

AGRISCIENCES



OVERVIEW:

Agricultural education is for students desiring to learn about the science, business, and technology of plant and animal production; preparing students for successful careers and a lifetime of informed choices in the global agriculture, food, fiber, and natural resources systems. Through agricultural education, students are provided opportunities for leadership, personal growth, and career success.

PATHWAYS:

ANIMAL SCIENCE

Focuses on advanced science-based studies designed to introduce students to the production and management of animals. Students will understand industry terminology, analyze and identify external anatomy, body systems and physiology, including – nutrition, reproduction, genetic influence, health, and facility management. Students will have the opportunity to focus their interests and independent work to prepare for careers and postsecondary education.

PLANT SCIENCE

Introduces students to the biology of horticultural plants and basic horticultural practices while caring for the program's on-site greenhouse. Also emphasized are greenhouse design, systems, management, and the major greenhouse crops and their cultural needs.

AGRIBUSINESS

This pathway is designed to expose students to opportunities within business related careers. It will be taught as an independent study in order to fit student schedules. Content includes an introduction to business, starting/operating a business, financing, sales and marketing, commodity trading, economics, and agricultural law. Students continue analysis, adjust goals, and evaluation.

PARTNERS:

- FFA
- Colorado Horse Rescue
- Colorado Therapeutic Riding Center
- FFA
- Colorado Horse Rescue
- Colorado Therapeutic Riding Center



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CAREER
DEVELOPMENT
CENTER

AGRISCIENCE



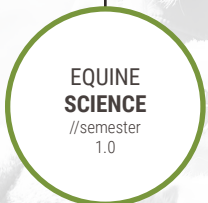
[SAMPLE PATHWAYS]

ANIMAL SCIENCES

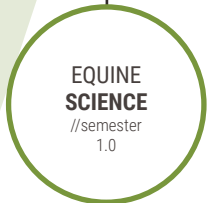
PLANT SCIENCES

AGRI BUSINESS

YEAR ONE



YEAR TWO



YEAR THREE



FULL COURSE DESCRIPTIONS
//WEBSITE

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PROSTART



OVERVIEW:

ProStart is a nationwide, two-year program for high school students that develops the best and brightest talent into tomorrow's industry leaders. ProStart gives students a platform to discover new interests and talents and opens doors for fulfilling careers. The curriculum teaches all facets of the restaurant and foodservice industry. Students have opportunities to receive concurrent enrollment credits from Metro State University (MSU) while earning certifications from the National Restaurant Association (NRA).

PATHWAY:

FOOD HANDLER // SERVSAFE CERTIFICATION (NRA)

This nationally certified, competency-based program covers all facets of the hospitality industry and includes instruction in food preparation, lodging, customer service, and business management. By completing **ProStart Level 1**, students master fundamental management and culinary skills needed for success – like leadership, accountability, teamwork and responsibility. Students rotate through production and service stations onsite and earn the ServSafe Food Handler Cert.

FOOD MANAGER // SERVSAFE CERTIFICATION (NRA)

ProStart Level II includes, food prep, nutrition, cost control, purchasing and inventory, marketing, sustainability in the industry, and global cuisine. Students also learn guest relations along with how to keep accurate financial records for the profit and loss of the operation. Students rotate through production and service stations while serving the community at the Sunset Cafe, our on-site restaurant, and will be able to earn the ServSafe Food Manager Cert.

PARTNERS:

- Santiagos
- Food Maven
- Martini's Bistro
- J.M. Smuckers
- & Others



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CAREER
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YEAR ONE

PROSTART I
//full year
2.0

CERTS
NRA SERVSAFE
FOOD HANDLER

MSU CREDIT
3.0

YEAR TWO

PROSTART II
//full year
2.0

CERTS
NRA SERVSAFE
FOOD MANAGER

MSU CREDIT
3.0

BAKING & PASTRY
//semester
1.0

BAKING AND PASTRY

An introduction to basic baking terminology, measurement, percentages and ratios, ingredients, quick bread/yeast/lamination dough, cakes, chocolates, pies, pastries, cookies, planning and organization, and dessert artistry.

YEAR THREE

INDUSTRY INTERNSHIP
//full year
//semester
1-2.0

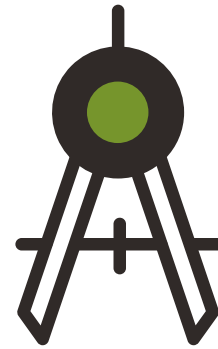
CERTS
BASED ON INDUSTRY
PARTNER

PROSTART II
//full year
2.0

CERTS
NRA SERVSAFE
FOOD MANAGER

BAKING & PASTRY
//semester
1.0

ADVANCED MANUFACTURING



OVERVIEW:

With strong connections to Front Range Community College and industry leaders, this new program will allow students to develop industry skills, earn college credit, accrue certifications, and gain real-world experience in manufacturing careers – machining/engineering, mechatronics, electronics, welding, plastics and optics.

PATHWAYS:

MACHINING

Students in machining are part of a Front Range Community College cohort training in the areas of CNC and manual tooling, CAD, lathe programming, and metrology.

MECHATRONICS

This pathway focuses on both electronic/electrical engineering and mechanical engineering. Students combine robotics, electronics, computer, telecommunications, systems, control, and product engineering.

MANUFACTURING ENGINEERING

This pathway is designed to expose students to opportunities within business related careers. It will be taught as an independent study in order to fit student schedules.

ELECTRONICS

The electronics pathway is designed to prep students for positions in electronics with soldering, rework, repair, and handling. Students gain hands-on experience with industry level training, equipment, and electronics manufacturing environments.

ADVANCED MANUFACTURING (OPTICS & WELDING)

Optics and Welding are advanced manufacturing courses designed to prep students for highly technical positions – optics technicians, MIG/TIG and ARC welders.

PARTNERS:

- BI
- REO // Excelitas
- Black Fox
- Lexmark
- PTA Plastics
- SparkFun Electronics



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ADVANCED MANUFACTURING

[SAMPLE PATHWAYS]

YEAR ONE

MANUFACTURING ENGINEERING

PRINCIPLES OF MANUFACTURING
//full year
2.0
CERTS
#

MECHATRONICS PATHWAY

PRINCIPLES OF MANUFACTURING
//full year
2.0
CERTS
#

ELECTRONICS PATHWAY

PRINCIPLES OF MANUFACTURING
//full year
2.0
CERTS
#

MACHINING (FRCC)

PRINCIPLES OF MANUFACTURING
//full year
2.0
CERTS
#

ADVANCED MANUFACTURING

PRINCIPLES OF MANUFACTURING
//full year
2.0
CERTS
#

YEAR TWO

MANUFACTURING ENGINEERING
//full year
2.0
CERTS
#

MECHATRONICS INTRO
//full year
2.0
CERTS
#

ELECTRONICS INTRO
//full year
2.0
CERTS
#

MACHINING (FRCC COHORT)
//full year
2.0
CERTS
#

ADVANCED MANUFACTURING
//full year
2.0
CERTS
#

YEAR THREE

MATERIALS ENGINEERING
//semester
1.0

AUTOMATION IN MANUFACTURING
//full YEAR
2.0
CERTS
#

ADVANCED ELECTRONICS
//full year
2.0
CERTS
#

OPTICS & PHOTONICS
//full year
2.0

PLASTIC PRODUCTION
//semester
1.0

**in development*

WORK-BASED LEARNING

YEAR FOUR

INTERNSHIPS & CAPSTONES

The Advanced Manufacturing Academy connects advanced manufacturing students to manufacturing opportunities within the region. Internships can span a semester or the full length of the school year. Some are paid while some are unpaid.

APPRENTICESHIPS

St. Vrain continues to develop opportunities for students to gain real-world industry experience. By partnering with CareerWise Colorado, our student apprentices become company employees, while getting paid and finishing high school.



FULL COURSE DESCRIPTIONS
//WEBSITE

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CAREER DEVELOPMENT CENTER

AUTOMOTIVE TECHNOLOGY



OVERVIEW:

Automotive Technology is just one of the many hands-on programs at CDC that offers post-secondary options. The CDC's instructors are ASE certified Master Technicians. Students within these pathways inspect, diagnose, analyze, maintain, and repair modern automobiles and light trucks. Coursework also includes disassembly and recycling vehicles. Course participants have several opportunities to acquire **work-ready certifications and concurrent enrollment credit** for Front Range Community College as well as Aims Community College.

PATHWAY:

AUTOMOTIVE TECH // MULTIPLE ASE CERTIFICATIONS (FRCC)

Students examine the operation, diagnosis, service and repair of drum, disc, hydraulic, anti-lock, and power assist units and machine operations of today's automobile brake systems. As curriculum expands, participants study design, diagnosis, inspection, and service of suspension and steering systems used on light trucks and automobiles, before progressing to engine performance and repair.

DIESEL MECHANIC // ASE CERTIFICATION (AIMS)

Students examine different types of diesel powered vehicles, research information in corresponding maintenance and parts manuals, along with identifying and selecting appropriate mechanical fasteners, fuels, fluids as they relate to the diesel industry. Enables the student to perform diagnostics and troubleshooting on heavy equipment, truck cab, diesel engine, and electrical systems, and complete appropriate maintenance records. Focuses on the importance of preventive maintenance as well.

PARTNERS:

- Stapp Toyota
- Longmont Ford
- Jeremy's Garage
- SkillsUSA
- ASE
- FRCC



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AUTOMOTIVE TECHNOLOGY

[SAMPLE PATHWAYS]



AUTO TECHNICIAN

DIESEL MECHANIC

YEAR ONE

MAINTENANCE & LIGHT REPAIR

//full year
2.0

CERTS
ASE MAINTENANCE/REPAIR
TECHNICIAN

FRCC CREDIT
2.0

MAINTENANCE & LIGHT REPAIR

//full year
2.0

CERTS
ASE MAINTENANCE/REPAIR
TECHNICIAN

FRCC CREDIT
2.0

YEAR TWO

BRAKE SYSTEMS

//semester
1.0

SUSPENSION & ALIGNMENT

//semester
1.0

ENGINE PERFORMANCE

//semester
1.0

ENGINE REPAIR

//semester
1.0

DIESEL POWER MECHANIC

//semester
1.0

YEAR 2 & 3

BRAKE SYSTEMS
SUSPENSION & ALIGNMENT
ENGINE PERFORMANCE
ENGINE REPAIR

YEAR THREE



ASE CERTIFICATIONS:

The National Institute for Automotive Service Excellence (ASE) promotes excellence in vehicle repair, service and parts distribution. Almost 300,000 Automotive Technicians and Service Professionals hold ASE Certifications. ASE Certified Professionals work in every part of the automotive service industry.

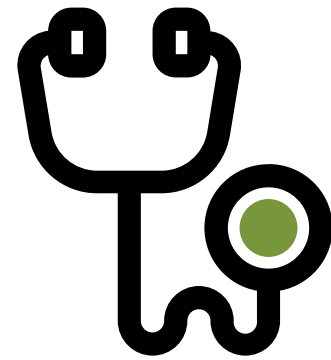
LEARN MORE AT:
www.ase.com

FULL COURSE DESCRIPTIONS
//WEBSITE

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HEALTHSCIENCES



OVERVIEW:

The Career Development Center provides several career paths in health sciences. Students explore several medical careers while engaging in critical medical terminology, cutting-edge practices, and hands-on clinical experiences.

PATHWAYS:

NURSING ASSISTING // CERT AVAILABLE

This pathway is for the student interested in caring for others. Upon successful completion, students are prepared to take the written and skills exams for Colorado State Board of Nursing long-term care. This pathway prepares students for career paths in facility, home health care agency, or hospital environments.

MEDICAL ASSISTING // CERT AVAILABLE

This pathway introduces students to computer technology, personal information management, and communications software, while acquiring skills in pharmacology, nutrition, anatomy, and physiology. This pathway leads to concurrent enrollment within Front Range Community College's MA coursework.

SPORTS MEDICINE // CERT AVAILABLE

This pathway introduces students to athletic training as they relate to the athlete, physical educator, coach, and athletic trainer. Expanded programming exposes students to science and psychology involved in adopting an active, healthy lifestyle while working in the industry.

EMERGENCY MEDICAL TECHNICIAN // CERT AVAILABLE

This pathway prepares students to provide pre-hospital assessment and care for patients with medical conditions and/or traumatic injuries. The course features lecture, discussion, skill practice, as well as a supervised clinicals. Upon completion students can take the National Registry Certification Test.

DENTAL ASSISTANT // CERT AVAILABLE

Students gain a basic understanding of dentistry careers, anatomy, histology of teeth structures, treatment rooms, laboratory procedures, communication skills, ethics, and laws. The course fulfills the radiology and infection control requirements of the Colorado State Dental Practice Act for certification.



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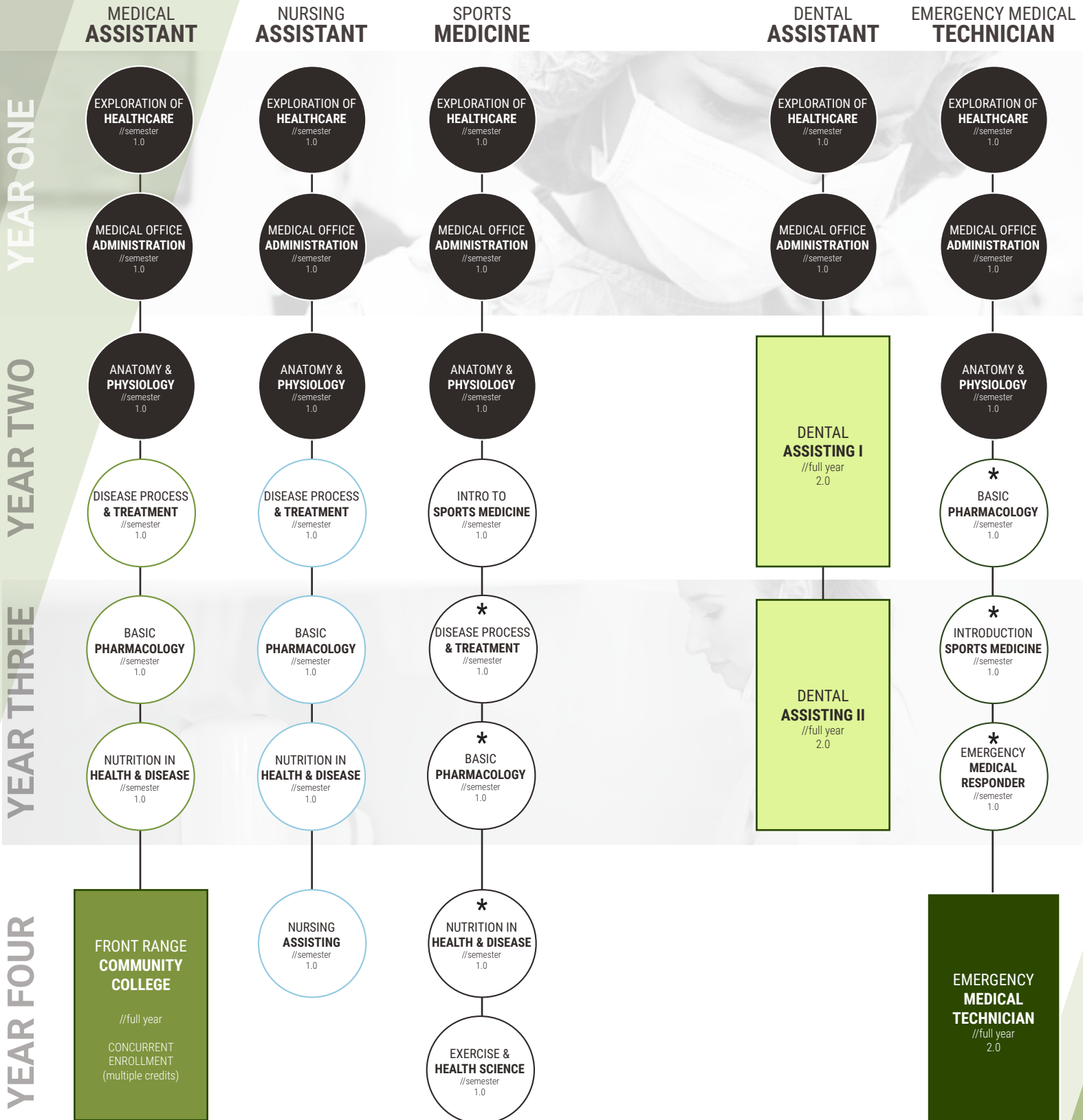
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HEALTHSCIENCES

[SAMPLE PATHWAYS]



*These courses are electives and are interchangeable.

FULL COURSE DESCRIPTIONS
//WEBSITE

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CAREER DEVELOPMENT CENTER



OVERVIEW:

Within this pathway, students survey visual communications, its history, and its impact on society. Students will demonstrate an understanding of graphic design, illustration fields, as well as the tools and media used. Students also grow into video communications and have the opportunity to gain industry certifications exposing students to the various products available within the Adobe Suite.

PATHWAY:

GRAPHIC DESIGN // ADOBE CERTIFICATIONS (FRCC)

Students concentrate on the Adobe Creative Suite – Photoshop, Illustrator, InDesign – to build skills in selection and manipulation techniques that can be applied to photos, graphics, and videos. Students also learn how to use tools to create digital artwork that can be used in web design, print media and digital screen design. Classes covers relevant tools and techniques as well as industry standards, delivery methods, and output, including page layout and desktop publishing.

VIDEO COMMUNICATION // ADOBE CERTIFICATION (FRCC)

Students get an introduction to the principles and techniques of video production – camera operation, basic script writing, lighting, sound, and basic digital editing. Pre-production, production, and post-production, as well as aesthetics, will be included. Second semester students will continue working on these elements, but with an emphasis on post production – media management, editing tools, titles, motion control, transitions, and special effects. Students will make a variety of films in this class. The class covers relevant tools and techniques as well as industry standards, delivery methods, and output.



REGISTER AT

PARTNERS:

- #####
- #####
- #####
- #####
- #####

INTERACTIVEMEDIA

[SAMPLE PATHWAYS]

YEAR ONE

GRAPHIC DESIGN

INTRO VISUAL COMMUNICATION
//semester
1.0

ADOBE PHOTOSHOP
//semester
1.0

VIDEO COMMUNICATION

DIGITAL VIDEO PRODUCTION
//full year
2.0

CERTS
ADOBE PREMIERE PRO (FRCC)

YEAR TWO

ADOBE ILLUSTRATOR
//semester
1.0

ADOBE INDESIGN
//semester
1.0

YEAR THREE

DIGITAL VIDEO PRODUCTION
//full year
2.0

CERTS
ADOBE PREMIERE PRO (FRCC)



CERTIFICATIONS:

At the end of each course, students will have the opportunity to take an exam to receive Adobe certifications in content areas.

ADOBE PHOTOSHOP I // FRCC (3.0 CREDITS)

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.

ADOBE ILLUSTRATOR I // FRCC (3.0 CREDITS)

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. Course competencies and outline follow those set by the **Adobe Certified Associate exam in Visual Communication** using Adobe Illustrator.

ADOBE INDESIGN I // FRCC (3.0 CREDITS)

Introduces students to InDesign, a page layout program that 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 PREMIERE PRO I // FRCC (3.0 CREDITS)

Offers an introduction to the principles and techniques of videotape production, including camera operation, basic script writing, lighting, sound and basic digital editing. Detailed examination of the pre-production, production, and post-production processes, as well as aesthetics, will be included. Upon completion, students will be able to take the Adobe Certified Associate exam in Video Communication Using Adobe Premiere Pro.

FULL COURSE DESCRIPTIONS
//WEBSITE

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WELDING FABRICATION

OVERVIEW:

The Welding and Fabrication pathway provides an opportunity for students to learn various welding techniques and receive safety instruction to apply in a welding shop, the construction industry, and everyday living. Participants also earn industry recognized – American Welding Society – certificates through the CDC's partnership with Front Range Community College. Certain welding coursework will also connect with Advanced Manufacturing pathways.

PATHWAY:

WELDING & FABRICATION SPECIALIST // ASE CERTIFICATIONS (FRCC)

Welding students have the opportunity to learn Oxy-Acetylene, ARC, MIG, and TIG welding and torch cutting. Then expand into more advanced welding processes such as SMAW, GMAW, GTAW, plasma cutting, FCAW and TIG welding utilizing alloys such as aluminum and stainless steel.

In addition to welding techniques, students will become more accustomed to blueprint reading, weld symbols, welding-related math, metrology, identification of physical and mechanical characteristics of metal, explain pre and post heating of metals, and identify equipment and filler metals utilized in these processes. Billing of materials and welding procedure specifications (WPS) will also be covered.

Students will engage in advanced layout and fabrication processes to create projects for the community and engage in the SkillsUSA student organization, which incorporates leadership, service learning, and competitions to demonstrate skill level attainment.

PARTNERS:

- Apollo Welding
- Welding & Joining Mgmt. Group
- SkillsUSA
- FRCC
- EPOCS Manufacturing



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WELDING FABRICATION

[SAMPLE PATHWAYS]

WELDING & FABRICATION SPECIALIST

YEAR ONE

WELDING & FABRICATION I
//full year
2.0

CERTS
AWS

FRCC CREDIT
2.0

YEAR TWO

WELDING & FABRICATION II
//full year
2.0

CERTS
AWS

FRCC CREDIT
2.0

YEAR THREE

WELDING & FABRICATION III
//full year
2.0

CERTS
AWS

FRCC CREDIT
2.0



SkillsUSA offers many opportunities for growth through competitions. There are many competition opportunities available through SkillsUSA membership.

Students can compete at the local or state level. State winners go on the national competition – www.skillsusa.org.



AWS CERTIFICATIONS:

One of the best ways to advance your welding career is by earning a specialized certification. This opens up opportunities for more money, leadership roles and higher-level career challenges. AWS offers nine different certification categories from inspectors, supervisors and educators to radiographic interpreters, welding engineers and fabricators.

LEARN MORE AT:
www.aws.org

FULL COURSE DESCRIPTIONS
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