standards.

Culinary Essentials 2

This intermediate culinary course is designed for students interested in exploring culinary careers, and to advance them to the next level of food preparation. The students will prepare menu items that involve more detailed procedures and practice techniques used in the culinary field. They will: Classify pasta types and create fresh pasta dishes. Prepare and evaluate nutritional value of several types of meats. Select herbs and spices to enhance the flavors of foods. Apply techniques used in cake and cookie decorating. Develop skills in preparing advanced yeast breads and pastries. Identify the origins and preparefoods from different regions and cultures. Emphasize presentation throughout the course.

Culinary Nutrition

This course's purpose is to develop lifelong, healthy individuals with an understanding of healthy and nutritious preparation techniques using various resources and skills. Emphasis isplaced on implementing healthy nutritional choices, preparing nutrient-dense seasonal foods, sports nutrition, exploring careers related to culinary nutrition, and practicing wise consumer.

Design Seminar

This course will give students an introduction to the elements and principles of design as seen in Interior Design, Fashion Design, Publishing, and a variety of other fields. In addition, it will introduce students to the many careers that require design and allow them to analyze their own career pathways to determine where design might fit. This course is recommended as an introduction to the fashion and interior design pathway.

Early Childhood Education 1011

This introduction to Early Childhood Education course is designed to provide the skills needed to secure employment as a teaching assistant in a childcare center, preschool, or elementary school. The focus is on ages birth to eight. Students enrolled in the program receive training in the classroom setting and in a licensed childcare facility. Included are the eight key areas of professional knowledge: ● Child Growth and Development ● Health, Nutrition and Safety ● Developmentally Appropriate Practices ● Guidance ● Family and Community Relationships ● Diversity ● Professionalism ● Administration and Supervision

Education Exploration

Education Exploration is a semester course designed to provide students with an overview of professions within education. Students will discover their own learning style and how learning styles impact teaching and the delivery of lessons. Experiences with various education professionals will enhance the understanding of classroom planning, licensure requirements, and career opportunities within school systems. This course includes at least 15 extended learning hours, which may be outside of class. With exemplary performance and instructor recommendation, students may apply for the Teacher Cadet program without meeting the 3.0 GPA requirement.

Fashion Design and Merchandising 1

This course exposes students to various aspects of the fashion design and merchandising industry. Students integrate knowledge, skills, and practices to evaluate potential career opportunities. Emphasis is placed on an introduction to fashion, fashion and textile selection, product construction and fashion merchandising.

Fashion Design and Merchandising 2

This course is for students who wish to increase their knowledge and further their skills in the fashion design and merchandising industry. Topics include fashion designers, careers, clothing selection, fibers and fabrics, and fashion illustration. Projects are planned and completed in relation to the student's individual interest and skill level.

FCS Capstone

This course allows for advanced work in any Family and Consumer Sciences Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project-based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor and the individual student.

FCS Leadership A
FCS Leadership B

Are you an advanced family and consumer sciences student wanting to cultivate essential leadership skills and establish fundamental knowledge of Family Career and Community Leaders of America (FCCLA). Students will have the opportunity to develop and enhance a personal philosophy of leadership that includes: the understanding of self, others and community, and acceptance of responsibilities inherent in community membership. Learning opportunities may include direct experiences such as: FCCLA competition preparation, community service projects, dynamic leadership portfolios, and career exploration.

Food Science 1

Food Science, Dietetics and Nutrition course will use concepts and principles that include chemistry, microbiology, and physics to study the nature of foods, the causes of deterioration, the principles underlying food processing, and the improvement of foods for the consuming public. Students will apply the food technology of food science to the selection, preservation, processing, packaging, distribution, and use of safe, nutritious, and wholesome food. Students will connect the idea that food science and food technology are often used interchangeably. This course will benefit students because it will bring concepts and principles of science and technology to real life situations that affect the entire world. Math, science, and technology are integrated into the curriculum. This course is designed around problem-based learning, and students will understand how the scientific process develops new products in any field.

- Develop and learn the process of food chemistry and food production.
- Analyze the scienceof nutrition.
- Demonstrate research and development of chemical reactions

Food Science 2

This course will expand on concepts and principles from Food Science 1 that include chemistry, microbiology, and physics to study the nature of foods, the causes of deterioration, the principles underlying food processing, and the improvement of foods for the consuming public.

Students will apply the food technology of food science to the selection, preservation, processing, packaging, distribution, and use of safe, nutritious, and wholesome food. Students will connect the idea that food science and food technology are often used interchangeably. This course will benefit students because it will bring concepts and principles of science and technology to real life situations that affect the entire world. Math, science, and technology are integrated into the curriculum. This course is designed around problem-based learning and students will understand how the scientific process is used to develop new products in any field. • Develop and learn the process of food chemistry and food production. • Analyze the science of nutrition. • Demonstrate research and development of chemical reactions

Guidance Strategies for Young Children (ECE 1103)

Explores guidance theories, applications, goals, and techniques, and factors influencing behavioral expectations of children. This course includes classroom management and pro-socialskills development of young children in early childhood (EC) program settings. This course addresses children ages birth through 8 years. This is a hybrid course, but it is NOT a self-paced course.

Industrial Design II A

Industrial design II prepares students to design systems and tangible artifacts and deepen their understanding of manufacturing and marketing processes. Students will advance development of industry-standard tools, skills, and material usage for product manufacturing and design in Industrial Design, Packaging Design, or Design Arts industry sector.

Infant and Toddler Theory and Practice (ECE1111)

This course presents an overview of theories, applications (including observations), and issues pertinent to infant and toddler development in group and/or family settings. The class will include state requirements for licensing, health, safety, and nutrition. ECE 1111 will focus on birththrough age three.

Interior Design 1 – Commercial
Interior Design 1 – Residential

The purpose of this course is to expose students to various aspects of the interior design industry and is based on the industry's professional standards (Council of Interior Design Accreditation-CIDA). The first semester focuses on residential design. Students integrate knowledge, skills, and practices to evaluate potential career opportunities. Areas of focus include; Introduction to Residential and Commercial Design; Design Drawings; Professional Practices/Education; Design Elements and Principles; and the Design Process.

Interpersonal Relationships

The purpose of the course is to acquire academic knowledge and understanding for healthy, respectful, and caring relationships across the life span. Emphasis is placed on family and friendly dynamics, effective communication, and healthy interpersonal relationships.

Introduction to Early Childhood Lab Techniques (ECE 102)

Focuses on a classroom seminar and placement in a childcare setting. Supervised placement gives the student the opportunity to observe children, practice appropriate interactions, and develop effective guidance and management techniques.Addresses ages birth through age 8.

Life Management

Students will develop decision-making skills to become educated consumers with an understanding and academic knowledge of consumer resources and financial organizations. The course focuses on personal and family resources, job and career, personal and family finances, and wellness. (Relevant topics include: independent living, healthy lifestyles, career research and job portfolios, personal financial literacy, investments, credit, insurance, leasing vs. purchasing of autos and homes.)

Lodging and Resort Management 1A
Lodging and Resort Management 1B

This course covers careers in hospitality, restaurant operations, sales, marketing, soft skills, communication, guest experience cycle and food and beverage services.

Lodging and Resort Management 2A
Lodging and Resort Management 2B

This course covers hospitality leadership skills, communication, banquets, and catered events, managing business operations, safety and security, sales, marketing, and human resources.

Nutrition and Wellness

The course's purpose is to develop lifelong, healthy individuals with an understanding and academic knowledge of wellness as a lifestyle, exercise and fitness, nutrition, and consumer products and services. Emphasis is placed on implementing healthy nutritional choices, developing a fitness/wellness plan, integrating science principles as related to nutrition, and practicing wise consumer decisions.

Para Professional Educator 1 A
Para Professional Educator 1B

Students that complete this course are eligible for a Paraprofessional Certificate and college credit. Upon completion of this training students will be prepared to enter the workforce as an educational assistant. This also provides the foundation necessary for students interested in becoming a teacher. The course provides training in instructional methods, use of technology, behavior management techniques and includes training for a CPR and First Aid Certificate.

Pathways2Teaching A

This is the first semester, pre-collegiate course for high school juniors and seniors offered through the University of Colorado Denver. As part of the course requirement, students will participate in field experience training and field experience working with young children. Depending on schedules and availability, this field experience will take place at a local elementary school during class time. This course examines the sociological issues related to urban schools, communities, and teaching and provides an overview of such topics as school culture, diversity, ethnicity, and social realities in American schools. Students will critically examine current education issues that affect their lives, their local community, and P-12 classrooms throughout the state and the country. Throughout this course we will examine achievement data (local, state, and national) by gender, race, ethnicity, English language proficiency, and program type (gifted/ talented, special education, honors, Advanced Placement, etc.) and use this analysis to generate questions, offer solutions, and engage in critical dialogue about educational inequalities and educational justice.

Pathways2Teaching B

Students that complete this course are eligible for a Paraprofessional Certificate and college credit. Upon completion of this training students will be prepared to enter the workforce as an educational assistant. This also provides the foundation necessary for students interested in becoming a teacher. The course provides training in instructional methods, use of technology, behavior management techniques and includes training for a CPR and First Aid Certificate.

ProStart Youth Apprenticeship

This program combines work-based, on-the-job training with relevant technical education in the classroom. Students who participate in this program earn college credits and industry credentials. They also start on a career path that continues after high school graduation – whether that is a continuation of their apprenticeship along with college, college only, apprenticeship only, or other full-time employment.

ProStart 1 A
ProStart 1 B

This course from the National Restaurant Association introduces students to the world of professional cooking! Basic communication skills, safety and sanitation, food preparation, meal planning, and other topics are taught in this course. FCCLA is an integral part of this course. The class will teach you basic food safety and sanitation, customer service, food preparation and employability skills. We will take exciting tours and host many great guest speakers. You will have the opportunity for a paid internship working with a professional mentor in food service, hotel lodging or hospitality.

ProStart 2A
ProStart 2B

Students will continue to be trained for employment in restaurants and hospitality. The basic skills taught in ProStart I will be reviewed and additional skills such as customer relations, accounting procedures, and more advanced food preparation skills will be taught. FCCLA

(Family, Career and Community Leaders of America) is an integral part of this course. Students will investigate career paths in lodging and work at a paid internship at a large hotel. This course will train you in food preparation techniques and hotel/motel management skills. You will take exciting field trips and hear from guest speakers inthe industry. Opportunities exist for each student to participate in a paid mentor position in food service, hotel lodging or hospitality.

ProStart Business Economics 1

This is a project-based course that develops creative, critical thinking, and transferable workplace skills by involving students in the real-life experience of starting, running and growing a business for any industry. Using a restaurant or hospitality related business as their model, students will be involved in all phases of the start-up and operations of their business, beginning with the creative side of entrepreneur thinking, organizing, promoting, through costs and financing, purchasing inventory and equipment, managing employees, and earning profits. Students will develop a business proposal for their new restaurant or hospitality related business concept. Students will prepare a written proposal, a visual display, and a verbal presentation at course completion.

ProStart Business Economics 2

This is the continuation of a project-based course that develops creative, critical thinking, and transferable workplace skills by involving students in the real-life experience of starting, running and growing a business for any industry. Using a restaurant or hospitality related business as their model, students will be involved in all phases of the start-up and operations of their business, beginning with the creative side of entrepreneur thinking, organizing, promoting, through costs and financing, purchasing inventory and equipment, managing employees, and earning profits. Students will develop a business proposal for their new restaurant or hospitality related business concept. Students will prepare a written proposal, a visual display, and a verbal presentation at course completion.

Teacher Cadet 1 A

This first semester of two semester course is designed for students who have a strong interest in, or who are considering a career related to, the occupation of "teacher" at any age or grade level. Students will complete self-assessments, participate in individual and group projects, complete observations at various ages and stages of learning, and increase their understanding of themselves and others as "learners". The culminating event in this class is 50 hours of field experience during second semester at an area school where students will plan and deliver lessons under the supervision of a cooperating teacher. This academic elective course is fast paced, and students may apply for college credit with a "B" or higher in the class.

Teacher Cadet 1 B

This is the second semester of the course and is designed for students who have a strong interest in, or who are considering a career related to, the occupation of "teacher" at any age or grade level. Students will complete self-assessments, participate in individual and group projects, complete observations at various ages and stages of learning, and increase their understanding of themselves and others as "learners". The culminating event in this class is a 6-week mini-teaching experience during second semester at an area school where students will

plan and deliver lessons under the supervision of a cooperating teacher. This course is fast paced, and students may apply for college credit with a "B" or higher in the class.

Teacher Cadet 2A

This course is designed to provide additional field experience for those students who have completed the Teacher Cadet course. For students who know they want to enter the education profession, this field experience will enhance their experience and understanding of classroom instruction and the challenges facing education today. Field time will include field contact hours working with a mentor plus seminar time at the home high school. Field experience placement will consist of two sites, a different site each semester, to provide a variety of experiences. These will be documented in a culminating portfolio.

Teacher Cadet 2B

This is the second semester of the course designed to provide additional field experience for those students who have completed the Teacher Cadet course. For students who know they want to enter the education profession, this field experience will enhance their experience and understanding of classroom instruction and the challenges facing education today. Field time will include field contact hours working with a mentor plus seminar time at the home high school. Field experience placement will consist of two sites, a different site each semester, to provide a variety of experiences. These will be documented in a culminating portfolio.

Teen Choices

In this course, you will learn how to make healthy decisions throughout your teen years. You will learn skills and practices required by individuals to develop, manage, and strengthen social, psychological, and physical wellness, interpersonal relationships, safe sexual decision making, anti-substance use practices, and understanding teens and the law.

Theatre Costume Design 1

In this advanced fashion design course students will build on their skill and understanding of fashion and design, by creating costumes for theater and arts programs. Students will research client needs and use specific information to design and fabricate costumes. This one semester course will provide students with a deeper understanding of the many facets of theater and fashion industries to assist them in making career choices.

Theatre Costume Design 2

In this advanced fashion design course, students will build on their skills and understanding of fashion and design, by creating costumes for the theatre and arts program. Students will research client needs and use specific information to design and fabricate costumes. This one semester class focuses more on the musical side of costume design and production. In addition, students will focus on creating costume pieces from scratch.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Work-Based Learning-FCS

The Work-based Learning (WBL) experience allows for the application of the Knowledge, Skills, and Abilities that are delivered through the coursework of the Program of Study (POS). Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career a nd postsecondary education.

Health Science, Criminal Justice, and Public Safety

From the western slope to the northeastern plains, Career and Technical Education programs in Colorado's high schools and Community Colleges can get you started on your way to a career in healthcare.

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HOSA- Future Health Professionals is an organization for students enrolled in health occupations education programs. Through HOSA, students develop leadership and technical skills through a program of motivation, awareness and recognition.

website: www.coloradohosa.org

Health Science Cluster

General Health Science Pathway (519999) (General)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Pathophysiology	Internship/Apprenticeship
Introduction to Health (HPR 1000)	Medical Terminology A/B (HPR 1038/1039/1040)		WBL Apprenticeship
CPR for Professionals (HPR 1011)	Ethical and Legal Issues in Health Professions (HPR 1008)		
Introduction to Health Care (HPR 1001)	Human Nutrition for Health Science (HWE 1050)		
Health Career Practices (HPR 1004)	Medical Math		
Orientation to Health Careers (HPR 1005)			

Credentials:

- Instructors with the Health Science Foundational or Health Science CTE credential are able to run all courses listed in the 519999 **general** pathway listed above.
- Concurrent enrollment options will only apply to programs with instructors that have been approved by a postsecondary partner to run those courses.

General Health Science Pathways aligned to CDIP within the 519999 CIP code

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	EKG Technician	Internship/Apprenticeship
		Phlebotomy Technician	WBL Apprenticeship
		Patient Care Technician	

Level 3 courses in this pathway can only be run by:

- Instructors with a Health Science Foundational or Health Science CTE credential **AND**
    - The Instructor must provide occupational experience related to the specific course. **OR**
    - The instructor provides proof that they have taken and passed the certification exam related to the course they wish to teach.
        - With proof of certification, the occupational experience will be waived.
        - There is no need to apply for a new CTE credential. Proof of certification will be noted in the workflow of the program approval system **and** provided to the Program Director of Health and Public Safety. The Program Director will keep a record of instructor certification for reference in the approval process. Any renewals or changes in the instructor's certification need to be submitted to the Program Director to ensure program approval can be made.
        - Instructor certifications must be current.
        - If instructor certifications expire and no renewal is made, then the level 3 courses will no longer count as part of the program.
        - If a certified instructor leaves a program the level 3 courses can no longer be run or approved until a new certified instructor is identified.

Level 3 Course integration into other Health Science Pathways:

- CDIP-aligned level 3 courses can be integrated into other Health science pathways **IF**
    - The instructor holds the correct credential to run a program outside of the 519999 pathway
    - The instructor meets the criteria listed under **"Level 3 courses in this pathway can only be run by"**

General Health Science Pathway - PLTW Biomedical Science Pathway (519999)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
PLTW: Principles of Biomedical Sciences	PLTW: Human Body Systems	PLTW: Medical Intervention	PLTW: Biomedical Innovation

NOTICE

With the inclusion of PLTW Biomedical Science Pathway into the General Health Science pathway (519999), the following is the official guidance:

1. Prior to 2022, adjustments will be made with CDE to the Secondary CTE Health Science Foundational credential to include official documentation of the PLTW training as a method to demonstrate "content knowledge".
2. *Health Science Foundational is the preferred credential for the PLTW Biomedical Science Pathway within a General Health Science Program Approval. However, the CTE STEM or the CTE Biotechnology credential is allowable in an approved PLTW Biomedical Science Pathway within the General Health Science Program Approval.
3. The PLTW Pathway within the General Health Science Program Approval must have an official affiliation with PLTW to be approved by the Colorado Community College System. This will be verified directly with PLTW in the Program Approval process.

General Health Science Pathway - NON-PLTW Biotechnology/Biomedical Science Pathway (519999)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Introduction to Biotechnology	Biomedical Innovation (BIOL 2040 UCCS)
	Ethical and Legal Issues in Health Professions	Medical Interventions (BIOL 1013 UCCS)	Biotechnology Research Methods
		Medical Forensics	Internship
		General College Biology with Lab (BIO 1111)	Capstone
			WBL Apprenticeship

NOTICE

- *Health Science Foundational is the preferred credential for the NON-PLTW Biotechnology/Biomedical Science Pathway within a General Health Science Program Approval. The CTE Biotechnology and CTE Health Science credential is also allowable in the General Health Science NON-PLTW Biotechnology/Biomedical Science Pathway Program Approval. Instructors with the CTE Biotechnology credential will be limited to this specific pathway.
- The courses General College Biology with Lab (BIO 111) can only be run in this specific pathway and no other Health Science pathway or CIP.

Behavioral Health (511599)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Intro to Behavioral Health Care and Wellness (PTE 1010)	Applications of Behavioral Health Care & Wellness (PTE 1020)
	Ethical and Legal Issues in Health Professions (HPR 1008)	Theoretical Concepts of Psychiatric Care II (PTE 1017)	Addiction Counseling Skills (CLS 2068)
	Medical Terminology A/B (HPR 1308/1039/1040)	General Psychology I (PSY 1001)	WBL Apprenticeship
		General Psychology II (PSY 1002)	

Credentials: Secondary CTE Health Science or Foundational for level 1&2 and CTE Specialist for level 3&4

- If a facility finds it beneficial to utilize its internal staff to run a behavioral health pathway, the Secondary CTE Specialist credential would be an ideal opportunity
- CTE Specialist cannot run a program on their own and would need to collaborate with a Health Science CTE instructor to run a program
- Concurrent Enrolment at PCC can be achieved by secondary CTE instructors if
    - Secondary CTE instructors take the desired concurrent enrollment course, they would like to teach, at Pueblo Community College. The instructor needs to pass that course (s) with a grade of B or better. Then the secondary instructor can qualify to offer that same course as concurrent enrollment in their secondary Health Science program. This policy will only apply for the following course:
        - HPR 106
        - HPR 178
        - BIO 106 (This course has additional requirements to be offered as CE. The biology department chair requires that the instructor hold a minimum of a bachelor's degree in the related field. The related bachelor's degree must include 18 credit hours of Biology coursework.)
    - Secondary CTE instructors that wish to offer concurrent enrollment for courses specific to the behavioral health pathway (PTE 110, PTE 117, and PTE 120) must have the following.
        - A bachelor's degree or higher in the field of behavioral health, addictions counseling, counseling… **AND**
        - 4,000 hours of verified occupational experience in the content area.
- General Psychology I/II can only be run in the **Behavioral Health Technician, Addictions Counselor Pathway (511599)** pathway and cannot be added to any other health science pathway.
- General Psychology I/II can only be part of a program that includes Behavioral Health specific courses, and they cannot represent behavioral health courses on their own.
- General Psychology I/II can only be run in the **Behavioral Health Technician, Addictions Counselor Pathway (511599)** pathway if it is concurrent enrolment.

Pharmacy Technician Pathway (510805)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Pharmacy Technician (A/B)	Pharmacy Clinical/Community (PHT 1071)
	Ethical and Legal Issues in Health Professions (HPR 1008)	Introduction to Pharmacy (PHT 1011)	Drug Classification (PHT 1017)
	Medical Terminology A/B (HPR 1038/1039/1040)	Pharmacy Law & Ethics (PHT 1012)	Pharmacy Calculations/ Compounding Techniques (PHT 1035)
	Human Nutrition for Health Science (HWE 1050)	Pharmacology I (PHT 1015)	WBL Apprenticeship
	Medical Math	Institutional Pharmacy (PHT 1040)	
		Pharmacology II (PHT 1016)	
		Community Pharmacy (PHT 1041)	
		Medical Insurance Procedures (PHT 1020)	

Credentials: Secondary CTE Health Science

Pharmacy Technician (A/B) can only be run by:

- Instructors with a Health Science Foundational or Health Science CTE credential **AND**
  - The instructor must provide occupational experience related to the specific course. **OR**
  - The instructor provides proof that they have taken and passed the certification exam related to the course they wish to teach.
    - With proof of certification, the occupational experience will be waived.
    - There is no need to apply for a new CTE credential. Proof of certification will be added to the program approval and provided to the Program Director of Health and Public Safety. The Program Director will keep a record of instructor certification for reference in the approval process. Any renewals or changes in the instructor's certification need to be submitted to the Program Director to ensure program approval can be made.
    - Instructor certifications must be current.
    - If instructor certifications expire and no renewal is made then the level 3 courses will no longer count as part of the program.
    - If a certified instructor leaves a program the level 3 courses can no longer be run or approved until a newly certified instructor is identified

EMT & Emergency Pathway (510904)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Emergency Medical Technician (A/B)	EMT Clinical (EMS 1070)
CPR for Professionals (HPR 1011)	Medical Terminology A/B (HPR 1038/1039/1040)	Emergency Medical Responder (A/B) (EMS 1015)	WBL Apprenticeship
Introduction to Fire Science & Emergency Services (A/B)	Ethical and Legal Issues in Health Professions (HPR 1008)	Emergency Medical Services for Dispatch (A/B)	
EMT Fundamentals (EMS 1021)	Human Nutrition for Health Science (HWE 1050)	Wilderness First Responder (OUT 2044)	
	Medical Math	EMT Medical Emergencies (EMS 1022)	

Credentials: Secondary CTE Health Science

Medical/Clinical Assistant Pathway (510801)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Introduction to Medical Assisting (A/B)	Basic Medical Science III (MOT 1027)
CPR for Professionals (HPR 1011)	Medical Terminology A/B (HPR 1038/1039/1040)	Certified Clinical Medical Assistant (CCMA)	Medical Assisting Clinical Skills (MAP 2040)
	Ethical and Legal Issues in Health Professions (HPR 1008)	Certified Medical Assistant (CMA)	Pharmacology for Medical Assisting (MAP 1050)
	Human Nutrition for Health Science (HWE 1050)	Medical Office Administration (MAP 1010)	Medical Assisting Internship (MAP 1083)
	Medical Math	Mental Health First Aide (HWE 1003)	Review for Medical Assisting National Exam (MOT 1068)
		Basic Medical Science I (MOT 1025)	Medical Assisting Capstone (MOT 2089)
		Insurance Billing & Coding (MOT 1040)	WBL Apprenticeship
		Basic Medical Science II (MOT 1026)	
		Introduction to Clinical Skills (MOT 1036)	
		Medical Assisting Lab Skills (MAP 2038)	
		Pathophysiology	

Credentials: Secondary CTE Health Science

Certified Clinical Medical Assistant (CCMA)

- Instructors with a Health Science Foundational or Health Science CTE credential **AND**
  - The Instructor must provide occupational experience related to the specific course. **OR**
  - The instructor provides proof that they have taken and passed the certification exam related to the course they wish to teach.
    - With proof of certification, the occupational experience will be waived.
    - There is no need to apply for a new CTE credential. Proof of certification will be added to the program approval and provided to the Program Director of Health and Public Safety. The Program Director will keep a record of instructor certification for reference in the approval process. Any renewals or changes in the instructor's certification need to be submitted to the Program Director to ensure program approval can be made.
    - Instructor certifications must be current.
    - If instructor certifications expire and no renewal is made, then the level 3 courses will no longer count as part of the program.
    - If a certified instructor leaves a program the level 3 courses can no longer be run or approved until a newly certified instructor is identified

Nurse Assistant/Aide Pathway (513902)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Certified Nurse Aide (A/B)	Nurse Aide Clinical Experience (NUA 1070)
CPR for Professionals (HPR 1011)	Medical Terminology A/B (HPR 1038/1039/1040)	Nurse Aide Health Care Skills (NUA 1001)	WBL Apprenticeship
	Ethical and Legal Issues in Health Professions (HPR 1008)		
	Human Nutrition for Health Science (HWE 1050)		
	Medical Math		

Credentials: Secondary CTE Health Science

Athletic Training/Sports Medicine Pathway (510913)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Personal Trainer	Exercise & Health Science Capstone (A/B)
CPR for Professionals (HPR 1011)	Medical Terminology A/B (HPR 1038/1039/1040)	Sports Medicine (A/B)	Sports Medicine Capstone (A/B)
	Ethical and Legal Issues in Health Professions (HPR 1008)	Fitness & Wellness (HWE 1004)	WBL Apprenticeship
	Human Nutrition for Health Science (HWE 1050)	Exercise & Health Science	
	Medical Math		

Credentials: Secondary CTE Health Science

Personal Trainer Pathway (510913)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Personal Trainer	Personal Trainer Capstone (A/B)
CPR for Professionals (HPR 1011)	Medical Terminology A/B (HPR 1038/1039/1040)	Fitness & Wellness (HWE 1004)	WBL Apprenticeship
	Ethical and Legal Issues in Health Professions (HPR 1008)	Exercise & Health Science	
	Human Nutrition for Health Science (HWE 1050)		

Credentials: Secondary CTE Personal Trainer or Secondary CTE Health Science

Occupational Therapy/Physical Therapy (OT/PT) Assisting/Aide Pathway (510899)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006/2101)	Introduction to OT/PT (A/B)	WBL Apprenticeship
CPR for Professionals (HPR 1011)	Medical Terminology A/B (HPR 1038/1039/1040)	Introduction to Occupational Therapy	
	Ethical and Legal Issues in Health Professions (HPR 1008)	Introduction to Physical Therapy	
	Human Nutrition for Health Science (HWE 1050)	Principles of Physical Therapy (PTA 1015)	
	Medical Math	Introduction to Occupational Therapy (OTA 1000)	

Credentials: Secondary CTE Health Science

Dental Assistant Pathway (510601)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Health Science (A/B)	Anatomy and Physiology A/B (BIO 1006)	Introduction to Dental Assisting (A/B)	Advanced Dental Radiography (DEA 1034)
CPR for Professionals (HPR 1011)	Medical Terminology A/B (HPR 1038/1039/1040)	Principles of Clinical Practice (DEA 1021)	Medical Emergencies (DEA 1016)
	Ethical and Legal Issues in Health Professions (HPR 1008)	Specialties in Dentistry (DEA 1022)	Prevention & Nutrition in Dentistry (DEA 1031)
	Human Nutrition for Health Science (HWE 1050)	Dental Office Management (DEA 1035)	Clinical Internship (DEA 1080)
	Medical Math	Introduction to Dental Practices (DEA 1011)	Clinical Internship I (DEA 1081)
		Dental Science I (DEA 1012)	Clinical Internship II and Seminar (DEA 1082)
		Dental Science II (DEA 1013)	WBL Apprenticeship
		Dental Materials I (DEA 1023)	
		Dental Materials II (DEA 1033)	
		Infection Control (DEA 1016)	
		Dental Science III (DEA 1014)	

Credentials: Secondary CTE Health Science

Health Science Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Addiction Counseling Skills (CSL 2068)

This class will provide a framework and counseling model for working with clients with substance abuse or dependence. This course will teach the counseling skills needed to help clients process their information and move toward the change process. The models utilized in this class are client-centered, counselor-directed therapy using a motivational style and spirit.

Advance Dental Radiography (DEA 1034)

Includes theory and techniques of exposing intra-oral and extra-oral radiographs on adults, children, edentulous, and special needs patients. Covers dental anatomy radiographic interpretation and aseptic techniques. Enables the student to expose radiographs on the x-ray mannequin and patients. Students must be a minimum of eighteen years of age.

Advanced Medical Terminology (HPR 1039)

Demonstrates knowledge of medical terminology with emphasis on combining complex prefixes, roots and suffixes. Course includes pathophysiology for major body systems. Course includes terms related to diagnostic tools per body systems, as well as commonly used medical abbreviations. Course applies medical terminology knowledge in interpreting the medical record.

Anatomy and Physiology (A/B)

This course provides a deeper exploration of the human body and biological systems in great detail. Students expand their knowledge of the body and terminology/phonetic pronunciations used to describe and locate body parts as well as an overall review of human development and body processes.

Anatomy & Physiology (BIO 2101)

Focuses on an integrated study of the human body including the histology, anatomy, and physiology of each system. Examines molecular, cellular, and tissue levels of organization plus integuments, skeletal, articulations, muscular, and nervous systems. Includes a mandatory hands-on laboratory experience covering microscopy, observations, and dissection.

Application of Behavioral Health Care & Wellness (PTE 1020)

Explores basic etiology, symptoms, and interventions for common behavioral and mental health disorders. Provides the opportunity for students to experience the milieu of a behavioral health care setting while providing basic care to clients experiencing common behavioral and mental health issues.

Apprenticeship

Work Based Learning is essential to conceptualize, comprehend and apply employability skills. The opportunity for students to participate in industry field trips, industry events, internships

job shadowing, mentoring and other activities assures students 21st century real-world skills.

Basic Anatomy and Physiology (BIO 1006)

Focuses on an integrated study of the human body including the histology, anatomy, and physiology of each system. Examines molecular, cellular, and tissue levels of organization plus integuments, skeletal, articulations, muscular, and nervous systems. Includes a mandatory hands-on laboratory experience covering microscopy, observations, and dissection.

Basic Medical Science I (MOT 1025)

Introduces the anatomy and physiology, pathophysiology and drug therapy of the immune, musculoskeletal, and digestive systems. A discussion of pediatric implications as they relate to clinical physiology will also be covered. The scope of the material is limited for the medical office technology personnel.

Basic Medical Science II (MOT 1026)

Introduces the anatomy and physiology, pathophysiology and drug therapy of the cardiovascular, respiratory, dermatology and senses systems. the scope of material is limited for the medical office technology personnel.

Basic Medical Science III (MOT 1027)

Teaches the anatomy and physiology, pathophysiology and drug therapy of the Renal, Reproductive, Neurological, and Endocrine systems. Students may take MOT125, MOT 133 and MOT 135 in any order, but all three courses must be completed to meet the basic medical sciences requirement.

Behavioral Health Technician A

Explores basic principles of behavioral health and wellness care in a behavioral healthcare setting. This course develops interpersonal and technical skills while working with clients in psychiatric care settings.

Behavioral Health Technician B

Explores basic etiology, symptoms, and interventions for common behavioral and mental health disorders. Provides the opportunity for students to experience the environment of a behavioral healthcare setting while providing basic care to clients experiencing common behavioral and mental health issues.

Biomedical Capstone

This course allows for advanced work in any ag Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Biomedical Innovation (BIOL 2040 UCCS)

Students build on the knowledge and skills gained from the three previous PLTW courses to design innovative solutions for pressing health challenges of the 21st century.

Biotech/Biomed Work Based Learning Experience
Biotech/Biomed Work Based Learning Internship

Students build on prior knowledge and skills in the program of study to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education.

Biotechnology Research Methods

This semester course builds upon Introduction to Biotechnology A & B. students participate in a deeper exploration of the research methods used in the laboratory including sterile technique, microscopy, media preparation and bacterial culturing.

Certified EKG Technician (CET)

The Certified EKG Technician (CET) course provides preparation for the National Healthcareer Association (NHA) CET certification exam. The course also instills the knowledge and standards needed for excellence in EKG technician practice. The NHA CET certification is an approved certification found on the Career Development Incentive Program (CDIP) approved programs list.

Certified Clinical Medical Assistant (CCMA)

Certified Clinical Medical Assistant (CCMA) course provides preparation for the National Healthcareer Association (NHA) CCMA certification exam. The course also instills the knowledge and standards needed for excellence in Clinical Medical Assistant practice. The NHA CCMA certification is an approved certification found on the Career Development Incentive Program (CDIP) approved programs list.

Certified Medical Assistant (CMA)

Certified Medical Assistant (CMA) course provides preparation for the American Association of Medical Assistants (AAMA) CMA certification exam. The course also instills the knowledge and standards needed for excellence in Certified Medical Assistant practice. The AAMA CMA certification is an approved certification found on the Career Development Incentive Program (CDIP) approved programs list.

Clinical Internship (DEA 1080)

Includes the opportunity for clinical application of dental assisting techniques in a dental office or clinical setting as part of the American Dental Association¿s requirement of 300 clinical internship hours.

Clinical Internship I (DEA 1081)

Provides an opportunity to perform clinical dental assisting skills in a dental office or clinical setting and work toward completing clinical hours required by the Commission on Dental Accreditation (CODA).

Clinical Internship II & Seminar (DEA 1082)

Provides an opportunity to perform and advance clinical dental assisting skills in a general dental office, specialty office or clinical setting and work toward completing clinical hours required by the Commission on Dental Accreditation (CODA).

Community Pharmacy (PHT 1041)

Provides a basic understanding of both general and specific tasks and responsibilities involved in the practice of pharmacy in a community setting. Emphasizes chain and independent community pharmacy practices and other related practice settings (such as consultant pharmacy, mail order pharmacy and nuclear pharmacy). Enables the student to obtain hands on experience in the important technical duties of dispensing and compounding. Utilizes a lecture-informal discussion format combined with a series of practice skills laboratory sessions.

CPR for Professionals (HPR 1011)

Meets the requirements for American Red Cross Professional Rescuer CPR or American Heart Association Basic Life Support for those who work in Emergency Services, Health Care and other professional areas. Material presented in this course is basic patient assessment, basic airway management, rescue breathing, AED use and CPR for infant, children and adult patients.

Dental Materials I (DEA 1023)

Includes fundamentals of dental materials as they apply to clinical and laboratory applications of cements, bases, liners, dental metals, resins, glass ionomers, ceramics and dental abrasives.

Dental Materials II (DEA 1033)

Includes fundamentals of dental materials as they apply to clinical and laboratory applications of hydrocolloid and elastomeric impressions materials, gypsum products, dental waxes, study and final working models, and fabrication of provisional crowns, custom impression trays and bleaching trays.

Dental Office Management (DEA 1035)

Includes office management and clerical practices, scheduling appointments, completing daily records, insurance and tax forms, bookkeeping and recall systems, and ordering supplies.

Dental Science I (DEA 1012)

Includes fundamentals of the oral structures as they apply oral histology, embryology, morphology, pathology, dental anatomy, and dental charting.

Dental Science II (DEA 1013)

Includes survey of human anatomy and physiology, the structure of the head and neck as applied to dental assisting, the function of the maxilla and mandible, processes, foramen, sutures, and major nerve and blood supply.

Dental Science III (DEA 1014)

Includes in depth study of oral pathology and the effects on the human body with recognition and identification of pathological conditions. Emphasizes pharmacology, anesthesia and pain control within the foundation of clinical dentistry. Focuses on the procedures involved with local anesthesia and sedation, with emphasis on the knowledge and application of nitrous oxide administration in the dental office. Students will be eligible to sit for a certificate in Nitrous Oxide/Oxygen Administration after successful completion of the course.

Drug Classification (PHT 1017)

Emphasizes the drug classes, such as over-the-counter vs. prescription drugs, scheduled drugs, and the laws pertaining to each. Includes the drug development process, the different pregnancy classifications and the degree of potential harm for each class, and the commonly used drugs that can be addictive, abused and potentially lethal. Examines dosage forms, routes of administration, selection and recommendation of OTC drugs and natural products, and memorize trade and generic names.

Emergency Medical Responder (EMS 1015)

Provides the student with core knowledge and skills to function in the capacity of a first responder arriving at the scene of an emergency, providing supportive care until advanced EMS help arrives.

Emergency Medical Response A/B

This two-semester Emergency Medical Services course will place a special emphasis on the knowledge and skills needed in medical emergencies. Topics include clearing airway obstructions, controlling bleeding, bandaging, methods for lifting and transporting injured persons, simple spinal immobilization, infection-control, stabilizing fractures, and responding to cardiac arrest. The course will also cover legal and ethical responsibilities involved in dealing with medical emergencies, anatomy and physiology, pathophysiology, medical terminology and medical math.

Emergency Medical Services for Dispatch A/B

Dispatchers provide a critical role in the delivery of emergency police, fire and medical services. In the first semester of this two-semester course, students will develop knowledge and skills needed to sit for national certifications and to apply for employment as a 911 dispatcher. Course content may include, but is not limited to, understanding standard federal, state, and local telecommunication operating procedures; functions, terminology, and types of telecommunication equipment; proper and correct telephone and dispatching procedures and techniques; emergency situations and operating procedures; basic elements of the criminal justice system, typing skills, documentation, post-secondary workforce readiness skills.

Emergency Medical Technician A/B

Introduces the Emergency Medical Technician (EMT) student to prehospital emergency care. The topics included in this course are Emergency Medical Services (EMS) systems, well-being of the EMT, communications, documentation, anatomy, airway management, and patient assessment. Provides the Emergency Medical Technician (EMT) student with the knowledge and skills to

effectively provide emergency care and transportation to a patient experiencing a medical emergency. This course focuses on the integration of the physical exam, medical history, and pathophysiology when assessing and treating the medical patient.

EMT Clinical (EMS 1070)

Provides the EMT student with the clinical experience required for initial certification and some renewal processes.

EMT Fundamentals (EMS 1021)

Introduces the Emergency Medical Technician (EMT) student to prehospital emergency care. The topics included in this course are Emergency Medical Services (EMS) systems, well-being of the EMT, communications, documentation, anatomy, airway management, and patient assessment.

EMT Medical Emergencies (EMS 1022)

Provides the Emergency Medical Technician (EMT) student with the knowledge and skills to effectively provide emergency care and transportation to a patient experiencing a medical emergency. This course focuses on the integration of the physical exam, medical history, and pathophysiology when assessing and treating the medical patient.

Ethical and Legal Issues in Health Professions (HPR 1008)

Introduces student to the study and application medico-legal concepts in medical careers. This course seeks to establish a foundation for ethical behavior and decision making in health professions.

Exercise & Health Science

In this two-semester class, students will study the different modalities of exercise and key concepts of exercise physiology. This will include and introduction to weight training techniques and will participate in daily physical workouts using a variety of equipment

Exercise & Health Science Capstone

This course allows for advanced work in any Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Experimental Design A

In this two-semester course, Students will conceive of, design, and complete projects using scientific inquiry and experimentation methodologies. Emphasis will be placed on safety issues, research protocols, controlling or manipulating variables, data analysis, and a coherent display of the projects and their outcomes.

Experimental Design B

In the second semester of this two-semester course, Students will continue to conceive of, design, and complete projects using scientific inquiry and experimentation methodologies. Emphasis will be placed on safety issues, research protocols, controlling or manipulating variables, data analysis, and a coherent display of the projects and their outcomes.

General College Biology with Lab (BIO 1111)

Examines the fundamental molecular, cellular and genetic principles characterizing plants and animals. Includes cell structure and function, and the metabolic processes of respiration, and photosynthesis, as well as cell reproduction and basic concepts of heredity. The course includes laboratory experience. This is a statewide Guaranteed Transfer course in the GT-SC1 category.

Health Career Practices (HPR 1004)

Introduces the concepts and skills needed for a career in health care incorporating foundational theory with technical skills. The course focuses on health occupations, health settings, careers, and principles of patient care; concepts of ethics and bioethics; safety practices including infection control, personal and environmental safety, and emergency procedures and protocols; common and emerging diseases and disorders. The course consists of fundamental skills of basic care and reviews, medical math, cardiopulmonary resuscitation (CPR), and first aid.

Human Nutrition (HWE 1050)

Introduces basic principles of nutrition with emphasis on personal nutrition. This course focuses on macro and micro nutrients and their effects on the functions of the human body. Special emphasis is placed on the application of wellness, disease, and lifespan as it pertains to nutrition.

Human Nutrition for Health Science

This course introduces basic principles of nutrition with emphasis on personal nutrition and satisfies nutrition requirements of students entering health career professions. This course is designed to provide the student with an understanding of fundamental concepts of human nutrition including digestion, absorption, metabolism and function of nutrients as they relate to the improvement and maintenance of human health and the recovery from and avoidance of disease throughout the lifespan.

Infection Control (DEA 1016)

Includes basic information concerning infection and disease transmission in the dental office. Emphasizes knowledge of microorganisms, with an emphasis on aseptic techniques, sterilization, and hazardous communication management.

Internship

Provides students with the opportunity to supplement coursework with practical work experience related to their educational program. Students work under the immediate supervision of experienced personnel at the business location and with the direct guidance of the instructor.

Intro to Behavioral Health Care and Wellness (PTE 1010)

Explores basic principles of behavioral health and wellness care in behavioral health settings. This course develops interpersonal and technical skills while working with clients in psychiatric care settings.

Introduction to Biotechnology (BIO 1160)

Introduces the student to modern molecular biology technologies that include DNA, RNA, and proteins and prepares them for research and industry. Laboratory experience includes sterile technique, microscopy, media preparation, and bacterial culturing.

Introduction to Biotechnology

This two-semester course introduces students to modern molecular biotechnology concepts and lab techniques. Students gain hands-on authentic lab experience as they learn advanced molecular biology topics including DNA structure and replication, protein synthesis, protein structure and function, and gene expression, regulation and silencing. Other topics covered include genetic engineering and bacterial transformation, medical biotechnology, environmental biotechnology, bioinformatics and DNA sequencing, and biotechnology business. Lab experiences may include following safety procedures in a biological laboratory, sterile techniques, documentation of work in a legal lab notebook, PCR, gel electrophoresis, bacterial transformation and genetic engineering, protein purification, DNA sequencing and bioinformatics and gene silencing. Students will learn to work with important model organisms such as Drosophila, C. elegans, bacteria, yeast, and/or Zebrafish embryos. They also will develop important communication and writing skills related to working in a biological sciences field.

Introduction to Clinical Skills (MOT 1036)

Provides hands on experience with the basic clinical skills required for assisting with patient care in an ambulatory setting.

Introduction to Dental Assisting A

This class gives the student a basic understanding of the history of dentistry, dental team members' jobs, careers, infection control, the anatomy of the head, anatomy of the oral cavity, histology of the teeth structures, gum structures, oral hygiene, polishing, tooth decay, tooth names, numbers and positioning, impressions, whitening trays, communication skills, ethics, and laws.

Introduction to Dental Assisting B

Dental Assisting II is designed to instruct students in the treatment rooms and laboratory on all aspects of the dental assistant's duties on the job including: instrument names and passing of them, mixing and passing materials, suctioning, charting, and digital imaging. The course fulfills the radiology and infection control requirements of the Colorado State Dental Practice Act for certification.

Introduction to Dental Practices (DEA 1011)

Includes roles and responsibilities of the dental health team; educational background for the various specialties including general practitioner, hygienist, dental assistant; history, legal implications, ethical responsibilities and the role of professional organizations.

Introduction to Fire Science & Emergency Services

This two-semester introductory Public Safety course provides an overview of the challenging environments and occupations within Fire Science and Emergency Response. This course includes exploration of: fire science and emergency medical environments, organization and function of public and private fire protection services, prehospital emergency care, and emergency medical systems. Students will learn how to provide supportive care until advanced EMS arrives including preparation for basic life support and CPR certification.

Introduction to Health (HPR 1000)

Provides and exploratory course for students interested in a health career. Basic Skills Such as vital signs, CPR and BLS are included.

Introduction to Health Care (HPR 1001)

Introduces health sciences with an overview of the five pathways that make up the health science cluster. The course addresses the foundation standards including health maintenance, employability skills, teamwork, healthcare systems, communications, and legal issues in healthcare.

Introduction to Health Science

This two-semester introductory Health Science course provides an overview of the challenging environments and occupation is the healthcare field. This course introduces students to the five pathways that make up the health science cluster (Diagnostic, Therapeutic, and Support Services, Health Informatics, Biotechnology Research and Development). In addition, students are provided a hands-on application of the foundational skills/ knowledge including health maintenance, employability skills, teamwork, healthcare systems, communications, and legal issues in healthcare. This course includes preparation for Basic Life Support for Healthcare Providers certification.

Introduction to Medical Assisting A

This is the first semester of a one year program. Students will develop knowledge and skills that combine the medical and clerical fields. Students will learn skills such as patient exam preparation, assessment of vital signs, routine lab procedures, medical transcription, financial accounting, patient and insurance company billing, and record-keeping.

Introduction to Medical Assisting B

This is the second semester of a one year program. Students will continue to develop knowledge and practice skills that combine the medical and clerical fields. Students will learn skills such as patient exam preparation, assessment of vital signs, routine lab procedures, medical transcription, financial accounting, patient and insurance company billing, and record-keeping.

Students will learn Medical Terminology, knowledge of blood borne pathogens/OSHA regulations, medical asepsis, procedural glving, pateing gowning, positions measurement of vital signs and rooming of patients

Introduction to Medical Terminology (HPR 1038)

Introduces the student to the structure of medical terms with emphasis on using and combining the most common prefixes, roots and suffixes. Includes terms related to major body systems, oncology, psychiatry, as well as clinical laboratory and diagnostic procedures and imaging. Class structure provides accepted pronunciation of terms and relative use in the healthcare setting.

Introduction to Pharmacy (PHT 1011)

Introduces the practice of pharmacy and the work that pharmacy technicians perform. The course provides an overview of careers within the field; educational, certification and accreditation requirements; ethical and legal responsibilities; pharmacology; as well as a variety of issues that touch on attitudes, values and beliefs of successful pharmacy technicians

Introduction to Occupational Therapy
Introduction to Occupational Therapy (OTA 1000)

Explores career options in Occupational Therapy through discussion, observation and participation. Identifies the need for areas of occupation and the differences between health, illness, and wellness. Describes the history and philosophy of Occupational Therapy, and the roles, responsibilities and relationships between other health care professionals. Discusses ethical and legal implications of health care, and explore basic sociological issues.

Introduction to OT/PT

Physical and occupational therapists help people who are injured, ill, or disabled regain skills needed for the activities of daily life. Physical and Occupational Therapy Assistants set up treatment plans and work under the Physical or Occupational Therapist. Students will learn how to prepare materials and treatment rooms, assemble equipment, follow HIPAA guidelines, communicate in the workplace, and perform clerical tasks necessary for physical and occupational therapy aides.

Institutional Pharmacy (PHT 1040)

Explores the role of pharmacy technicians and the practice of pharmacy in the institutional setting. This course covers institutional and pharmacy organization, terminology, medication distribution systems, packaging and preparation of intravenous admixtures. This course includes a hands-on simulation component in preparation for institutional practice.

Insurance Billing & Coding (MOT 1040)

Introduces outpatient coding services performed (CPT codes) Current Procedural Terminology correlating the diagnosis or signs & symptoms (ICD codes) International Classification of Diseases, establishing medical necessity required for third-party reimbursement.

Law and Ethics for Health Professions

This one-semester course is an introduction to the concepts of medical law and ethics for health professions. Topics including criminal and civil acts, contracts, negligence, and ethical concepts as they relate to the medical profession, as well as management care, HIPAA, and other healthcare legislative rulings.

Medical Assisting Capstone (MOT 2089)

Emphasizes a synthesis of the information and skills that students learned throughout their medical office technology classes.

Medical Assisting Clinical Skills (MAP 2040)

Provides hands on experience with clinical skills required in medical offices. Delivers theory and skills presentations allowing for students to properly demonstrate techniques for a variety of medical needs.

Medical Assisting Internship (MAP 1083)

Provides supervised placement in contracted facility for guided experience in application of knowledge and skill acquired in the classroom. The student assists with a variety of business and clinical procedures. Positions are non-paid. Student must have permission by program coordinator to begin internship.

Medical Assisting Lab Skills (MAP 2038)

Introduces the student to basic routine laboratory skills and techniques for collection, handling, andexamination of laboratory specimens often encountered in the ambulatory care setting.

Medical Emergencies (DEA 1016)

Includes techniques for taking and reading vital signs. Emphasizes recognition, prevention, and management of medical emergency situations in the dental office. Covers completing and updating patient health history. Addresses pharmacology.

Medical Forensics

This two-semester course is designed to create an awareness of the branch of health science relating to medical forensics. This course focuses on introductory skills and assessment in order to develop the ability to identify, analyze, and process logically using deductive reasoning and problem solving. Medical forensics involves many aspects of health science instruction including laboratory skills and safety, microscopy, toxicology, measurement, physical evidence identification, pathology, anthropology, entomology, psychology, blood spatter analysis, and career exploration.

Medical Insurance Procedures (PHT 1020)

Provides a basic introduction to pharmacy reimbursement services. Defines and presents the processes involved in reimbursement for pharmacy products and services. Examines the health care insurance industry along with an overview of the three core functions of pharmacy reimbursement services - patient admission, verification of insurance, and billing procedures.

Integrates an actual pharmacy operation application and allow students hands-on technical experience.

Medical Interventions (BIOL 1013 UCCS)

Students examine the interactions of human body systems as they explore identity, power, movement, protection, and homeostasis. Exploring science in action, students build organs and tissues on a skeletal Maniken®; use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration; and take on the roles of biomedical professionals to solve real-world medical cases.

Medical Math

Students will develop competency in basic math skills related to healthcare (averages, ratios and proportions, fractions, decimals, and percentages). They will learn systems of measurements, the use of formulas, dimensional analysis, direct and inverse variation, solutions, and dosage calculations. They will convert units of height, weight, and temperature, demonstrate the uses of 24-hour clock time and analyze diagrams, charts, graphs, and tables used to interpret healthcare results.

Mental Health First Aid (HWE 1003)

Covers common mental disorders and mental health crises. This course trains first responders to take basic action steps to address mental health issues. This course is not intended to train students as mental health professionals.

Medical Terminology

Medical Terminology is a one semester course which gives students in-depth instruction in recognizing and forming medical terms related to the body's organ systems. Students will learn medical root words, prefixes, and suffixes and apply them to the body systems, as well as understand different diseases, conditions, diagnostic, and treatment procedures for each system.

Nurse Aid Clinical Experience I (NUA 1070)

Applies knowledge and skill gained in NUA 101 to patient care

Nurse Aid Healthcare Skills (NUA 1001)

Prepares the student to perform the fundamental skills of the nurse aide. Basic nursing skills, communication skills, restorative services, personal care skills, safety and emergency care issues are covered. Includes knowledge and/or principles of asepsis, OSHA and HIPAA regulations. Ethical behaviors, cultural sensitivity and principles of mental health will be addressed, as well as patient/resident rights.

Nursing Assistant

This course will be taken over 4 quarters and prepares students for Nursing Assistant certification. For students with a foundation in health science theory and skills, Nursing Assistant equips them to become capable employees with multiple proficiencies. Content areas are

aligned with National Healthcare Foundation Standards and Accountability Criteria. Content includes: The Health Assistant, Rehabilitation and Restorative Care, Body Mechanics, The Surgical Patients, Admissions, Transfers, Discharges, Specimen Collection and Testing, Special Populations, Patient Comfort, Electrocardiography, and Nutrition and Elimination

Orientation to Health Careers (HPR 1005)

Compares various health careers, health ethics, and work trait attributes required in the health field. Students will be introduced to leadership skills through theory and participation in community awareness projects. The students will have the opportunity to participate in the student organization HOSA (Health Occupations Students of America).

Pathophysiology

In Pathophysiology, students will develop a deep understanding of normally observed body system functioning that maintains homeostasis. Students will then study abnormal functioning of the body that disturbs its normal physiological processes through the integration of biology, chemistry, and medicine. Using critical thinking and scientific problem-solving skills students will perform investigations to describe and identify imbalances/abnormalities due to diseases or pathology.

Patient Care Technician Certification (CPCT/A)

The Patient Care Technician Certification (CPCT/A) course provides preparation for the National Healthcareer Association (NHA) CPCT/A certification exam. The course also instills the knowledge and standards needed for excellence in Patient Care Technician practice. The NHA CPCT/A certification is an approved certification found on the Career Development Incentive Program (CDIP) approved programs list.

Personal Trainer (CPT)

The Certified Personal Trainer (CPT) course prepares students for the NCCA-Accredited CPT exam. The course also instills the knowledge and standards needed for excellence in Certified Personal Trainer practice. The NCCA-Accredited CPT exam is an approved certification found on the Career Development Incentive Program (CDIP) approved programs list.

Pharmacology I (PHT 1015)

Presents the fundamentals of pharmacology, the pharmacokinetic phases, and the basic concepts of normal body function. this course examines diseases which impact the various body systems and the drugs used to treat such diseases, emphasizing disease state management and drug therapy.

Pharmacology II (PHT 1016)

Examines the disease states which impact the various body systems and the drugs used to treat such diseases. This course emphasizes disease state management and drug therapy. Serves as the second part of the two-part presentation of the basic concepts of pharmacology.

Pharmacy Calculations/Compounding Techniques (PHT 1035)

Develops the skills necessary to perform calculations essential to the duties of pharmacy technicians in a variety of contemporary settings. This course also applies these skills in hands-on compounding of pharmaceutical products emphasizing the importance of accuracy, quality and infection control.

Pharmacy Clinical/Community (PHT 1071)

Provides the students with hands on experience in a community pharmacy setting. Students must be supervised by a licensed pharmacist or qualified designee, and are expected to participate in activities delineated in the Clinical Site Manual, such as dispensing, inventory handling and control, drug distribution, processing of third-party claims, and communication with patients. The preceptor, student, and instructor complete evaluations at the completion of the rotation.

Pharmacy Technician Certification (ExCPT)

Pharmacy Technician Certification (ExCPT) course provides preparation for the National Healthcareer Association (NHA) ExCPT certification exam. The course also instills the knowledge and standards needed for excellence in Pharmacy Technician practice. The NHA ExCPT certification is an approved certification found on the Career Development Incentive Program (CDIP) approved programs list

Pharmacology for Medical Assisting (MAP 1050)

Provides an overview of pharmacology language, abbreviations, systems of measurement and conversions. The Controlled Substances Act, prescriptions, forms of medications, patient care applications, drug classifications/interactions, and safety in drug therapy and patient care are presented. Information regarding the measurement of medications, dosage calculations, routes of administration, and commonly prescribed drugs in the medical office is provided.

Pharmacy Law & Ethics (PHT 1012)

Introduces the laws, regulations and agencies that pertain to pharmacy practice and the role that technicians play to ensure compliance. Establishes a foundation of ethical behavior and decision making and discusses the consequences of violating laws and ethical principles.

Pharmacy Technology with Exam Prep A

This course series is designed to help give students the knowledge and skills needed to work with a licensed pharmacist in a variety of clinical and retail settings. Students explore medical and pharmaceutical terminology, pharmaceutical calculations, pharmaceutical techniques, sterile compounding, pharmacy recordkeeping, and pharmacy law and ethics. Students also examine essential medical topics such as body systems, common diseases and conditions, microbiology, and medication errors. In the Pharmacy Technician 1 course students gain a foundational understanding of pharmacology and pharmaceutical care. They focus on laws and ethics, drug actions and interactions with the body, dosing and administration and medication errors.

Pharmacy Technology with Exam Prep B

This course series is designed to help give students the knowledge and skills needed to work with a licensed pharmacist in a variety of clinical and retail settings. Students explore medical and pharmaceutical terminology, pharmaceutical calculations, pharmaceutical techniques, sterile compounding, pharmacy recordkeeping, and pharmacy law and ethics. Students also examine essential medical topics such as body systems, common diseases and conditions, microbiology, and medication errors. In the Pharmacy Technician 2 course students build on knowledge and skills gained in Pharmacy Technician 1 and go deeper into systems in the body, illnesses, diseases, and medications used to treat. Students also focus on pharmaceutical mathematics, measurements, and calculations of dosages.

Pharmacy Technology with Exam Prep C

This course series is designed to help give students the knowledge and skills needed to work with a licensed pharmacist in a variety of clinical and retail settings. Students explore medical and pharmaceutical terminology, pharmaceutical calculations, pharmaceutical techniques, sterile compounding, pharmacy recordkeeping, and pharmacy law and ethics. Students also examine essential medical topics such as body systems, common diseases and conditions, microbiology, and medication errors. In the Pharmacy Technician 3 course students focus on medication and sterile compounding, misuse of drugs and drug addiction, and drug treatment therapy. Students will also learn about the operation and management of a pharmacy including inventory management, health insurance, billing and collections, and customer communication.

Phlebotomy Technician Certification (CPT)

Phlebotomy Technician Certification (CPT) course provides preparation for the National Healthcareer Association (NHA) CPT certification exam. The course also instills the knowledge and standards needed for excellence in phlebotomy practice. The NHA CPT certification is an approved certification found on the Career Development Incentive Program (CDIP) approved programs list.

Pharmacy Technology with Exam Prep D

This course series is designed to help give students the knowledge and skills needed to work with a licensed pharmacist in a variety of clinical and retail settings. Students explore medical and pharmaceutical terminology, pharmaceutical calculations, pharmaceutical techniques, sterile compounding, pharmacy recordkeeping, and pharmacy law and ethics. Students also examine essential medical topics such as body systems, common diseases and conditions, microbiology, and medication errors. In the Pharmacy Technician 3 course students focus on medication and sterile compounding, misuse of drugs and drug addiction, and drug treatment therapy. Students will also learn about the operation and management of a pharmacy including inventory management, health insurance, billing and collections, and customer communication.

PLTW: Biomedical Innovation

In this year-long course, students design innovative solutions for the health challenges of the 21st century. They work through progressively challenging open-ended problems, addressing topics such as clinical medicine, physiology, biomedical engineering, and public health.

PLTW: Human Body Systems

PLTW: Medical Interventions

Students examine the interactions of human body systems as they explore identity, power, movement, protection, and homeostasis. Exploring science in action, students build organs and tissues on a skeletal Maniken®; use data acquisition software to monitor body functions such as muscle movement, reflex and voluntary action, and respiration; and take on the roles of biomedical professionals to solve real-world medical cases.

PLTW: Principles of Biomedical Sciences

This course involves the study of human medicine, research processes and an introduction to bioinformatics. Students will investigate the human body systems and various health conditions including heart disease, diabetes, sickle cell disease, hypercholesterolemia, and infectious diseases.

Prevention & Nutrition in Dentistry (DEA 1031)

Emphasizes techniques in preventive dentistry to include application of fluoride, pit and fissure sealants, oral home care instruction, diet counseling and nutrition as it applies to dental health. Covers techniques for coronal polishing, extra-oral and intra-oral examination, and dental charting.

Principles of Clinical Practice (DEA 1021)

Includes techniques used in four handed dentistry, instrument identification, and armamentarium for tray set-ups. Covers sterilization and aseptic procedures.

Principles of Physical Therapy (PTA 1015)

Explores the history of the profession including definition, development and areas of practice. The role of the APTA, the physical therapist assistant and the relationship between the physical therapist, PTA and other health care professionals are investigated. Includes current issues and trends including professionalism, ethics, quality assurance, communications and reimbursement issues such as Medicare, Medicaid, Worker's Compensation and commercial insurance.

Review for Medical Assisting National Exam (MOT 1068)

Prepares the candidate sitting for the National Registration/Certification Examination for Medical Assistant through review and practice. These examinations are given with the intent of evaluating the competency of entry-level practitioners in Medical Assisting, therefore supporting quality care in the office or clinic.

Specialties in Dentistry (DEA 1022)

Focuses on armamentarium of specific tray set-ups for periodontics, endodontics, and fixed and removable prosthodontics. Examines pediatric dentistry, oral surgery, and implants. Includes diagnosis, treatment, and the dental assistant's role in each specialty.

Sports Medicine

This course provides students with a general overview of the field of sports medicine. It includes introductory information about careers; scope of practice; legal and ethical responsibilities; injury prevention, treatment, and management; anatomy and physiology; nutrition; basic taping and wrapping techniques, and administrative functions.

Sports Medicine Capstone

This course allows for advanced work in any Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Sports Medicine Work-Based Learning Experience

Work Based Learning is essential to conceptualize, comprehend and apply employability skills. The opportunity for students to participate in industry field trips, industry events, job shadowing, internships, mentoring and other activities assures students 21st century real-world skills.

Wilderness First Responder (OUT 2044)

Provides more advanced wilderness care for the First Responder or EMT provider.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Criminal Justice & Public Safety Cluster

Criminal Justice: Law Enforcement Pathway (430199)

Level 1	Level 2	Level 3	Level 4
Introduction to Law and Public Safety	Law Enforcement	Security and Protective Services	Internship
		Dispatch	Apprenticeship
		Crime Science	
Postsecondary options			
Introduction to Criminal Justice (CRJ 1010)		Policing Systems (CRJ 1025)	Criminal Investigation (CRJ 2009)
		Crime Scene Investigation (CRJ 1027)	WBL Apprenticeship

Required credential: Law Enforcement Services

Additional course information

- **Law Enforcement**: Students can sit for the National Law Enforcement Certification exam after this course without additional requirements for the instructor (Link)
- **Security & Protective Services**: Prepares students for the Certified Protection Officer Certification. Instructors may require additional training or certifications for students to sit for the certification exam. (Link)
- **Dispatch**: Will take additional training for the instructor. Use this Link for more information.

LAPSEN

All Colorado LEA CTE instructors have memberships to LAPSEN through the state. Contact the HSPS Program Director for more information.

Criminal Justice: Legal/Judicial Pathway (430199)

Level 2 Credentials: Law Enforcement Services

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Criminal Justice A	Legal Systems A	Judicial Function (CRJ 1035)	Correctional Process (CRJ 1045)
Introduction to Criminal Justice B	Legal Systems B		WBL Apprenticeship
Introduction to Criminal Justice (CRJ 1010)	Policing Systems (CRJ 1025)		

Industry credentials available in this pathway

See the Career Development Incentives Program Approved Program List (2020-2021) for possible industry credentials

Criminal Justice: Forensic Science Pathway (430199)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Criminal Justice A	Legal Systems A	Advanced Forensic Science A	Forensic Biology A
Introduction to Criminal Justice B	Legal Systems B	Advanced Forensic Science B	Forensic Biology B
Introduction to Criminal Justice (CRJ 1010)	Introduction to Forensics A		Forensic Chemistry A
	Introduction to Forensics B		Forensic Chemistry B
	Criminology		WBL Apprenticeship

Credentials: Law Enforcement Services

Industry credentials available in this pathway

See the Career Development Incentives Program Approved Program List (2020-2021) for possible industry credentials

Fire Science Pathway (430203)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Fire Science & Emergency Services A	Anatomy and Physiology A	Firefighting I	WBL Apprenticeship
Introduction to Fire Science & Emergency Services B	Anatomy and Physiology B	Firefighting II	
Fire Science/Principles of EMS (FST 1002)	Medical Terminology A	Candidates Physical ability Test Prep Course (FST 1060)	
First Responders (EMS 1015)	Medical Terminology B	Wilderness First Responder (OUT 2044)	
CPR for Professionals (HPR 1011)	Anatomy & Physiology (BIO 2101)		
Orientation to Health Careers (HPR 1005)	Introduction to Medical Terminology (HPR 1038)		
	Advanced Medical Terminology (HPR 1039)		

Credentials: Fire Science, Health Science Foundational (limited to the constraints of the credential)

Industry credentials available in this pathway

CPR/BLS/ALS

See the Career Development Incentives Program Approved Program List (2020-2021) for possible industry credentials

Criminal Justice & Public Safety Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Advanced Forensic Science A

In the first semester of this two-semester course, students explore forensic science in greater depth. Skills learned in the first semester include: evidence collection, chain of custody, report writing, trace evidence, drug identification, and introduction to forensic chemistry, fingerprinting, and genetics.

Advanced Forensic Science B

The second semester of this two-semester course includes learning forensic pathology, forensic anthropology, toxicology, as well as continuing discussions of contemporary issues.

Candidates Physical Ability Test Prep Course (FST 1060)

Prepares students for the CPAT test and other related fitness testing for entry level firefighters. The course will focus on aerobics and strength training to assist students in passing a CPAT test or any related fitness entry level test. Students will also be trained on how to use various firefighting tools as they pertain to how the tools will be used in the CPAT or other related entry level fitness test.

Correctional Process (CRJ 1045)

Examines the history and total correctional process from law enforcement through the administration of justice, probation, prisons, correctional institutions, and parole. Also examines the principles, theories, phenomena and problems of the crime, society, and the criminal justice system from the perspective of criminology and the criminal justice system in general. Emphasizes the role of sociology and other interdisciplinary approaches to the field of corrections and society's response.

Crime Scene Investigation (CRJ 1027)

Focuses on basic procedures in crime scene management to include photography and preparing initial reports and sketches. Includes processing evidence and related criminalistic procedures. Covers interviewing suspects, witnesses and victims to include the recording of identifications and descriptions. Incorporates lab and lecture.

Crime Science A

This two-semester Criminal Justice course will concentrate on forensics, crime scene, investigative techniques, and law enforcement in general. It will also explore how constitutional and procedural law assists the criminal investigation process. The course features basic procedures in crime scene management to include photography and preparing initial reports and sketches, processing evidence, and related criminalistic procedures. It covers interviewing suspects, witnesses, and victims, including the recording of identifications and descriptions.

Crime Science B

The second semester of this two-semester Criminal Justice course continues to concentrate on forensics, crime scene, investigative techniques, and law enforcement in general. It will also explore how constitutional and procedural law assists the criminal investigation process. The course features basic procedures in crime scene management to include photography and preparing initial reports and sketches, processing evidence, and related criminalistic procedures.

It covers interviewing suspects, witnesses, and victims, including the recording of identifications and descriptions.

Criminal Investigation (CRJ 2009)

Covers the function of the preliminary investigation at a crime scene to include securing the scene, crime scene searchers, police drawings, and recognition and collection of evidence.

Criminology

"Criminology – Why Did They Do It?" introduces students to the field of criminology or the study of crime. Students look at possible explanations for crime from psychological, biological and sociological perspectives: explore the categories and social consequences of crime; and investigate how the criminal justice system handles criminals and their misdeeds.

Firefighting I

Orients students to the fire sciences and prepares them for the Firefighter 1 exam

Firefighting II

Advances students understanding of the fire sciences including an introduction to wildland fire fighting, CPR, First Aid, and HAZMAT operations. Wildland fire topics cover all skills taught in FSW 100 and FSW 101 (CCNS). Medical skills cover basic first aid, CPR and professional rescuer skills. HAZMAT training will cover all topics contained within FST 107 (CCNS). Upon completion of the course, students will be ready to take the CPR, First Aid and HAZMAT Awareness examinations

Fire Science/Principles of EMS (FST 1002)

Provides an overview to fire protection; career opportunities in fire protection and related fields; philosophy and history of fire protection/service; fire loss analysis; organization and function of public and private fire protection services; fire departments as part of local government ; laws and regulations affecting the fire service; fire service nomenclature ; specific fire protection functions; basic fire chemistry and physics; introduction to fire protection systems; introduction to fire strategy and tactics.

First Responders (EMS 1015)

Provides the student with core knowledge and skills to function in the capacity of a first responder arriving at the scene of an emergency, providing supportive care until advanced EMS help arrives.

Forensic Biology A

In this two-semester Forensic Biology Course, students examine blood and other bodily fluids, hair, bones, insects and plant and animal remains to help identify victims and support criminal investigations. Students use technology in the lab and in the field, collect and analyze biological evidence found on clothing, weapons and other surfaces to determine the time and cause of death. Students keep detailed logs and write reports about what they find. Instruction includes overviews of: DNA analysis, forensic anthropology, forensic pathology, Forensic entomology, forensic botany, wildlife forensics and biological chemistry. In addition to learning how to help solve crimes, forensic biology students may investigate environmental contamination or other public health threats.

Forensic Biology B

In the second semester of this two-semester course, students continue examine blood and other bodily fluids, hair, bones, insects and plant and animal remains to help identify victims and support criminal investigations. Students use technology in the lab and in the field, collect and analyze biological evidence found on clothing, weapons and other surfaces to determine the time and cause of death. Students keep detailed logs and write reports about what they find. Instruction includes overviews of: DNA analysis, forensic anthropology, forensic pathology, Forensic entomology, forensic botany, wildlife forensics and biological chemistry. In addition to learning how to help solve crimes, forensic biology students may investigate environmental contamination or other public health threats.

Forensic Chemistry A

In the first semester of this two-semester Forensic Chemistry course, students focus on chemistry that is unique to forensic science. Emphasis is placed on the application of chemistry concepts into real-world scenarios. Instruction includes overviews of: chromatography, balancing equations, solubility, density of solutions and how they are applied directly to the collection and analysis of evidence, and identification of unknown substances. Students gain an understanding of high-level, lab-based science methodologies, instrumentation and measurements.

Forensic Chemistry B

In the second semester of this two-semester Forensic Chemistry course, students continue to focus on chemistry that is unique to forensic science. Emphasis is placed on the application of chemistry concepts into real-world scenarios. Instruction includes overviews of: chromatography, balancing equations, solubility, density of solutions and how they are applied directly to the collection and analysis of evidence, and identification of unknown substances. Students gain an understanding of high-level, lab-based science methodologies, instrumentation and measurements.

Introduction to Criminal Justice (CRJ 1010)

Introduces students to the basic components of the criminal justice system in the United States. Concepts of crime, crime data, victimization, perspectives and views of crime, theory, and law are discussed. Particular attention to the criminal justice process, interaction and conflict between criminal justice agencies, and current criminal justice issues are examined.

Introduction to Criminal Justice A/B

This two-semester Criminal Justice course concentrates on potential careers in the criminal justice system and law enforcement in general. Students will learn about the agencies and processes involved in the criminal justice system: the legislature, the police, the prosecutor, the public defender, the courts, and corrections. The course includes an analysis of the roles and problems of the criminal justice system in a democratic society, with an emphasis upon inter-component relations and checks and balances.

- **Notice of courses change or adjustment.** The course Introduction to Criminal Justice A/B will be changed to Introduction to Law and Public Safety if the courses is not an advanced credit course. The change will be implemented starting spring of 2023 and all programs running the non-advanced credit. Must align to the new course name and scope by Spring 2025.

Introduction to Fire Science & Emergency Services A

This two-semester introductory Public Safety course provides an overview of the challenging environments and occupations within Fire Science and Emergency Response. This course includes exploration of: fire science and emergency medical environments, organization and function of public and private fire protection services, prehospital emergency care, and emergency medical systems. Students will learn how to provide supportive care until advanced EMS arrives including preparation for basic life support and CPR certification.

Introduction to Fire Science & Emergency Services B

The second semester of this two-semester course continues to provide an overview of the challenging environments and occupations within Fire Science and Emergency Response. This course includes exploration of: fire science and emergency medical environments, organization and function of public and private fire protection services, prehospital emergency care, and emergency medical systems. Students will learn how to provide supportive care until advanced EMS arrives including preparation for basic life support and CPR certification.

Introduction to Forensics A

This two-semester course examines the philosophical considerations of the integration of forensic science disciplines with criminal investigations. The course encompasses and provides an overview of physical evidence and examines the major forensic sub disciplines of pathology, toxicology, deontology, anthropology, art, firearms and tool marks, criminalistics, serology, and questioned documents.

Introduction to Forensics B

The second semester of this two-semester course continues to examine the philosophical considerations of the integration of forensic science disciplines with criminal investigations. The course encompasses and provides an overview of physical evidence and examines the major forensic sub disciplines of pathology, toxicology, deontology, anthropology, art, firearms and tool marks, criminalistics, serology, and questioned documents.

Introduction to Medical Terminology (HPR 1038)

Introduces the student to the structure of medical terms with emphasis on using and combining the most common prefixes, roots and suffixes. Includes terms related to major body systems, oncology, psychiatry, as well as clinical laboratory and diagnostic procedures and imaging. Class structure provides accepted pronunciation of terms and relative use in the healthcare setting.

Judicial Function (CRJ 1035)

Provides an overview of the structure and function of the dual American judicial system and the behavior of actors (judges/justices, lawyers, law clerks, interest groups, etc.) within the system. Emphasis is placed on the organization and administration of state and federal courts, criminal court procedures, juries, selection of judges, decision-making behavior of juries, judges and justices, and the implementation and impact of judicial policies

Law Enforcement

Law Enforcement prepares individuals to perform the duties of police and public security officers, including patrol and investigative activities, traffic control, crowd control, public relations, witness interviewing, evidence collection and management, court procedures and the law in general. Basic crime prevention methods, weapon and equipment operation, equipment maintenance, and other routine law enforcement responsibilities are also included.

Legal System A

Legal Systems A examines the workings of the U.S. criminal and civil justice systems in greater depth. Including providing an understanding of civil and criminal law and the legal process, the structure and procedures of courts, and the role of various legal or judicial agencies. Although the course emphasizes the legal process, it provides an overview of the history and foundation of U.S. law (the Constitution, statutes, and precedents).

Legal System B

Legal Systems B provides motivated students an in-depth study of the key components of the criminal justice system - law enforcement, courts and corrections – and how they interact with one another. Students will also explore the definition of crime in greater depth, historical developments, current practices in criminal justice, and the relationships between criminal justice and social justice. The course is structured to support students' development of key skills in critical thinking, problem solving, research, reading, writing, speaking, presenting and teamwork.

Policing Systems (CRJ 1025)

Examines policing in the United States, including historical foundations, emerging issues, and the relationship between law enforcement and the community. The various types of law enforcement agencies, their administrative practices, and the behavior of those involved in the delivery of police services are examined from the perspective of democratic values, racial and ethnic diversity, and societal perceptions of police effectiveness. Career requirements, including current and future trends, are also presented.

Security and Protective Services

Security and Protective Services prepares individuals to perform the duties of professional security officers, including patrol and investigative activities, traffic control, crowd control, public relations, witness interviewing, evidence collection and management, information protection, customer relations and the legal aspects regarding the security profession. Basic crime prevention methods, risk assessments, Crime Prevention Through Environmental Design, dignitary protection responsibilities, and officer safety and use of force are also included. This course is instrumental in the preparation of the student to assume the position of an entry-level Certified Security and Protection Officer.

Wilderness First Responder (OUT 2044)

Provides more advanced wilderness care for the First Responder or EMT provider.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Skilled Trades & Technical Sciences

To prepare students with the knowledge and skills necessary to compete & succeed as the future workforce in a global economy.

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SkillsUSA is a partnership of students, teachers and industry. Working together to ensure America has a skilled work force and helps every student excel. SkillsUSA serves high school and college students who are enrolled in programs preparing them for technical, skilled and service careers. SkillsUSA adds to students' technical training by teaching leadership skills, teamwork, citizenship and character development-all things that go into shaping responsible, reliable employees who will one day become leaders in our workplaces.

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Barbering & Cosmetology Cluster

Cosmetology Pathway (120401)

Credential: DORA Licensure and CTE Personal Care Services Certification

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Cosmetology I (A/B)	Cosmetology – Intermediate I (A/B)	Cosmetology – Intermediate II (A/B)	Cosmetology – Advanced (A/B)
			CE Coursework in Beauty Industry Occupations
			WBL Apprenticeship

Industry credentials available in this pathway

DORA Licensure - Cosmetology

Hairstyling Pathway (120401)

Credential: DORA Licensure and CTE Personal Care Services Certification

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Hairstyling I (A/B)	Hairstyling – Intermediate I (A/B)	Hairstyling – Intermediate II (A/B)	Hairstyling – Advanced (A/B)
			CE Coursework in Beauty Industry Occupations
			WBL Apprenticeship

Industry credentials available in this pathway

DORA Licensure - Hairstylist

Esthetics Pathway (120401)

Credential: DORA Licensure and CTE Personal Care Services Certification

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Esthetician I (A/B)	Esthetician – Intermediate I (A/B)	Esthetician – Intermediate II (A/B)	Esthetician – Advanced (A/B)
			CE Coursework in Beauty Industry Occupations
			WBL Apprenticeship

Industry credentials available in this pathway

DORA Licensure - Esthetician

Nail Technology Pathway (120401)

Credential: DORA Licensure and CTE Personal Care Services Certification

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Nail Technology I (A/B)	Nail Technology – Intermediate I (A/B)	Nail Technology – Intermediate II (A/B)	Nail Technology – Advanced (A/B)
			CE Coursework in Beauty Industry Occupations
			WBL Apprenticeship

Industry credentials available in this pathway

DORA Licensure - Cosmetology

Barbering Pathway (120401)

Credential: DORA Licensure and CTE Personal Care Services Certification

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Barbering I (A/B)	Barbering – Intermediate I (A/B)	Barbering – Intermediate II (A/B)	Barbering – Advanced (A/B)
			CE Coursework in Beauty Industry Occupations

Industry credentials available in this pathway

DORA Licensure - Cosmetology

Barbering & Cosmetology Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

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Barbering—Advanced

Barbering Advanced prepares students with work-related services for employment and entrepreneurship in the barbering field. Content provides students the opportunity to acquire foundation skills in both theory and practical applications. Advanced knowledge and skills in haircutting, scalp care, chemical and barbershop management, which duplicates barbering industry standards. Laboratory facilities and experiences will be used to simulate those found in the barbering industry. Upon completion of all Barbering Courses (1500 hours), students are eligible to take the Colorado Board of Barber and Cosmetology Examination for a Colorado Barber License.

Barbering I

Barbering I is the foundational level of the Barbering program of study. This course prepares students with work-related skills for advancement into the Barbering II course. Content provides students the opportunity to acquire fundamental skills in both theory and practical applications of leadership and interpersonal skill development. Content stresses safety, environmental issues, and protection of the public and designers as integrated with principles of haircutting, skin, nails and scalp care, chemical and barbershop management. Laboratory facilities and experiences simulate those found in the barbering industry. Students who complete the entire Barbering Program (1500 hours minimum) are eligible for the Colorado Board of Barber and Cosmetology Licensure Exam for Barbers.

Barbering – Intermediate I

Barbering Intermediate I is the second level of the Barbering program of study and prepares students for work-related skills and advancement into Barbering Intermediate II. Content provides students the opportunity to acquire knowledge and skills in both theory and practical application. Advanced knowledge and skills in hair design, hair cutting, shaving, nail care, and cosmetic applications will be enhanced in a laboratory setting, which duplicates industry standards. Upon completion of all Barbering Courses (1500 hours), students are eligible to take the Colorado Board of Barber Cosmetology Examination for a Colorado Barber License.

Barbering – Intermediate II

Barbering Intermediate II is the third level of the Barbering program of study and prepares students for work-related skills and advancement into Barbering Advanced. Content provides students the opportunity to acquire knowledge and skills in both theory and practical application. Advanced knowledge and skills in hair design, hair cutting, shaving, nail care, and cosmetic applications will be enhanced in a laboratory setting, which duplicates industry standards. Upon completion of all Barbering Courses (1500 hours), students are eligible to take the Colorado Board of Barber Cosmetology Examination for a Colorado Barber License.

Capstone: Barbering and Cosmetology

This course allows for advanced work in any Beauty Industry Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Cosmetology- Advanced

Cosmetology Advanced is the forth course in the Cosmetology program of study intended to prepare students for careers in cosmetology by developing an understanding and practical skills in efficient and safe work practices, career and business analysis, advanced hair techniques and chemical services, and state board theoretical and practical application. Proficient students will have applied the full range of knowledge and skills acquired in this program of study toward experiences in practical applications of cosmetology practices as approved by the instructor. Upon program completion and acquisition of 1500 hours, students are eligible to take the Colorado Board of Barber and Cosmetology Licensure Exam for Cosmetology.

Cosmetology I

Cosmetology I is the foundational course in the Human Services career cluster for students interested in learning more about becoming a cosmetologist. Upon completion of this course, proficient students will gain knowledge in the fundamental skills in both theory and practical applications of cosmetology practices. Laboratory facilities and experiences simulate those found in the cosmetology industry. Upon program completion and acquisition of 1500 hours, students are eligible to take the Colorado Board of Barber and Cosmetology Examination to attain a Colorado Cosmetology License.

Cosmetology- Intermediate I

Cosmetology Intermediate I is the second course in the Cosmetology program of study intended to prepare students for careers in cosmetology by developing an understanding of efficient and safe work practices, nail procedures, hair design, and chemical services. Students will gain experience in practical applications of cosmetology practices. Laboratory facilities and experiences simulate those found in the cosmetology industry. Upon program completion and acquisition of 1500 hours, students are eligible to take the Colorado Board of Barber and Cosmetology examination to attain a Colorado Cosmetology License.

Cosmetology- Intermediate II

Cosmetology Intermediate II is the third course in the Cosmetology program of study intended to prepare students for careers in cosmetology by developing an understanding of efficient and safe work practices, salon business concepts and operations, advanced hair techniques and chemical services, and facial and skin care procedures. Students will gain experience in practical applications of cosmetology practices. Laboratory facilities and experiences simulate those found in the cosmetology industry. Upon program completion and acquisition of 1500 hours, students are eligible to take the Colorado Board of Barber and Cosmetology Licensure Exam for Cosmetology.

Esthetics—Advanced

Esthetics Advanced completes the training for esthetician. Students gain knowledge and apply theory in the following; advanced skin care and massage, hair removal, laws, rules and regulations, management, ethics, interpersonal skills and sales; advanced disinfection, safety and sanitation. Student that complete all levels of the Esthetician Program will be eligible for the Colorado Board for Barber and Cosmetology State licensure exam for Estheticians.

Esthetics I

Esthetician I is the foundational course for the Esthetician Program. The first level of the esthetician program presents theory and practical application in the esthetics field. Units of study include: introduction to facial and skin care; facial make-up; introduction to disinfection, sanitation and safety. Students also explore career pathways, post-secondary options and career search techniques such as applications preparation, resume/letter writing and interviewing process. Student that complete all levels of the Esthetician Program will be eligible for the Colorado Board for Barber and Cosmetology State licensure exam for Estheticians.

Esthetics- Intermediate I

Esthetician Intermediate I is the second course for the Esthetician Program. The second level of the esthetician program presents theory and practical application in the esthetics field. Units of study include: intermediate facial and skin care; intermediate facial make-up; applications of disinfection, sanitation and safety. Students will learn employability skills for the beauty industry including customer service and development of professional salon practices. Student that complete all levels of the Esthetician Program will be eligible for the Colorado Board for Barber and Cosmetology State licensure exam for Estheticians.

Esthetics- Intermediate II

Esthetician Intermediate II is the third course for the Esthetician Program. The third level of the esthetician program continues the theory and practical application of professional practice in the esthetics field. Units of study include: intermediate/advanced facial and skin care; intermediate/advanced facial make-up; intermediate/ advanced applications of disinfection, sanitation and safety. Students will learn employability skills for the beauty industry and demonstrate professional salon practices. Student that complete all levels of the Esthetician Program will be eligible for the Colorado Board for Barber and Cosmetology State licensure exam for Estheticians.

Hairstyling – Advanced

The forth level of the hairstyling program concludes with the student gaining practical working knowledge and applying theory in laws, rules and regulations; advanced cutting, color, and chemical texture; management, ethics, interpersonal skills, and sales; advanced disinfection, sanitation, and safety. Students that complete all levels of the Hairstyling program (1200 hours minimum) will be eligible to take the Colorado State Board of Barber and Cosmetology Licensure Exam for Hairstylists.

Hairstyling I

The first level of study introduces students to hairstyling in the following units: shampoo, rinsing, conditioners; intro to hairstyling and hair cutting; into to chemical texture and hair coloring; intro to disinfection, sanitation and safety; management ethics, interpersonal skills and sales; introduces Colorado Barber and Cosmetology laws, rules, and regulations. Students that complete all levels of the Hairstyling program (1200 hours minimum) will be eligible to take the Colorado State Board of Barber and Cosmetology Licensure Exam for Hairstylists.

Hairstyling – Intermediate I

The second level of hairstylist training includes intermediate and application in the following: disinfection, sanitation and safety; hairstyling and haircutting; hair coloring and chemical texture; disinfection, sanitation and safety and laws, rules and regulations. Students that complete all levels of the Hairstyling program (1200 hours minimum) will be eligible to take the Colorado State Board of Barber and Cosmetology Licensure Exam for Hairstylists.

Hairstyling – Intermediate II

The third level of hairstylist training continues to improve student's applications and introduces intermediate and advanced theory and application in the following: disinfection, sanitation and safety; hairstyling and haircutting; hair coloring and chemical texture; disinfection, sanitation and safety and laws, rules and regulations. Students that complete all levels of the Hairstyling program (1200 hours minimum) will be eligible to take the Colorado State Board of Barber and Cosmetology Licensure Exam for Hairstylists.

Nail Technology—Advanced

The forth level of the nail technology program concludes with the student gaining practical working knowledge and applying theory in laws, rules and regulations; advanced manicures and pedicures; application of artificial nails; management, ethics, interpersonal skills, and sales; advanced disinfection, sanitation, and safety. Student that complete all levels of the Nail Technician Program will be eligible for the Colorado Board for Barber and Cosmetology State licensure exam for Nail Technicians.

Nail Technology I

The first level of the nail technology program introduces the students to the skills required to become a licensed Nail Technician. Courses of study include: introduction to careers in the beauty industry, introductory manicures and pedicures; intro and intermediate disinfection, sanitation and safety procedures. Student that complete all levels of the Nail Technician Program will be eligible for the Colorado Board for Barber and Cosmetology State licensure exam for Nail Technicians.

Nail Technology- Intermediate I

The second level of the nail technology program introduces the students to intermediate level skills required to become a licensed Nail Technician. Courses of study include: applications of Colorado Barber and Cosmetology rules, laws, and regulations, intermediate manicures and

pedicures; intermediate disinfection, sanitation and safety procedures. Students who complete all courses in the Nail Technology pathway may be eligible for the Colorado Board of Barber and Cosmetology Examination for Nail Technician Licensure.

Nail Technology- Intermediate II

The third level of the nail technology program introduces the students to intermediate-advanced skills required to become a licensed Nail Technician. Courses of study include: applications of Colorado Barber and Cosmetology rules, laws, and regulations, intermediate manicures and pedicures; intermediate disinfection, intermediate sanitation and safety procedures. Students who complete all courses in the Nail Technology pathway may be eligible for the Colorado Board of Barber and Cosmetology Examination for Nail Technician Licensure.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

WBL: Human Services Pathways

The Work-based Learning (WBL) experience allows for the application of the Knowledge, Skills, and Abilities that are delivered through the coursework of the Program of Study (POS).

Aviation Cluster

Aviation Flight Pathway (490101)

Credential: CTE Transportation Operations; CTE STEM (where noted in Course Scope and Sequence)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Aviation and Aerospace (A/B)	Aviation Weather	Principles of Flight	Aviation Fundamentals (MSU Denver)
	Aerodynamics	Aviation of UAS and Drone Technology (A/B)	Avionics for Pilots
		Special Industrial Applications of Drone Technology	Advanced Flight
			WBL Apprenticeship

Industry credentials available in this pathway

FAA 107

Aviation Mechanics (including Avionic Technician) Pathway (490101)

Credential: CTE Transportation Operations; CTE STEM (where noted in Course Scope and Sequence)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Aircraft Technology (A/B)	Aircraft Airframe Technology (A/B)	Aircraft Power Plant Technology (A/B)	WBL Apprenticeship
	Digital Electronics	Electronics – Solid State/Semiconductor	
	Avionic Wiring	DC/AC Electricity and Electronics	

Industry credentials available in this pathway

FAA 147 – Airframe
FAA 147 – Powerplant
Certified Avionics
Technician

Aviation Control Systems Control Pathway (490101)

Credential: CTE Transportation Operations; CTE STEM (where noted in Course Scope and Sequence)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Aviation and Aerospace (A/B)	Aviation Weather	Air Control Systems	CE Coursework in Air Traffic Control
	Aerodynamics		WBL Apprenticeship

Industry credentials available in this pathway

FCC

Aviation Cluster Course Descriptions

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Advanced Flight

Advanced Flight is the capstone course in the Aviation Flight program of study intended to prepare students for careers in aviation. While continuing to build upon the knowledge, skills, and competencies acquired in Introduction to Aerospace and Aviation I , students in Advanced Flight will receive rigorous instruction in preparation to take the Federal Aviation Administration (FAA) Private Pilot written exam. This course goes beyond the mastery of procedures under normal conditions learned in Aviation I: Principles of Flight and introduces students to the troubleshooting and diagnostic techniques used by pilots and other aircraft personnel to assess and correct for malfunctions, make adjustments in hazardous weather conditions, and perform other crucial emergency procedures. Continued emphasis is placed on maintaining the safety of flight and developing sound judgment ("judgment training") throughout these conditions. In addition, students will develop a keen understanding of advanced aerodynamics and the physics of flight to aid in decision-making and technical adjustments while working under simulated abnormal procedures.

Aerodynamics

This course studies the basic principles of aerodynamics, including airfoil shapes and aerodynamic forces, airplane performance, stability and control, strength limitations, and the application of these to specific flight situations. Included in this course are flight performance with airflow in the sub-, trans-, and supersonic envelope.

Air Control Systems

This course introduces students to the history of the FAA from its founding to the present day operation of the vast National Airspace System (NAS). Topics studied include the structure and classes of airspace, fundamentals of radar, the basic concepts and rules of separation of aircraft, the facilities which control air traffic and the duties of the positions within those facilities. Students will also learn about the FAA Orders and Directives which dictate procedures for control of air traffic as well as flight operations.

Aircraft Airframe Technology A
Aircraft Airframe Technology B

Aircraft Airframe Technology is designed to teach the theory of operation of aircraft airframes and associated maintenance and repair practices. Airframe maintenance and repair practices include knowledge of the function, diagnosis, and service of airframe structures, systems, and components of aircraft.

Aircraft Power Plant Technology A
Aircraft Power Plant Technology B

Aircraft Power Plant Technology is designed to teach the theory of operation of aircraft power plants and associated maintenance and repair practices. Power plant maintenance and repair practices include knowledge of the theory, function, diagnosis, and service of power plant, systems, and components of aircraft. Industry-recognized professional licensures, certifications, and registrations are available for students who meet the requirements set forth by the accrediting organization.

Aviation of UAS and Drone Technology A

This course will cover advanced flight topics from area Aviation experts. Students will be exposed to new concepts in UAS and drone technology as well as expanding topics covered in Aviation I to an advanced level. Students will be preparing to pass the Federal Aviation Administration (FAA) private pilot written exam. Successful completion of Introduction to Aviation I is a prerequisite.

Aviation Weather

This course develops basic meteorological concepts that apply to aviation. Emphasis is on the use of national weather service reports and forecasts to evaluate flight conditions. The course also prepares students for the weather section of the FAA Private Pilot Knowledge examination.

Avionic Wiring

Avionic Wiring is designed to teach students about wiring systems and troubleshooting electronic systems within an aircraft.

Capstone: Transportation Aviation Pathway

This course allows for advanced work in any Transportation Aviation Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

DC/AC Electricity and Electronics

This course introduces the basic principles of electronics including the fundamentals of Direct Current (DC), Alternating Current (AC), and robotics. Topics include basic circuits, voltage, current and resistance measurement, Ohm's Law, series and parallel circuits, magnetism, motors and generators, electromagnetic induction, and robotics. Electronic theory is reinforced through breadboarding circuits in the lab. Students fabricate printed circuit board projects. Utilization of electronic test equipment is emphasized. This course may be taught in multiple pathways by an appropriately credentialed instructor.

Digital Electronics

Digital Electronics is the study of electronic circuits that are used to process and control digital signals. In contrast to analog electronics, where a continuously varying voltage represents information, two discreet voltages or logic levels represent digital signals. This distinction allows for greater signal speed and storage capabilities and has revolutionized the world of electronics.

Digital electronics is the foundation of modern electronic devices such as cellular phones, digital audio players, laptop computers, digital cameras, and high-definition televisions. The primary focus of Digital Electronics is to expose students to the design process of combinational and sequential logic design, teamwork, communication methods, engineering standards, and technical documentation. This course may be taught in additional pathways by the appropriate credentialed instructor.

Electronics-Solid State/Semiconductor

The course is an introduction to semiconductor fundamentals and applications to the electronic devices. Course creates the background in the physics of the compound semiconductor-based electronic devices and also prepare students to advanced courses in solid state and quantum electronics. The course provides an opportunity for students to continue education in undertaking advanced study and research in the variety of different branches of semiconductor device applications. Topics include the background solid state and semiconductor physics, and basic principles of electronic devices operation including diodes, transistors, and FETs, SCRs and UJTs. The hands-on laboratory portion of this course compares different type devices and their characteristics with emphasis on real life circuits and applications.

Introduction to Aircraft Technology A
Introduction to Aircraft Technology B

Introduction to Aircraft Technology is designed to teach the theory of operation of aircraft airframes, power plants, and associated maintenance and repair practices. Maintenance and repair practices include knowledge of the function, diagnosis, and service of general curriculum subjects, airframe structures, airframe systems and components, power plant theory and maintenance, and power plant systems and components of aircraft. Industry recognized professional licensures, certifications, and registrations are available for students who meet the requirements set forth by the accrediting organization.

Introduction to Aviation and Aerospace A
Introduction to Aviation and Aerospace B

This course will provide an introduction to the aviation and aerospace industry and provide an entry level examination of Aviation career opportunities. Students will explore the concepts and principles of Aviation and delve into general practices of the aerospace field. Areas of study are aviation history, pilot training, airplane structure, engines, basic aerodynamics, flight environment, airports, aviation weather, and navigation. In addition, the course exposes the student to the history of manned space flight.

Principles of Flight

Principles of Flight builds on the fundamental knowledge and skills learned in Introduction to Aerospace while teaching students the essential competencies needed for flight under normal conditions. Upon completion of this course, proficient students will be able to apply knowledge, skills, and procedures in a variety of simulated flight environments. Moreover, students who complete this course will have the opportunity to move on to advanced study in Advanced Flight, where they will continue to prepare for the FAA Private Pilot written exam.

Special Industrial Applications of Drone Technology

This course would be an applied applications course and could include instruction in aerial photography for commercial purposes, recording instrumentation, topics in inspection for industrial purposes, and data analytics.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

WBL: Transportation Aviation Pathway

This course is designed to prepare students to enter the workforce through on-the-job training in the form of a work-based learning experience and may be combined with class instruction. Students will build on prior knowledge and skills in the program of study aligned to their career and academic plan to further develop and apply employability and technical skills that prepare them for success further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education. Students will have the opportunity to develop skills in supervised practical experience on the job or in a classroom-based job environment. A personalized learning plan is a requirement of this course.

Construction Cluster

General Construction Pathway (460000)

Credential: CTE Architecture and Construction; CTE Visual and Design Arts (Stagecraft or Set Design courses only); CTE Manufacturing (for courses that appear in the Manufacturing pathways)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Construction	Carpentry Technology (A/B)	Carpentry Technology II (A/B)	Advanced Woodworking/ Carpentry (A/B)
Woodworking Technology (A/B)	Construction Technology (A/B)	Construction Systems I (A/B)	Construction Technology II (A/B)
	Mechanical, Electrical, & Plumbing Systems (A/B)	Construction Management	Heavy Equipment Operations
		Construction Stage Craft or Set Design	Building Modeling (BIM)
		Building Materials	Construction Management II
			Construction Technology Independent Study (A/B)
			Metal Working I (A/B)
			Construction Special Topics
			Construction CE Coursework
			WBL Apprenticeship

Industry credentials available in this pathway

HBI PACT
NCCER
OSHA 10
OSHA 30

Electrical Pathway (460000)

Credential: CTE Architecture and Construction; CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Construction	Mechanical, Electrical, & Plumbing Systems (A/B)	Electrical Construction I (A/B)	Electrical Construction II (A/B)
			Electrical CE or Apprenticeship
			WBL Apprenticeship

Industry credentials available in this pathway

Heating, Ventilation, and Air Conditioning (HVAC) Pathway (460000)

Credential: CTE Architecture and Construction; CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Construction	Mechanical, Electrical, & Plumbing Systems (A/B)	HVAC Technology I (A/B)	HVAC Technology II (A/B)
			HVAC CE or Apprenticeship
			WBL Apprenticeship

Industry credentials available in this pathway

Plumbing Pathway (460000)

Credential: CTE Architecture and Construction; CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Construction	Mechanical, Electrical, & Plumbing Systems (A/B)	Plumbing Technology I (A/B)	Plumbing Technology II (A/B)
			Plumbing CE or Apprenticeship
			WBL Apprenticeship

Industry credentials available in this pathway

Masonry Pathway (460000)

Credential: CTE Architecture and Construction; CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Construction	Masonry Technology (A/B)	Masonry Technology II (A/B)	Masonry CE or Apprenticeship WBL Apprenticeship

Industry credentials available in this pathway

Woodworking Pathway (460000)

Credential: CTE Architecture and Construction; CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Construction	Woodworking Technology II (A/B)	Woodworking Technology III (A/B)	Woodworking CE or Apprenticeship
Woodworking (A/B)			Advanced Carpentry/Woodworking (A/B)
			WBL Apprenticeship

Industry credentials available in this pathway

Property Maintenance Pathway (460000)

Credential: CTE Architecture and Construction;

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Property Maintenance and Repair	Construction Maintenance Technology (A/B)	Advanced Construction Maintenance (A/B)	CE in Property Maintenance Pathway
	Mechanical, Electrical, and Plumbing Systems (A/B)		WBL Apprenticeship

Industry credentials available in this pathway

Construction Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

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Advanced Carpentry/ Woodworking A
Advanced Carpentry/ Woodworking B

Advanced Woodworking and Carpentry is designed to introduce advanced skills for residential carpentry. Topics included in the course are cabinetry construction and installations, advanced trim work, flooring, custom cabinetry, and codes and regulations.

Advanced Construction Maintenance A
Advanced Construction Maintenance B

This course is designed to prepare students to enter the workforce through on-the-job training in the form of an apprenticeship combined with class instruction. Training in class will continue with release time for the apprenticeship as coordinated by the instructor. Students will improve skills in maintenance technology by working as helpers to repair or construction workers, including carpenters, electricians, or machinery repairers. Students will have the opportunity to learn their skills in supervised practical experience on the job. This will allow students training in new technologies and equipment found in large modern facilities.

Building Materials

Introduces the student to the scope of the construction industry. Examines the qualities, uses and characteristics of wood, ordering, pricing, fasteners, adhesives, manufactured wood products, steel, vinyl and aluminum and their applications in the construction process. Explores Built-Green products and their characteristics. This course explores inspection, estimation, and appraisal professions.

Building Modeling

This introductory course in Building Information Modeling (BIM) focuses on CAD Construction Industry applications as a platform for learning key principles in the application of digital media in the design and documentation of building elements within a parametric environment. Fundamental training is provided, so students can progress to more advanced design computation and its application in the construction industry. Through a series of lectures and exercises, this course explores basic BIM concepts that apply to all parametrically driven CAD systems.

Capstone: Construction Pathways

This course allows for advanced work in any Construction Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Carpentry Technology A
Carpentry Technology B

Carpentry Technology prepares students for careers in residential and commercial carpentry. Students will be able to frame floors, walls, ceilings, roofs, and stairs while safely employing tools and interpreting construction drawings to complete projects. Emphasis is placed on demonstrating proper measurement and application of mathematical concepts. Students to gain an understanding of wood grades and construction methods and to learn skills such as laying sills and joists; erecting sills and rafters; applying sheathing, siding, and shingles; setting door jambs; and hanging doors. Carpentry courses may teach skills for rough construction, finish work, or both. Students learn to read blueprints, draft, use tools and machines properly and safely, erect buildings from construction lumber, perform finish work inside of buildings, and do limited cabinet work. Carpentry courses may also include career exploration, good work habits, and employability skills.

Carpentry Technology II A
Carpentry Technology II B

This course of the Carpentry program and will focus on stairs, residential and commercial drawings, heavy steel framing, thermal or moisture barriers, roofing system, steel stud framing, drywall installation and finishing, suspended ceilings, window, door and cabinet installation. Throughout the course, students will interpret construction drawings to complete projects, implementing material estimating procedures and safe working practices. Standards in this course also expand on principles of the construction industry and delve deeper into business and project management strategies.

Construction Maintenance Technology A
Construction Maintenance Technology B

This course is designed to teach students skills in repair and maintenance as it relates to the construction trade. Areas of training emphasis will be in electrical maintenance, small engine maintenance, basic welding and basic metal working as it applies to the construction trade leading to a maintenance career. Students will use basic hand tools and machines of the construction trade to perform repair of machines, mechanical equipment, and building maintenance. This course would allow completers to perform routine preventive maintenance and ensure that machines continue to run smoothly, building systems operate efficiently, and the physical condition of buildings are maintained. No prerequisite.

Construction Management A
Construction Management B

This course provides an introduction to construction management principles used in the industry, including the organization of project teams, role of the project manager, how project management is used within the industry, and basic project management concepts and techniques.

Construction Management II A
Construction Management II B

This course practices project management techniques and tools used in the construction industry to oversee the planning, design, and construction of a project, from its beginning to its end.

Construction Special Topics

This course is designed to introduce additional special topics as indicated by local hiring demand in the pathway course of study.

Construction Systems A
Construction Systems B

Students in this class will learn about various facets of construction in both a classroom and hands-on setting. This program of study is intended to prepare students for careers in construction by developing an understanding of the different phases of a construction project from start to finish. Upon completion of this course, proficient students will be able to demonstrate knowledge and skill in the earlier phases of building construction, including site layout, foundation systems, concrete, framing systems, and electrical systems.

Construction Technology A
Construction Technology B

This is the foundation course to basic residential construction. Students will demonstrate competencies that are nationally recognized by the construction industry. Students will learn and practice structural framing of floors, walls, ceilings, and roofs. This course also includes the use of basic construction tools and machinery, applied math, and an introduction to blueprint reading. This course teaches students industry safety including the use of all machines and tools.

Construction Technology II A
Construction Technology II B

In Construction Technology II, students will gain advanced knowledge and skills needed to enter the workforce as carpenters, building maintenance technicians or supervisors, or to prepare for a postsecondary degree in construction management, architecture, or engineering. Students will build on the knowledge base from Construction Technology I and are introduced to exterior and interior finish out skills.

Electrical Construction A
Electrical Construction B

Approaches to commercial and industrial building wiring in conformance with the current National Electrical Code and local codes using electric metallic tubing and other raceways. Exploration of OSHA's electrical safety-related work practices, and how they are applied to the work environment. Students will acquire knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, and the reading of electrical drawings, schematics, and specifications.

Electrical Construction II A
Electrical Construction II B

Continues practical applications of electrical theory and techniques used by licensed electricians. Exploration of OSHA's electrical safety-related work practices, and how they are applied to the work environment. Approaches to commercial and industrial building wiring in conformance with the current National Electrical Code and local codes using electric metallic tubing and other raceways.

Heavy Equipment Operations

This course instructs students in the safe operation of common heavy equipment used in the construction industry. Students will also be introduced to grade reading, laser levels, soils, equipment safety and maintenance, and site layout.

HVAC Technology I A
HVAC Technology I B

In Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I, students will gain knowledge and skills needed to enter the industry as technicians in the HVAC and refrigeration industry or building maintenance industry, prepare for a postsecondary degree in a specified field of construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, principles of HVAC theory, use of tools, codes, and installation of HVAC and refrigeration equipment. Focuses on the installation of common piping materials in plumbing and HVAC/R systems. Covers pipe math, terminology, common piping materials and application, figuring offsets and common pipe joints. Shop projects including pipe support and hanging, center to center measurements and a variety of pipe joining methods are explored.

HVAC Technology II A
HVAC Technology II B

In Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II, students will gain advanced knowledge and skills needed to enter the industry as HVAC and refrigeration technicians or building maintenance technicians or supervisors, prepare for a postsecondary degree in a specified field of construction or construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, electrical theory, use of tools, codes, installation of commercial HVAC equipment, heat pumps, troubleshooting techniques, various duct systems, and maintenance practices.

Independent Study: Construction Pathways

Meets the individual needs of students based on their career pathway objective. Students engage in intensive study or research under the direction of a qualified instructor.

Masonry Technology A
Masonry Technology B

Masonry Technology provides information and techniques related to basic masonry and safety precautions.

Masonry Technology II A
Masonry Technology II B

Masonry Technology II is designed to further enhance the skills and knowledge of the beginning masonry student.

Mechanical, Electrical & Plumbing Systems A
Mechanical, Electrical & Plumbing Systems B

Mechanical, Electrical, and Plumbing Systems prepares students for electrical, plumbing, and HVAC careers by introducing students to the physical principles of these systems and the fundamental skills needed to work with them. Upon completion of this course, proficient students will be able to follow safety procedures and use tools to perform basic operations with electrical circuits, as well as demonstrate understanding in fundamental concepts of electricity theory (i.e. Ohm's Law). Students will be able to apply proper tools and procedures to perform basic operations with plastic piping, including measuring, cutting, and joining pipe. Furthermore, students will be able to apply mathematics concepts to solve HVAC, electrical, and plumbing problems. This course is intended to provide an introduction and lay a solid foundation for those students entering the construction or craft skilled areas. The course provides a strong knowledge of construction safety, construction mathematics, and common hand and power tools. This course also provides communication and occupation skills to assist the student in obtaining and maintaining employment.

Metal Working I A
Metal Working I B

This class which emphasizes shop safety will allow students to develop basic skills in various areas of the metalworking industry such as welding, pipes, metal manipulation, equipment, etc. This course is intended to provide students in the construction pathways with basic knowledge of metalworking and not intended as a pathway course for welding.

Plumbing Technology A
Plumbing Technology B

As an introductory course to plumbing technology, this class focuses on understanding general concepts of the construction industry. Students study the role of plumbing in construction. Skills are developed in plumbing fundamentals such as basic drainage system structures, water supply and code requirements.

Plumbing Technology II A
Plumbing Technology II B

In Plumbing Technology II, students will gain the advanced knowledge and skills needed to enter the industry as a plumber, building maintenance technician, or supervisor or prepare for a postsecondary degree in mechanical engineering. Students will acquire knowledge and skills in plumbing codes, industry workplace basics, and employer/customer expectations, including tool and jobsite safety, advanced plumbing mathematics, commercial drawings, basic electricity, hanger installation, supports and structural penetrations, roof drains, fixture installation, valves

and faucets, and oxy-fuel safety. Students will also learn about setup, cutting, brazing, and welding water system sizing; gas, drain, waste and vent installation and testing; and water heater installation.

Principles of Construction A
Principles of Construction B

Principles of Construction is a foundational course in the Architecture & Construction cluster covering essential knowledge, skills, and concepts required for careers in construction. Upon completion of this course, proficient students will be able to describe various construction fields and outline the steps necessary to advance in specific construction careers. Students will be able to employ tools safely and interpret construction drawings to complete projects demonstrating proper measurement and application of mathematical concepts. Standards in this course also include an overview of the construction industry and an introduction to building systems and materials.

Property Maintenance and Repair A
Property Maintenance and Repair B

Students will gain knowledge in the basic needs of maintaining residential and commercial property. In addition to general safety, curriculum will include, but is not limited to, the following non-code topics: pouring and finishing a small concrete pad, framing and finishing walls, basic writing and electrical topics, mounting a toilet, changing a bath/kitchen fixture, sprinkler systems, changing door hardware, painting, installing roofing and fencing, and basic furniture repairs.

Set Construction and Stage Craft A
Set Construction and Stage Craft B

This class introduces students to a practical approach to technical and production aspects of Stage Craft. Students learn the skills needed to construct scenery, stage platforms, presentation staging, and implement for productions. Students are trained in the usage of tools, lumber and machinery.

WBL: Construction Pathways

This course is designed to prepare students to enter the workforce through on-the-job training in the form of a work-based learning experience and may be combined with class instruction. Students will build on prior knowledge and skills in the program of study aligned to their career and academic plan to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education. Students will have the opportunity to develop skills in supervised practical experience on the job or in a classroom-based job environment. A personalized learning plan is a requirement of this course.

Woodworking Technology A
Woodworking Technology B

This course provides an overview of the planning, design, layout, and technical drawing interpretation for practical use in woodworking, cabinetmaking, and mill working. Different cabinet and furniture styles used, various wood products and materials, and proper tool selection may also be covered. Students will be introduced to the different construction processes in the cabinetmaking, furniture making, and millwork industries. Students will learn about measurement, layout, shop drawings and cutting lists. They will gain a basic understanding of the various kinds of materials used in the industry. Students will learn to use selected woodworking tools and machinery. Correct and safe use of tools and equipment is emphasized. The construction of several projects will develop students woodworking skills.

Woodworking Technology II A
Woodworking Technology II B

Students will expand their knowledge of workshop and tool safety, joinery techniques, project design, shop maintenance, power tool and hand tool use and wood theory. There will be an emphasis on craftsmanship and on joinery skills, attention to detail and elements of design. Prerequisite: Woodworking Technology

Woodworking Technology III A
Woodworking Technology III B

Woodworking Technology III provides continuing instruction in woodworking with a blend of historic and modern technology skills. This course includes in-depth instruction of hand tools, power tools, custom made tools, advanced woodworking techniques, drafting and wood science. Prerequisite: Woodworking Technology II

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

Drafting & Design Cluster

General Drafting and Design Pathway (151301)

Credential: Course Dependent

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Drafting & Design Concepts (A/B)	Drafting and Design Technology (A/B)	Design and Drafting Technology II (A/B)	Advanced Drafting III (A/B)
	IB Design Technology 1-2	IB Design Technology 3-4	CE Coursework in Drafting Pathway
	Introduction to Technical Drawing/Design (A/B)	Applied Engineering Design (A/B)	WBL Apprenticeship

Industry credentials available in this pathway

Architecture and Construction/Pre-Construction Pathway (151301)

Credential: CTE Architecture and Construction; CTE STEM; FACS

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Drafting & Design Concepts (A/B)	Drafting and Design Technology (A/B)	Architectural Drafting (A/B)	Building Modeling (A/B)
	Introduction to Technical Drawing/Design (A/B)	CAD for Civil Engineers (A/B)	Engineering and Design Capstone (A/B)
		Interior Design (A/B)	WBL Apprenticeship

Industry credentials available in this pathway

Manufacturing Design Pathway (151301)

Credential: CTE Architecture and Construction; CTE STEM

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Drafting & Design Concepts (A/B)	Drafting and Design Technology (A/B)	Applied Engineering Design (A/B)	Industrial Design (A/B)
	Introduction to Technical Drawing/Design (A/B)		Engineering and Design Capstone (A/B)
			WBL Apprenticeship

Industry credentials available in this pathway

Drafting & Design Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

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Advanced Drafting and Design III A
Advanced Drafting and Design III B

This class focuses on advanced mechanical drafting, architectural, residential, and commercial structures, as well as industrial product design concepts. Students will apply model making skills to produce scale models. A majority of this class will focus on programs such as SolidWorks, ArchiCad, and Google SketchUp. This class will provide a platform for all advanced students that are serious about the potential of a career in the world of design and architecture. Students will use their drafting skills to create real-world products and prototypes. They will calculate cost and evaluate key design features for structural stability and product appeal.

Applied Engineering Design A
Applied Engineering Design B

Applied Engineering Design is an applied course for students interested in further developing their skills as future engineers. This course covers knowledge, skills, and concepts required for postsecondary engineering and technology fields of study. Upon completion of this course, proficient students are able to explain the differences between scientists and engineers, understand the importance of ethical practices in engineering and technology, identify components of control systems, create simple free body diagrams, use measurement devices employed in engineering, conduct basic engineering economic analysis, follow the steps in the engineering design process to complete a team project, and effectively communicate design solutions to others.

Architectural Drafting A
Architectural Drafting B

Architecture is designed for advanced drafters to develop skills in the field of architectural engineering. This class will offer the experience in the development and design of structures using architectural design software. Students will develop drafting skills through reading architectural blue prints and generating floor plans for real world applications. This course is designed to allow students to use their knowledge of CAD to create a set of house plans that meet city code requirements for the city. Students will use CAD software and draw a floor plan, plot plan, electrical plan, foundation plan, and elevation for their house as well as construct a model frame house.

Building Modeling A
Building Modeling B

This introductory course in Building Information Modeling (BIM) focuses on CAD Construction Industry applications as a platform for learning key principles in the application of digital media in the design and documentation of building elements within a parametric environment. Fundamental training is provided, so students can progress to more advanced design computation and its application in the construction industry. Through a series of lectures and

exercises, this course explores basic BIM concepts that apply to all parametrically driven CAD systems.

CAD for Civil Engineers A
CAD for Civil Engineers B

This overview of the fields of civil engineering and architecture emphasizes the inter-relationship and mutual dependence of both fields. Students use state-of-the-art software to solve real world problems and apply knowledge to hands-on projects and activities. By developing and implementing plans, students will experience firsthand job responsibilities of architects and civil engineers. By the end of the course, students will be able to give a complete three-dimensional rendering of buildings and improvements, zoning and ordinance constraints, infrastructure requirements, and other essential project plans.

Capstone: Drafting & Design Pathway

This course allows for advanced work in any Drafting and Design Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Drafting and Design Technology A
Drafting and Design Technology B

This class will cover the basic principles of the world of drafting. Students will explore the many aspects of how drafting can be used in architecture, industrial design, engineering, graphic arts and other professions. We will follow protocol dictated by manufacturing industries and drafting standards. Students will use drafting tools to create drawings of preliminary sketches, orthographic projections, isometric, floor plans, and many others. Emphasis will be placed on paying close attention to detail such as line quality, neatness, correct use of tools and accuracy. All students are required to read and use a scale for measuring.

Drafting and Design Technology II A
Drafting and Design Technology II B

This class will expand on the basic principles of the world of drafting and how drafting can be used in architecture, industrial design, engineering, graphic arts and other professions. Protocols dictated by various industries and their drafting standards will be introduced. Students will use drafting tools to create drawings of preliminary sketches, orthographic projections, isometric, floor plans, and many others. Emphasis will be placed on paying close attention to detail such as line quality, neatness, correct use of tools and accuracy. All students are required to read and use a scale for measuring.

IB Design Technology 1
IB Design Technology 2
IB Design Technology 3
IB Design Technology 4

Diploma Program design technology is based on a model of learning that incorporates knowledge, skills and design principles in problem-solving contexts, while at the same time maximizing the use of local and readily available resources. It assumes no previous experience in either technology or design. The intent is not solely the acquisition of knowledge about design and technology, which may change or become outdated, but it is about learning how to adapt to new experiences and to approach problems with the appropriate skills and the relevant techniques to identify the important elements and, crucially, to develop the optimum solutions. The design cycle is at the core of the course, and it is expected that students will use this process in the practical investigative work as well as in the theory. Each element in the design cycle represents an aspect of design technology, which, when viewed together, constitutes a holistic approach. Any given element is therefore only to be seen in the context of the whole process. To design with technology is to use human ingenuity in selected activities in order to meet needs and find solutions. This can be achieved through existing or new technologies. Design consists of gathering information about the problem or opportunity, processing that information, and planning for some kind of intervention either by modifying what is already there or by introducing something new. The designer is interested not just in the material environment but also in the social, technological, economic, environmental, political, legislative and ethical considerations that affect peoples' priorities.

Industrial Design I – A
Industrial Design I – B

Industrial design is the professional practice of creating products that enhance the function, usability, value, and appearance of products with the goal of benefiting the user, manufacturer, community, and the environment. Also known as product design, industrial design education prepares students to design systems and tangible artifacts including, consumer and recreational products, medical and computer equipment, and transportation and environments. Both generalist and specialist, industrial designers tend to be part artist, parent entrepreneur and engineer. This course is designed for students interested in careers in Industrial Design, Packaging Design, or Design Arts industry sector. Students will be introduced to industry-standard tools, skills, and materials that they can manipulate as the primary means of manufacturing and package design. Students will explore basic applications of various tools to create projects in both digital and 3D format.

Interior Design 1
Interior Design 2

The purpose of this course is to expose students to various aspects of the interior design industry and is based on the industry's professional standards (Council of Interior Design Accreditation-CIDA). The first semester focuses on residential design. Students integrate knowledge, skills and practices to evaluate potential career opportunities. Areas of focus include: Introduction to Residential and Commercial Design; Design Drawings; Professional Practices/Education; Design Elements and Principles; and the Design Process.

Introduction to Drafting & Design Concepts A
Introduction to Drafting & Design Concepts B

This course offers students the opportunity to combine design principles with technology to produce authentic projects. The initial focus will be on developing an understanding of the visual elements and the principles of design. Students will study both two and three dimensional applications and problems. Students will explore areas such as: graphic design, architectural design, landscaping design, manufacturing design and interior design. Students will use drafting skills to produce detailed working drawings, sectionals, auxiliary, fasteners, and simple architectural floor plans. Students will also work in design teams to create pattern development and design and produce prototypes. They will be introduced to computer design software such as Google Sketch, SolidWorks, and ArchiCad.

Introduction to Technical Drawing/Design A
Introduction to Technical Drawing/Design B

This yearlong course develops skills in drafting and design of structures and products. This is accomplished by introducing a design process of refining sketches through technical hand and computer-aided drafting. The use of a CAD-CAM program will allow students to visually apply creative design elements to specific projects.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

WBL: Drafting & Design Pathway

This course is designed to prepare students to enter the workforce through on-the-job training in the form of a work-based learning experience and may be combined with class instruction. Students will build on prior knowledge and skills in the program of study aligned to their career and academic plan to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education. Students will have the opportunity to develop skills in supervised practical experience on the job or in a classroom-based job environment. A personalized learning plan is a requirement of this course.

Transportation Cluster

Automotive Service Pathway (470600)

Credential: CTE Transportation

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Transportation Systems (A/B)	Basic Automotive Electricity	Automotive Service Technology I (A/B)	Automotive Service Technology II (A/B)
Introduction to Automotive Services (A/B)	Maintenance and Light Repair I (A/B)	Electronics DC/AC	Automotive Service Technology III (A/B)
	Maintenance and Light Repair II (A/B)	Maintenance and Light Repair III (A/B)	Maintenance and Light Repair IV (A/B)
		AST Comprehensive/CE	Vehicle Systems (A/B)
			Electrical Systems Diagnostics and Repair
			ASE Master Technician (A/B)
			CE Coursework in Automotive Pathway
			WBL Apprenticeship

Industry credentials available in this pathway

ASE MLR
ASE Technician
ASE Master Technician

Collision Technology Pathway (470600)

Credential: CTE Transportation

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Transportation Systems (A/B)	Basic Automotive Electricity	Collision Repair: Non-Structural (A/B)	Collision Repair: Refinishing (A/B)
	Introduction to Collision Repair and Refinishing (A/B)		Automotive Customization (A/B)
			Collision Repair: Estimating
			CE Coursework in Collision Pathway
			WBL Apprenticeship

Industry credentials available in this pathway

ICAR

Diesel Technology Pathway (470600)

Credential: CTE Transportation

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Transportation Systems (A/B)	Basic Automotive Electricity	Diesel Automotive Technology II (A/B)	Diesel Engines I (A/B)
	Diesel Automotive Technology I (A/B)		Diesel Brake Systems
			Diesel Automotive Technology III (A/B)
			CE Coursework in Diesel Pathway
			WBL Apprenticeship

Industry credentials available in this pathway

Manufacturer-specific credentials may be available depending on instructor qualifications and student access to appropriate manufacturer's equipment.

Motorcycle and Powersport Pathway (470600)

Credential: CTE Transportation

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Transportation Systems (A/B)	Sports Vehicle Repair Technology (A/B)	Sports Vehicle Repair Technology II (A/B)	Sports Vehicle Repair Technology III (A/B)
			CE Coursework in Motorcycle and Powersport Pathway
			WBL Apprenticeship

Industry credentials available in this pathway

Compact Equipment Maintenance Pathway (470600)

Credential: CTE Transportation

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Compact Engines I (A/B)	Compact Engines II (A/B)		CE Coursework in Motorcycle and Powersport Pathway
			WBL Apprenticeship

Industry credentials available in this pathway

Briggs and Stratton
EETC

Transportation Cluster Course Descriptions

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ASE Master Technician A
ASE Master Technician B

The ASE Master Technician/CE course prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles at an Advanced level (a student must successfully complete AST Comprehensive to enroll in this program). Courses in this program includes instruction in brake systems, electrical systems, engine performance, engine repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air conditioning systems. A full Master Automotive Service Technician MAST program aligns to NATEF standards and is equivalent to 1200 hours. Students who successfully complete MAST courses will have the knowledge needed to pass ASE certification exams. Students who pass the exams and meet the work-based requirement will be eligible and encouraged to enter the workforce as an ASE-Certified Technician. This course delivers competencies that are in alignment to a local Community College Automotive Program. Postsecondary courses included in this course are as follows: (listed by program)

AST Comprehensive/CE 1
AST Comprehensive/CE 2

Automotive Service Technician (AST) Comprehensive/CE course prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles at an INTERMEDIATE level (a student must successfully complete MLR Comprehensive to enroll in this program). Includes instruction in brake systems, electrical systems, engine performance, engine repair, suspension and steering, automatic and manual transmissions and drive trains, and heating and air conditioning systems. This program aligns to NATEF standards and is equivalent to 840 hours. Students completing this program will be prepared for Master Automotive Service Technician (MAST) coursework. Students who successfully complete all AST courses will have the knowledge needed to pass the ASE certification exams. Students who pass the exams and meet the work-based requirement will be eligible and encouraged to enter the workforce as an ASE-Certified Technician. This course delivers competencies that are in alignment to a local Community College Automotive Program. Postsecondary courses included in this course are as follows: (listed by program)

Automotive Customization A
Automotive Customization B

Students will develop an understanding of the Automotive Customizing and Refinishing process through both theory and lab experiences. The student will be taught how to design and build customized vehicles including advanced refinishing and painting techniques. The student will learn about tools of the trade and how to correctly use them. This course is an advanced topics course and will build on the skills learned in the Collision Repair and Refinishing courses.

Automotive Service Technology A
Automotive Service Technology B

Automotive Service Technology (AST) prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles at an INTERMEDIATE level. This course builds on concepts learned in Auto Basic, MLR, and/ or Compact Engines. Students receive instruction on basic automobile maintenance requirements, specific tool uses and safety procedures. Inspection and repair of automotive systems is stressed in the areas of brakes, electrical, suspension, fuel, emissions and tune up procedures.

Automotive Service Technology II A
Automotive Service Technology II B

Automotive Service Technology (AST) prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles at an INTERMEDIATE level. This course builds on concepts learned in Auto Basic, MLR, and/ or Compact Engines. This course is designed to expand the knowledge and skills that the student achieved in Automotive Technology I. Each student will become proficient in advanced skills in the areas of electronic and computerized ignition systems, brake systems, and fuel systems. The students will continue to receive instruction in brakes, electrical/electronic systems, engine performance, and suspension and steering to continue to prepare them for the ASE certification exams.

Automotive Service Technology III A
Automotive Service Technology III B

Automotive Service Technology (AST) prepares individuals to apply technical knowledge and skills to repair, service, and maintain all types of automobiles at an INTERMEDIATE level. This course builds on concepts learned in Auto Basic, MLR, and/ or Compact Engines. This course is designed to expand the knowledge and skills that the student achieved in Automotive Technology II. This course focuses on the removal and installation procedures of the automotive engine from and into front wheel and rear wheel drive vehicles. The students will have lecture and laboratory experiences in the disassembly, diagnosis and reassembly of the automotive engine. Topics include the diagnostic and repair procedures for the engine block and head assemblies. Students will continue to receive instruction in other ASE areas to continue to prepare them for ASE certification exams.

Basic Automotive Electricity

Basic Automotive Electricity introduces vehicle electricity and includes basic electrical theory,

Capstone: Transportation Pathway

This course allows for advanced work in any Transportation Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Collision Repair: Estimating

Upon completion of this course, a proficient student proficient will be able to assess collision damage, estimate repair costs, and work with vehicle owners in a professional setting. Utilizing problem-solving strategies and resources developed in this course, including original equipment manufacturer (OEM) manuals, electronic data, and photo analysis of damaged vehicles, students will be prepared to generate work orders in a variety of collision damage situations.

Collision Repair: Non-Structural A
Collision Repair: Non-Structural B

Collision Repair: Non-Structural is for students who wish to obtain in-depth knowledge and skills in repair procedures for non-structural repairs in preparation for postsecondary training and careers as collision repair technicians. Upon completion of this course, proficient students will be able to analyze non-structural collision damage and write and revise repair plans. Students will read and interpret technical texts to determine, understand, and safely perform appropriate repair techniques and procedures. Standards in this course include preparing vehicles for repair, removing and replacing panels and body components, metal finishing, body filling, removing and replacing moveable glass and hardware, metal welding and cutting, and repair of plastics.

Collision Repair: Refinishing A
Collision Repair: Refinishing B

Collision Repair: Refinishing is designed to teach the concepts and theory of systems related to automotive paint and refinishing. Upon completion of this course, proficient students will be able to develop, document, and implement refinishing plans for given vehicles. Students will read and interpret technical texts to determine, understand, and safely perform appropriate refinishing techniques and procedures. Standards in this course include surface preparation; spray gun and related equipment operation, paint mixing, matching, and applying; diagnosis and correction of paint defects; and final detailing.

Compact Engines A
Compact Engines B

Provides students with safety instruction in compact engine repair and preventative maintenance. Students also learn the operation and theory of 2-stroke and 4-stroke engines as well as instruction on the proper methods on engine diagnosis, repair and engine overhaul. Additional coursework includes instruction on basic electrical theory, magnetism, basic circuitry, circuit testing, starting systems diagnosis and repair charging systems diagnosis and repair and ignition systems diagnosis and repair.

Compact Engines II A
Compact Engines II B

Compact Engine Technology II includes advanced knowledge of the function, diagnosis, and service of the systems and components of all types of compact engines such as outdoor power equipment, motorcycles, generators, and irrigation engines. This course is designed to provide hands-on and practical application for employment in the small engine technology industry. Instruction includes the repair and service of cooling, air, fuel, lubricating, electrical, ignition,

and mechanical systems and compact engine overhauls.

Diesel Automotive Technology A
Diesel Automotive Technology B

Focuses on a basic understanding of general maintenance procedures for trucks and outlines the duties and responsibilities of the diesel mechanic. Addresses the use of shop tools, shop equipment and the use of flat-rate and vehicle and shop safety procedures, and tool requirements. Covers preventative maintenance procedures. Provides instruction on the basic fundamentals of hydraulics and their application to diesel technology. Hydraulic pumps, valves, cylinders, motors, and accumulators are discussed. Focuses on the various braking systems incorporated in heavy-duty trucks and heavy equipment. Includes a study of hydraulic, air, and engine brake systems and covers the diagnosis and service of the components.

Diesel Automotive Technology II A
Diesel Automotive Technology II B

The Diesel Automotive Technology II course is a one-year program designed to train entry level diesel mechanics to enter the workforce at the apprentice level. Students are trained in: Advanced Transmission & Engine Rebuilding; Advanced Computer Diagnostic & Engine Performance; Gas and Diesel Engines; Advanced Driveline Repair; DOT Inspection Procedures; Air-Conditioning; Advanced Electrical Diagnostic & Repair; Advanced Suspension & Repair All course competencies will follow ASE, N.A.T.E.F. standards. Students will be working on live-units with real-world problems to diagnose/repair and to gain the hands-on experience they need to become successful technicians.

Diesel Automotive Technology III A
Diesel Automotive Technology III B

The Diesel Automotive Technology III course is designed to train entry level diesel mechanics to enter the workforce at the apprentice level. Students will practice skill development of competencies covered in Diesel Technology I & II as well as cover additional topic areas in: braking systems, lighting systems, drive train, suspension, and frame and fifth wheel. All course competencies will follow ASE, N.A.T.E.F. standards. Students will be working on live-units with real-world problems to diagnose/repair and to gain the hands-on experience they need to become successful technicians.

Diesel Brake Systems A
Diesel Brake Systems B

Focuses on preventive maintenance of heavy duty truck & equipment hydraulic and pneumatic brake systems, including recording of critical information for the customer. Enables students to grasp the importance of preventive maintenance while gaining an understanding of component operation.

Diesel Engines A
Diesel Engines B

Covers the theory and operation of diesel engines with emphasis on cylinder heads and valve trains diagnosis and repair. Also introduces the cooling system's importance with diagnosis and repair. Enables students to diagnose, test, and repair cylinder heads and cooling systems on diesel engines.

Electrical Systems Diagnostics and Repair

Provides a comprehensive study of the theory, operation, diagnosis, and repair of vehicle accessories and electrical systems.

Electronics DC/AC and Electricity

This course introduces the basic principles of electronics including the fundamentals of Direct Current (DC), Alternating Current (AC), and robotics. Topics include basic circuits, voltage, current and resistance measurement, Ohm's Law, series and parallel circuits, magnetism, motors and generators, electromagnetic induction, and robotics. Electronic theory is reinforced through breadboarding circuits in the lab. Students fabricate printed circuit board projects. Utilization of electronic test equipment is emphasized. This course may be taught in multiple pathways by the appropriately credentialed instructor and may be tailored to a specific industry (transportation, manufacturing, aviation, etc.)

Introduction to Automotive Service A
Introduction to Automotive Service B

This course is designed to give the first year student a basic understanding and introduction to the occupation of Automotive Service and Repair. This will include studies in the following areas: orientation to automotive related industries; career opportunities in the field; orientation to an automotive shop environment; shop and environmental safety; identifying and using tools related to the industry; hazardous materials and waste management; communications and public relations as it relates to the industry; use of manuals and computers in all areas of the industry; use of precision measuring tools and automotive math; theory, presentation and evaluation of performance tasks in the areas of automobile repair.

Introduction to Collision Repair and Refinishing A
Introduction to Collision Repair and Refinishing B

Designed as an orientation to the automotive collision repair industry. Students receive an overview of job possibilities as well as learn various types of techniques or practices used within the automobile collision repair industry including Safety, Non-Structural Repair Preparation, Refinishing Safety, Surface Preparation and Estimating Practices.

Maintenance and Light Repair A
Maintenance and Light Repair B

Automotive Maintenance and Light Repair (MLR) explores automotive industry standards and terminology, career opportunities and classifications, shop operations and safety, tool identification and usage, diagnostic equipment identification and usage, automotive systems,

tires and wheels, hydraulic braking systems, cooling systems, lubrication systems, and preventative maintenance. Also included is basic operation of automotive braking systems, operation, diagnosis and basic repair of disc, drum, and basic hydraulic braking systems. The basics of electrical systems, electronic systems, batteries, starting systems, charging systems, lighting systems, electrical instruments and accessories, and ignition systems will also be studied. This course focuses on the diagnosis and service of suspensions and steering systems and their components. Students who successfully complete all MLR courses will have the knowledge needed to pass the ASE certification exam for MLR. Students who pass the exam and meet the work-based requirement will be eligible and encouraged to enter the workforce as an ASE-Certified MLR Technician.

Maintenance and Light Repair II A
Maintenance and Light Repair II B

MLR II is the second course in the Automotive Maintenance and Light Repair program of study and covers important skills and knowledge on becoming a professional service technician. The Maintenance and Light Repair II (MLR II) course prepares students for entry into Maintenance and Light Repair III. Students study automotive general electrical systems, starting and charging systems, batteries, lighting, and electrical accessories. Students who successfully complete all MLR courses will have the knowledge needed to pass the ASE certification exam for MLR. Students who pass the exam and meet the work-based requirement will be eligible and encouraged to enter the workforce as an ASE-Certified MLR Technician.

Maintenance and Light Repair III A
Maintenance and Light Repair III B

The Maintenance and Light Repair III (MLR III) course prepares students for entry into Maintenance and Light Repair IV. Students study and service suspension and steering systems and brake systems. Students who successfully complete all MLR courses will have the knowledge needed to pass the ASE certification exam for MLR. Students who pass the exam and meet the work-based requirement will be eligible and encouraged to enter the workforce as an ASE-Certified MLR Technician.

Maintenance and Light Repair IV A
Maintenance and Light Repair IV B

The Maintenance and Light Repair IV (MLR IV) course prepares students for entry into the automotive workforce or into postsecondary training. Students study and service automotive HVAC systems, engine performance systems, automatic and manual transmission/transaxle systems, and practice workplace soft skills. Students who successfully complete all MLR courses will have the knowledge needed to pass the ASE certification exam for MLR. Students who pass the exam and meet the work-based requirement will be eligible and encouraged to enter the workforce as an ASE-Certified MLR Technician.

Principles of Transportation Systems A
Principles of Transportation Systems B

In Principles of Transportation Systems, students will gain knowledge and skills in the safe application, design, production, and assessment of products, services, and systems. This

knowledge includes the history, laws and regulations, and common practices used in the transportation industry. Students should apply knowledge and skills in the application, design, and production of technology as it relates to the transportation industries

Sport Vehicle Repair Technology A
Sport Vehicle Repair Technology B

Sport Vehicle Repair Technology is a course designed to give students an entry level education in the world of sport vehicle repair. Students will be introduced and focus on safety, tools and equipment, fasteners, measuring, engine identification (2 and 4 stroke), inspection, basic engine principles and design. Industry workforce readiness skills, communication, and writing techniques are also emphasized daily.

Sport Vehicle Repair Technology II A
Sport Vehicle Repair Technology II B

Sport Vehicle Repair Technology II is a continuation of Sport Vehicle Repair Technology I. Students will continue study in engine design and advancing their knowledge in lubrication systems, cooling systems, fuel systems, basic electricity, safety systems and ignition systems. Students will participate in the overhaul of two and four stroke engines. Students at this level will be gaining intermediate level skills, which should enhance their employment skill set.

Sport Vehicle Repair Technology III A
Sport Vehicle Repair Technology III B

Sport Vehicle Repair Technology III is a continuation of Sport Vehicle Repair Technology II. This course is designed to expose the students to a variety of vehicles. Students will expand previous skills into a complete vehicle system. Motorcycle and ATV Lawn equipment and other vehicles will be repaired and maintained. Students will also participate in shop operations which include customer relations, parts and labor accountability. Students will review an overview of employment possibilities in the sport vehicle repair industry.

Vehicle Systems A
Vehicle Systems B

This course applies the knowledge learned from the Automotive Technology I-III classes and expands to more in-depth training and advanced techniques including: brakes, vehicle suspension and steering systems, including vehicle wheel alignment, advanced wheel and tire concepts, system diagnostic analysis, vehicle emissions systems, and dynamometer testing, and manufacturer specific electrical systems. Emphasis will be placed on career exploration throughout the industry and students will complete tasks preparing them to successfully pass ASE exams. Additionally, students are provided multiple opportunities to explore and pursue post-secondary education in the automotive technology industry and NATEF areas. Students will also be introduced to several post-secondary training opportunities in order to further their career in this industry. This class is designed to meet the course requirements for a secondary education NATEF certified program. These courses prepare students for entry-level positions in the four areas taught within the curriculum (electrical and electronics, brakes, suspension and steering, and engine performance).

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.

WBL: Transportation Pathway

This course is designed to prepare students to enter the workforce through on-the-job training in the form of a work-based learning experience and may be combined with class instruction. Students will build on prior knowledge and skills in the program of study aligned to their career and academic plan to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education. Students will have the opportunity to develop skills in supervised practical experience on the job or in a classroom-based job environment. A personalized learning plan is a requirement of this course.

Manufacturing Cluster

Manufacturing Production Pathway (480000)

Credential: CTE Manufacturing; CTE STEM (where noted on course scope and sequence)

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Manufacturing (A/B)	Manufacturing Technology (A/B)	Manufacturing Technology II (A/B)	Manufacturing Technology III (A/B)
	MYP Manufacturing I (A/B)	MYP Manufacturing II (A/B)	Metal and Machining Fabrication II (A/B)
	Introduction to Machining (A/B)	CNC Manufacturing (A/B)	Independent Study: Manufacturing Pathway
	PLTW Computer Integrated Manufacturing (A/B)	Metal and Machining Fabrication (A/B)	Capstone: Manufacturing Pathway
		Process Science	CE Coursework in Manufacturing Pathway
			WBL Apprenticeship

Industry credentials available in this pathway

NIMS

Furniture Manufacturing Pathway (480000)

Credential: CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Cabinet Manufacturing A	Cabinet Manufacturing C	Cabinet Manufacturing E	Cabinet Manufacturing G
Cabinet Manufacturing B	Cabinet Manufacturing D	Cabinet Manufacturing F	Cabinet Manufacturing H
Principles of Manufacturing (A/B)	Woodworking Technology II	Woodworking Technology III	Advanced Furniture Making (A/B)
Woodworking Technology (A/B)			WBL Apprenticeship

Industry credentials available in this pathway

WCA

Industrial Manufacturing Pathway (480000)

Credential: CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Manufacturing (A/B)	Power and Energy Technology (A/B)	Power Energy Technology II / Industrial Maintenance (A/B)	HVAC Technology I
			CE Manufacturing
			CE Power and Energy Pathway
			CE Electrical Pathway
			WBL Apprenticeship

Industry credentials available in this pathway

WCA

Manufacturing Graphics & Industrial Design Pathway (480000)

Credential: CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Manufacturing (A/B)	Introduction to Technical Drawing/Design (A/B)	Industrial Design I (A/B)	Industrial Design II (A/B)
		Applied Engineering Design (A/B)	Capstone: Drafting and Design
			Capstone: Manufacturing
			WBL Apprenticeship

Industry credentials available in this pathway

Solidworks
Autodesk

Mechatronics Pathway (480000)

Credential: CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Principles of Manufacturing (A/B)	Robotics & Automated Systems	Electronics – Analog/Robotics	Electromechanical Control Systems (A/B)
		Digital Electronics	Robotics and Mechatronics II (A/B)
		Electronics – Solid State/Semi-Conductor	WBL Apprenticeship
		Robotics and Mechatronics Technology (A/B)	
		Electronics DC/AC and Electricity	

Industry credentials available in this pathway

NIMS

Welding Pathway (480000)

Credential: CTE Manufacturing

Level 1 Courses	Level 2 Courses	Level 3 Courses	Level 4 Courses
Introduction to Welding (A/B)	Welding Technology I (A/B)	Welding Technology II (A/B)	Welding Technology III (A/B)
		Welding for Jewelry Making	Maintenance Welding Practices and Procedures
		Introduction to Ornamental Iron	Welding Technology IV (A/B)
		Metal Sculpting	WBL Apprenticeship

Industry credentials available in this pathway

AWS

Manufacturing Cluster Course Descriptions

COURSES ARE LISTED ALPHABETICALLY

VIEW COURSE COMPETENCIES FOR THESE COURSES AT HTTP://COLORADOSTATEPLAN.COM/SECONDARY-PATHWAYS/

Advanced Furniture Making A
Advanced Furniture Making B

Advanced furniture making is a course designed to further develop student skills in the wood industry for career or higher educational goals. Students will complete large scale projects that are challenging. Safety is emphasized throughout the course. Students complete a contract with the instructor.

Applied Engineering Design A
Applied Engineering Design B

Applied Engineering Design is an applied course for students interested in further developing their skills as future engineers. This course covers knowledge, skills, and concepts required for postsecondary engineering and technology fields of study. Upon completion of this course, proficient students are able to explain the differences between scientists and engineers, understand the importance of ethical practices in engineering and technology, identify components of control systems, create simple free body diagrams, use measurement devices employed in engineering, conduct basic engineering economic analysis, follow the steps in the engineering design process to complete a team project, and effectively communicate design solutions to others.

Cabinet Manufacturing A

Students learn and master the techniques of "Lean Manufacturing" which is the systematic method of eliminating waste within a manufacturing environment. All students will manufacture the same part at the same time working in teams of two, demonstrating manufacturing efficiency. Students will demonstrate the safe operation of all tools and machinery. Students master the use of a multitude of tools and machines to build high quality products in a state of the art lab environment. Some of the tools and machines students learn to use in this course are: UpCut Saw, table saw, band saw, routers, profile sander, drill press, jig and skill saws. In addition, students learn to identify different types of lumber and it's uses. Students will complete a cabinet casework with tapered legs, a drawer, a door and top.

Cabinet Manufacturing B

Students will continue to be trained in the operation and safety practices of the tools and machines from CM1. Students will also learn to use the a jointer, planer, and lathe. In addition, students will learn more advanced uses of the tools and machines. Students will also be introduced to computer numerical control (CNC) machines during this course. Students will access a fully equipped computer lab utilizing CAD software to create 2 D models and tool paths to drive a CNC router. Students will build a small profile Mortise and Tenon table from solid hardwoods.

Cabinet Manufacturing C

Students will continue to increase and refine their manufacturing skills. They will begin to use CAD software to design their projects. During this course students will manufacture an advanced cabinet that requires critical thinking in the design, construction and devise installation options that would be common on standard job sites. Students will use all the skill standards learned in Cabinet Manufacturing A & B.

Cabinet Manufacturing D

Students will continue to increase and refine their manufacturing skills. They will begin to use CAD software to design their projects. During this course students will manufacture an advanced cabinet that requires critical thinking in the design, construction and devise installation options that would be common on standard job sites. Students will use all the skill standards learned in Cabinet Manufacturing prior coursework.

Cabinet Manufacturing E

In this class students will begin taking the Woodworking Career Alliance (WCA) Passport Exams. Students who complete Cabinet Manufacturing IV and pass the 10 required exams will receive a WCA Passport. This passport is quickly becoming recognized as the top certification for wood product manufacturing. In addition to testing for their passports, students will begin to work as a team in a cabinetry shop, students will work on scheduling appointments, learn about bidding jobs and product production. Students will learn to gather project information, generate drawings using drafting software, generate material lists, determine costs and produce a bid for the project.

Cabinet Manufacturing F

In this class students continue to work on earning credentials for their WCA Passport. Students continue to work as a manufacturing team to bid, design, price materials, build and install projects for actual customers. Student will continue using CAD software to design projects and learn to transfer their designs to make basic blueprints. Students will also tour local manufacturing companies to explore career opportunities associated with advanced manufacturing.

Cabinet Manufacturing G
Cabinet Manufacturing H

In this class students continue to work on earning credentials for their WCA Passport. Students will also learn how to properly care for woodworking hand tools. Students will work as a team to build a project from a set of blueprints provided by the instructor. Students must be able to demonstrate their ability to read the blueprints, determine needed materials, and divide job tasks. Students will be given a project deadline. Students will continue to explore career opportunities by taking tours of local manufacturing companies, lumber yards and other employers who hire skilled wood workers.

Capstone: Manufacturing Pathway

This course allows for advanced work in any Manufacturing Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

Capstone: Welding Pathway

This course allows for advanced work in the Welding Program of Study. This advanced work can be individualized to the specific program of study to allow for specialized study for the student. It may include project based learning or preparation for end of program industry certification. Specific content and course design will be determined by the instructor in collaboration with the individual student.

CNC Manufacturing A
CNC Manufacturing B

This course covers fundamentals of computer numerical control (CNC), basic programming, machine setup and operation of CNC machines. The course begins with manual programming practices so that the student will understand the programming code and its structure. G & M codes, control functions, the letter address system, and math issues related to CNC are included. Standard safety conventions will be introduced for safe programming practice. This course allows for the further development of CNC skills with hands-on instruction related to the CNC milling machines, and CNC turning centers. The lab work includes operation of CNC machines to demonstrate the programming skills.

Digital Electronics

Digital Electronics is the study of electronic circuits that are used to process and control digital signals. In contrast to analog electronics, where a continuously varying voltage represents information, two discreet voltages or logic levels represent digital signals. This distinction allows for greater signal speed and storage capabilities and has revolutionized the world of electronics. Digital electronics is the foundation of modern electronic devices such as cellular phones, digital audio players, laptop computers, digital cameras, and high-definition televisions. The primary focus of Digital Electronics is to expose students to the design process of combinational and sequential logic design, teamwork, communication methods, engineering standards, and technical documentation. This course may be taught in additional pathways by the appropriate credentialed instructor.

Electromechanical Control Systems A
Electromechanical Control Systems B

Electromechanical Control Systems is designed to provide students with the knowledge and skills to effectively perform basic industrial maintenance procedures in an advanced manufacturing facility. Students in this course develop proficiency in a vast array of electromechanical domains, including: fundamental safety practices in electromechanical technology, electrical systems, AC and DC motors, calibrating instruments, drive systems, pipe

fabrication, hydraulic systems, pumps, digital electronics, programmable logic controllers (PLC), and troubleshooting procedures. Upon completion of this course, proficient students will be prepared to pursue postsecondary electromechanical technology programs and entry-level industrial maintenance technology careers in the advanced manufacturing industry.

Electronics DC/AC and Electricity

This course introduces the basic principles of electronics including the fundamentals of Direct Current (DC), Alternating Current (AC), and robotics. Topics include basic circuits, voltage, current and resistance measurement, Ohm's Law, series and parallel circuits, magnetism, motors and generators, electromagnetic induction, and robotics. Electronic theory is reinforced through breadboarding circuits in the lab. Students fabricate printed circuit board projects. Utilization of electronic test equipment is emphasized. This course may be taught in multiple pathways by the appropriately credentialed instructor and may be tailored to a specific industry (transportation, manufacturing, aviation, etc.)

Electronics-Analog/Robotics

An in-depth study of series-parallel circuits, inductive and capacitive reactance, rectification, amplification, voltage regulation, semi-conductors, and robotics will be conducted. Electronic theory is reinforced through breadboarding circuits in the lab. Students will program robots to perform a specific task.

Electronics-Solid State/Semiconductor

The course is an introduction to semiconductor fundamentals and applications to the electronic devices. Course creates the background in the physics of the compound semiconductor-based electronic devices and also prepare students to advanced courses in solid state and quantum electronics. The course provides an opportunity for students to continue education in undertaking advanced study and research in the variety of different branches of semiconductor device applications. Topics include the background solid state and semiconductor physics, and basic principles of electronic devices operation including diodes, transistors, and FETs, SCRs and UJTs. The hands-on laboratory portion of this course compares different type devices and their characteristics with emphasis on real life circuits and applications.

HVAC Technology A
HVAC Technology B

In Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I, students will gain knowledge and skills needed to enter the industry as technicians in the HVAC and refrigeration industry or building maintenance industry, prepare for a postsecondary degree in a specified field of construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, principles of HVAC theory, use of tools, codes, and installation of HVAC and refrigeration equipment. Focuses on the installation of common piping materials in plumbing and HVAC/R systems. Covers pipe math, terminology, common piping materials and application, figuring offsets and common pipe joints. Shop projects including pipe support and hanging, center to center measurements and a variety of pipe joining methods are explored.

Industrial Design I – A
Industrial Design I – B

Industrial design is the professional practice of creating products that enhance the function, usability, value, and appearance of products with the goal of benefiting the user, manufacturer, community, and the environment. Also known as product design, industrial design education prepares students to design systems and tangible artifacts including, consumer and recreational products, medical and computer equipment, and transportation and environments. Both generalist and specialist, industrial designers tend to be part artist, parent entrepreneur and engineer. This course is designed for students interested in careers in Industrial Design, Packaging Design, or Design Arts industry sector. Students will be introduced to industry-standard tools, skills, and materials that they can manipulate as the primary means of manufacturing and package design. Students will explore basic applications of various tools to create projects in both digital and 3D format.

Intermediate/Advanced Woodworking

This class will give students the opportunity to refine their woodworking skills though planning and construction of a small piece of furniture. Machine operation skills and planning will be refined and advanced construction techniques developed.

Introduction to Machining

Basic fundamentals in the operation of machine tools are studied, including measuring tools, benchmark and layout, and tool grinding. The student performs various machine operations using the engine lathe, milling machine, vertical drills, and surface grinders. Second semester of this course covers additional blue print reading, advanced inspection, tool & cutter grinding, horizontal mill setup & operation, CAD/CAM 2D, GD & T, conventional lathe operations, and intermediate milling machine & engine lathe.

Introduction to Ornamental Iron

Forming, shaping, and fabrication of patio post, staircase railings, patio railings, gates, and safety in the welding trade.

Introduction to Technical Drawing/Design A
Introduction to Technical Drawing/Design B

This yearlong course develops skills in drafting and design of structures and products. This is accomplished by introducing a design process of refining sketches through technical hand and computer-aided drafting. The use of a CAD-CAM program will allow students to visually apply creative design elements to specific projects.

Introduction to Welding A
Introduction to Welding B

This introductory welding class teaches students the basics of Oxy-Acetylene welding and cutting, Wire Feed/Mig welding, SMAW (stick arc welding) and Plasma cutting. It also covers general and welding safety as well as general metal working procedures.

Maintenance Welding Practices and Procedures

Teaches applied metallurgy, welding process applications, and related safety. This intensive course focuses on the maintenance welding process and introduces specific skills required in a plant or equipment maintenance position where welding repairs are required.

Manufacturing Technology A
Manufacturing Technology B

This courses focuses on introducing and building basic to intermediate-level skills for manufacturing technicians. Students will learn about the operation of various manufacturing technologies and develop intermediate skills involving CNC machine operation and robotic machine operation.

Manufacturing Technology II A
Manufacturing Technology II B

Manufacturing Technology II is designed to provide students with the skills and knowledge to be effective in production environments as a machinist, CNC operator, or supervisor. Upon completion of this course, proficient students will demonstrate safety practices concerning machining technology, proper measurement and layout techniques, reading and interpreting drawings and blueprints, production design processes, and quality control procedures. Students will complete projects using various manufacturing techniques and build intermediate skills involving manufacturing techniques. Upon completion of this course, students will be knowledgeable about potential postsecondary education and career opportunities related to machining technology and will be prepared to enroll in more advanced machining courses in high school.

Manufacturing Technology III A
Manufacturing Technology III B

Manufacturing Technology III is an advanced level contextual course that builds on the introductory skills learned in the entry-level manufacturing and machining courses, stressing the concepts and practices in a production environment supported by advanced machining and engineering facilities. Students will design, produce, and maintain products that are defined by detailed technical specifications. Emphasis is placed on quality control, safety and engineering codes and standards, and production-grade machining systems. Upon completion of this course, proficient students will be able to examine blueprints and specification drawings to plan and implement the manufacture of products, machine parts to specifications using both manual and computer-controlled machine tools, and measure, examine, and test completed products to check for defects and conformance to specifications.

Metal and Machining Fabrication A
Metal and Machining Fabrication B

Metal Fabrication and Machining provides the knowledge, skills, and certifications required for equal employment opportunities in the metal production industry. This course is designed to teach students industry skills applicable to welding, sheet metal, and machining occupations.

Technical Concepts and skills in this course include: shielded and gas metal arc welding, hand and power tools common in metal manufacturing, machine tool operation including automated welding machines, lathe and mill machine processes, metallurgy, and sheet metal processes.

Metal and Machining Fabrication II A
Metal and Machining Fabrication II B

Metal Fabrication and Machining II builds on the knowledge, skills, and certifications students acquire in Metal Fabrication and Machining I. Students will develop advanced concepts and skills related to metal fabrication and machining. Topics include: blueprint planning and layout, advanced concepts in welding and machine processes and procedures, and advanced construction techniques in sheet metal manufacturing.

Metal Sculpting

Metal class designed for layout and design of metal production in relation to industrial welding shops. The course is designed for continuous welding students. The course allows students to fabricate a sculpture of art, production line, welding fabrication, structure of assembly through the process of correct design and layout all producing a professional portfolio in relation to the final project.

MYP Manufacturing I A
MYP Manufacturing I B

MYP Manufacturing I is a course designed to introduce students into the manufacturing world. Students will be introduced into welding and machining. Students will develop fundamental skills such as reading engineering drawings, manufacturing safety, proper use of hand tools, and identification of materials. Students will learn basic lathe and mill operations as well as basic welding processes. Shield metal arc welding, Oxy-acetylene welding, Mig welding and Plasma cutting will be introduced in this course.

MYP Manufacturing II A
MYP Manufacturing II B

MYP Manufacturing II is advanced course designed to manufacture certain projects set forth by instructor. Manufacturing I is a requirement in order to take this course. Students will study precision layout practices, proper measurement techniques, process planning, and tool geometry. Advanced lathe and mill operations will be taught along with advanced welding processes. Tig welding will be introduced into this course along with basic fabrication skills, print-reading, isometric drawing skills, and proper identification of welding techniques, equipment supplies, and their appropriate application.

PLTW: Computer Integrated Manufacturing A

This is semester 1 of the specialized course from PLTW called CIM. Manufactured items are part of everyday life, yet most students have not been introduced to the high-tech, innovative nature of modern manufacturing. This course illuminates the opportunities related to understanding manufacturing. At the same time, it teaches students about manufacturing processes, product

design, robotics, and automation. Students can earn a virtual manufacturing badge recognized by the National Manufacturing Badge system.

PLTW: Computer Integrated Manufacturing B

This is semester 2 of the specialized PLTW course called CIM. Manufactured items are part of everyday life, yet most students have not been introduced to the high-tech, innovative nature of modern manufacturing. This course illuminates the opportunities related to understanding manufacturing. At the same time, it teaches students about manufacturing processes, product design, robotics, and automation. Students can earn a virtual manufacturing badge recognized by the National Manufacturing Badge system.

Power & Energy Technology A
Power & Energy Technology B

Power and energy is a fundamental study of conventional energy sources and the generation and conversions of energy to power. Emphasis will be placed on heat engines or internal combustion engines, the control of mechanisms, solar energy, electricity, and the future sources of energy. Course activities include disassembling and reassembling an internal combustion engine, rocketry, mechanical power, solar energy, and basic electricity.

Power & Energy Technology II (Industrial Maintenance) A
Power & Energy Technology II (Industrial Maintenance) B

Students will study concepts in industrial maintenance for manufacturing and power and energy systems. Technical aspects of electromechanical systems and machines will be explored and students will develop technical skills in hardware repair, welding, blueprint reading, preventative maintenance and repair of hydraulics, pneumatics, electrical control systems and components. Students are introduced to different job skills in the three sectors of the industrial maintenance industry: Machinery maintenance workers, Industrial machinery mechanics, and General maintenance and repair workers.

Principles of Manufacturing A
Principles of Manufacturing B

In Principles of Manufacturing, students are introduced to knowledge and skills used in the proper application of principles of manufacturing. The study of manufacturing technology allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities. Students will gain an understanding of what employers require to gain and maintain employment in manufacturing careers.

Process Science

The main focus of this course is to connect and extend algebra and geometry concepts to other functions and systems of equations. Students continue their pursuit of formal mathematics within a context of process sciences. The classroom-ready lesson plans are built around the 11th grade district approved curriculum. Concepts and skills are illustrated in process technology which involves the production of consumer goods from raw material. Students participate in rigorous analysis of mathematics designed to facilitate the creation of products by mechanically,

physically, and/or chemically changing raw material monitored and controlled by process technicians. It is recommended that students who complete this course earn .5 Math credit. (*This is a full-year course for 1.0 credit and not delivered in the semester model. It can contribute at .5 credit to the CTE concentrator status)

Robotics and Mechatronics Technology A
Robotics and Mechatronics Technology B

Introduces industrial robotics as well as a survey of the technologies and equipment used in manufacturing automation and process control. Includes axis configurations, work envelopes, programming, troubleshooting, and maintenance. Incorporates a survey of automation topics including history, computer and hardwired controls, sensors and transducers, motors and actuators, fluid power, etc.

Robotics and Mechatronics Technology II A
Robotics and Mechatronics Technology II B

In this class students will research, design, and build projects based on the field of robotics automation. Students will learn about Pneumatics, Hydraulics, Electronics and Mechanical Design along with basics in Control and Programming by designing and building robotic systems.

WBL: Manufacturing Pathway

This course is designed to prepare students to enter the workforce through on-the-job training in the form of a work-based learning experience and may be combined with class instruction. Students will build on prior knowledge and skills in the program of study aligned to their career and academic plan to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education. Students will have the opportunity to develop skills in supervised practical experience on the job or in a classroom-based job environment. A personalized learning plan is a requirement of this course.

WBL: Welding Pathway

This course is designed to prepare students to enter the workforce through on-the-job training in the form of a work-based learning experience and may be combined with class instruction. Students will build on prior knowledge and skills in the program of study aligned to their career and academic plan to further develop and apply employability and technical skills that prepare them for success in future career and postsecondary education. Students will have the opportunity to develop skills in supervised practical experience on the job or in a classroom-based job environment. A personalized learning plan is a requirement of this course.

Welding for Jewelry Making

This course covers the proper use and care of hand tools, safety, jewelry making fundamentals, soldering, oxy-acetylene cutting and welding, arc, MIG, TIG welding, computer aided plasma cutting, and related metal theory. This course covers the hazards of welding on health and safety, locating essential safety and product information, and applying shop safety procedures.

Welding Technology A
Welding Technology B

Welding Technology provides the foundational understanding of welding and welding processes. In this course students will learn industry based safety standards and become familiar with the following welding processes; Oxyacetylene welding and torch cutting, plasma cutting, and ARC welding. Students will become familiar with basic blueprint reading, weld symbols, welding-related math, and measurement. As their skill level is developed, small projects will be introduced throughout the year.

Welding Technology II A
Welding Technology II B

Welding Technology II students will be exposed to more advanced welding process such as MIG, GMAW, as well as an introduction to TIG welding. In addition, they will have the opportunity to refine what they learned from Level I to a higher standard. Students will identify welding symbols on drawings, read detail drawings, identify physical characteristics and mechanical properties of metal, explain pre and post heating of metals, identify equipment and filler metals utilized in GMAW, as well as prepare welding test plates. Through the course of the year, students will have the opportunity to create more advanced welding projects for the community as well as private individuals.

Welding Technology III A
Welding Technology III B

In this course the student will build upon their prior learning in Level II and can expect to engage in more advanced welding processes. These processes include advanced TIG welding including alloys such as aluminum and stainless steel, advanced blueprint reading, drawing and design, specifications, billing of materials, and Welding Procedure Specifications (WPS). Students will engage in advanced layout and fabrication processes to create projects for the community as well as private individuals.

Welding Technology IV A
Welding Technology IV B

Covers welding in all positions and on various joint configurations and may include multiple welding process. Student should be familiar with basic metallurgy pertaining to the weld ability of metals, structural joints, and safety in the welding industry. This course offers advanced welding students a chance to design and fabricate metal projects. Instructor approval is required before signing up for this course.

Woodworking Technology A
Woodworking Technology B

This course provides an overview of the planning, design, layout, and technical drawing interpretation for practical use in woodworking, cabinetmaking, and mill working. Different cabinet and furniture styles used, various wood products and materials, and proper tool selection may also be covered. Students will be introduced to the different construction

processes in the cabinetmaking, furniture making, and millwork industries. Students will learn about measurement, layout, shop drawings and cutting lists. They will gain a basic understanding of the various kinds of materials used in the industry. Students will learn to use selected woodworking tools and machinery. Correct and safe use of tools and equipment is emphasized. The construction of several projects will develop students' woodworking skills.

WBL Apprenticeship

An employer-driven model and form of experiential learning that combines on-the-job learning as a paid employee with related classroom instruction in order to increase an apprentice's skill level and wages. Includes: pre-apprenticeship, youth apprenticeship, registered apprenticeship within a given pathway.