SECTION V: CAREER AND TECHNICAL EDUCATION

WISD Career & Technical Education

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Weslaco ISD's Career & Technical Education (CTE) programs are "*Changing Lives and Building Futures"*. Our teachers and students have been recognized at the regional, state, and national levels for their accomplishments in the classroom, in our community, and in the various competitive events associated with their respective CTE student organizations. We credit this success to strong support by parents, business and postsecondary partners, Weslaco ISD's Board of Trustees, and the Superintendent in providing the resources necessary for quality Career and Technical education programs for Weslaco ISD students.

CTE establishes “extended learning” through project-based activities, work-based learning opportunities such as Career Preparation or Practicum courses and Job Shadowing participation. Furthermore, Career Technical Student Organizations, or CTSO’s, exist for every student to participate in to acquire leadership skills that are vital and essential to their over-all career development.

Employers are demanding that their future employees be able to apply academic and technical skills to real-world problems that are encountered in the workplace. According to the U. S. Department of Labor, 85% of all jobs will require students to further their education beyond high school. CTE is critical in meeting this demand.

In addition, we are part of a tremendous statewide initiative known as **Achieve Texas**, a college and career pathway system designed to prepare students for high school and postsecondary education, work life and citizenship while acquiring industry certifications. The goal of WISD Career & Technical Education (CTE) is for students to begin taking courses in high school that will serve as the foundation for a postsecondary education and a preparation for entry-level opportunities while acquiring industry certifications for a world-class workforce. When schools integrate academic and technical education, students can see the “usefulness” of what they are learning. This system also facilitates a seamless transition from secondary to postsecondary; for example, Pre-Advanced Placement courses, Advanced Placement courses, Advanced Technical Credit courses (ATC), and Dual credit courses.

Through Achieve Texas’ 16 federally defined “career clusters”, WISD Career & Technical Education (CTE) is at the forefront in education as it integrates academics with relevant career education through its Small Learning Communities. This initiative uses the sixteen federally defined Career Clusters of the States’ Career Clusters initiative (www.careerclusters.org) as the foundation for restructuring how schools arrange their instructional programs. Career clusters are groups of similar occupations and industries developed by the U.S. Department of Education as a way to organize educational planning for students for future careers. Each of the career clusters has an associated Program of Study detailing a recommended sequence of coursework for secondary and postsecondary education based on a student’s interest or career goal. Programs of Study (POS) have been developed for each of the Career Clusters. The POS represent a recommended sequence of coursework based on a student’s interest or career goal.

Several programs of study contain courses that allow for the awarding of college credit through completion of courses articulated with South Texas College or Texas State Technical College. The majority of CTE Programs of Study prepare students for industry recognized credentials, certifications and/or licensure.

There are a lot of careers out there.

Texas students have a wealth of choices for their plans after high school. The careers highlighted above point out just a few of the many occupations that are high-wage, high-skill and in-demand in the state of Texas. The foundation high school program and endorsements help students focus their interest, select their coursework, and better plan for their postsecondary training and education.

WISD
THE RIGHT CHOICE

WESLACO I.S.D.

CTE Programs of Study help students meet graduation requirements with Endorsements & Performance Acknowledgements

Every Career & Technical Education (CTE) Program of Study leads to an endorsement! SELECT YOURS TODAY!!

ENDORSEMENTS

STEM	BUSINESS & INDUSTRY	PUBLIC SERVICE	ARTS & HUMANITIES	MULTI-DISCIPLINARY STUDIES
CTE	CTE	CTE		CTE

SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

CTE Programs of Study under STEM:

Cyber Security
Engineering
Animal Science
Plant Science
Healthcare Diagnostics :
- *EKG/Phlebotomy*
- *C.N.A.-Certified Nurse Aide,*
- *Pharmacy Technician*

Architectural Design
Manufacturing Technology
Programming & Software Development
- *Computer Science*

PUBLIC SERVICE

CTE Programs of Study under PUBLIC SERVICE:

Healthcare Diagnostics:
- *EKG/Phlebotomy*
- *C.N.A.-Certified Nurse Aide*
- *Pharmacy Technician*

Cosmetology
Family & Community Services
Law Enforcement
Teaching & Training

BUSINESS & INDUSTRY

CTE Programs of Study under BUSINESS & INDUSTRY:

Animal Science
Plant Science
Architectural Design
Digital Communications -
- *A/V Production*

Graphic Design & Multimedia Arts –
- *Photography*
- *Animation & Video Game Design*
- *Journalism*

Accounting & Financial Services
Business Management
Entrepreneurship
Culinary Arts
Manufacturing Technology
Welding
Cyber Security
Engineering
Programming & Software Development-
- *Computer Science*

Automotive –
- *Automotive Technology*
- *Collision Repair & Refinishing*

SCAN ME

MULTIDISCIPLINARY STUDIES

CTE Programs of Study under MULTIDISCIPLINARY STUDIES:

See your counselor - **Four advanced courses that prepare a student to enter the workforce successfully or postsecondary education without remediatiion.**

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Preparing for Your Career

Two-thirds of the high demand jobs openings in Texas will require some postsecondary education. You can position yourself for successful career entry in several ways: While in high school, you will want to do the following:

♦ Learn about industry fields and targeted occupations that provide high-wages and are in-demand in your region.

♦ Take assessments that match you with potential careers to expand your research.

♦ Determine which of the five endorsement options offered by your high school under the Foundation High School Program best align with your career goals and explore the aligned CTE Programs of Study.

♦ Complete the required Foundation High School Program, your selected endorsement, and CTE Program of Study, if applicable.

♦ Research what training and education levels beyond high school are required to enter your CTE Program of Study or industry field of interest. For a complete list of statewide CTE Programs of Study, visit https://bit.ly/2UWredv.

♦ Take every opportunity to connect directly with employers. Ask your counselor or college advisor for help!

♦ Find training and certifications for specific occupations or skills through community colleges or career and technical schools at www.texasworkforce.org/svcs/propschools/career-schools-colleges.html.

♦ Practice or get hands on experience through internships, apprenticeships, or volunteering.


Learning About Myself
Exploring my Options
Looking For Opportunities
On The Job Success
CAREER PLAN

STATE CAREER CLUSTERS

	The Agriculture, Food, and Natural Resources Career Cluster focuses on the essential elements of life, - food, water, land, and air. This career cluster includes a diverse spectrum of occupations ranging from farmer, rancher, and veterinarian to geologist, conservationist, and florist. It also includes non-traditional agricultural occupations like wind energy, solar energy, and oil and gas production.
	The Architecture and Construction Career Cluster focuses on designing, planning, managing, building, and maintaining the built environment. Principles of Architecture provides an overview to the various fields of architecture, interior design, and construction management.
	The Arts, A/V Technology and Communications (AAVTC) Career Cluster focuses on careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. Careers in the AAVTC career cluster require a creative aptitude, a strong background in computer and technology applications, a strong academic foundation, and a proficiency in oral and written communication.
	The Business, Marketing, and Finance Career Cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations
	Providing education and training services, and related learning support services. Occupations include teaching in the following disciplines: law, health specialties, anthropology, archaeology, art, drama, music, career and technical education, foreign languages, kindergarten, library science and communication.
	The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, communicate effectively, and work well with others.
	The Hospitality and Tourism Career Cluster focuses on the management, marketing, and operations of restaurants and other food/beverage services, lodging, attractions, recreation events, and travel-related services. Students acquire knowledge and skills focusing on communication, time management, and customer service that meet industry standards. Students will explore the history of the hospitality and tourism industry and examine characteristics needed for success.
	The Human Services Career Cluster focuses on preparing individuals for employment in career pathways that relate to families and human needs such as counseling and mental health services, family and community services, personal care services, and consumer services.
	The Information Technology (IT) Career Cluster focuses on building linkages in IT occupations for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services.
	Providing legal, public safety, protective, and homeland security services – Occupations include police and sheriff's patrol officer, detective and criminal investigator, correctional officer and jailer, lawyer, judge, court reporter, fire inspector, hearing officer, mediator firefighter, paralegal and legal assistant and bailiff.

	The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.
	The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.
	The Transportation, Distribution, and Logistics Career Cluster focuses on careers in planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water. It also includes related professional support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

Weslaco ISD Career & Technical Education
Programs of Study

- Animal Science
- Plant Science
- Architectural Design
- Graphic Design & Multimedia Arts:
  - Commercial Photography
  - Animation/Video Game
  - Journalism/Yearbook
- Digital Communications (Audio/Video Production)
- Accounting & Financial Services
- Business Management
- Entrepreneurship
- Teaching & Training
- Healthcare Diagnostics
  - C.N.A.-Certified Nurse Aide
  - Pharmacy Technician
  - EKG/ Phlebotomy
- Culinary Arts
- Cosmetology
- Family & Community Services
- Law Enforcement
- Manufacturing Technology
- Welding
- Cyber Security
- Engineering
- Programming & Software Development
- Automotive:
  - Automotive Technology
  - Collision Repair

CTE Dual Enrollment Opportunities through South Texas College 2023-2024

CTE Program of Study	CTE Instructor	Class location
Automotive Technology	Carlos O. Perez	Joe Calvillo, Jr. Career & Technology Complex
Business Management	Marcos Cano	Weslaco East High School
Entrepreneurship	Dr. Stephanie Garcia	Weslaco High School
Graphic Design & Multimedia Arts *(Professional Communications aka Speech course only)*	Telisa Munoz Angela Sarmiento	Weslaco East High School
Law Enforcement	Marco Siller Eleazar Mendez	Weslaco East High School Weslaco High School
Manufacturing Technology	Juan A. Sierra	Joe Calvillo, Jr. Career & Technology Complex
Teaching & Training	Guadalupe Carranza	Weslaco High School
Welding	Brandon Hernandez	Joe Calvillo, Jr. Career & Technology Complex

CTE COURSES DIRECTLY RELATED TO THE BUSINESS AND INDUSTRY ENDORSEMENT BY CAREER CLUSTER

Agriculture, Food & Natural Resources

- Principles of Agriculture, Food, & Natural Resources
- Advanced Animal Science (Science Credit)
- Livestock Production
- Equine Science / Small Animal Management
- Floral Design (Fine Arts Credit)
- Horticulture Science
- Advanced Plant & Soil Science (Science Credit)
- Practicum in Agriculture, Food, & Natural Resources

Architecture & Construction

- Architectural Design I
- Architectural Design II
- Practicum in Architectural Design

Arts, A/V Technology & Communications

- Professional Communications (Speech Credit)
- Digital Design & Media Production
- Digital Media
- Digital Arts & Animation
- Digital Communications in the 21st Century
- Principles of Arts, A/V Tech & Communications
- A/V Production I/Lab
- A/V Production II/Lab
- Practicum in A/V Production
- Commercial Photography I
- Commercial Photography II
- Practicum in Commercial Photography
- Video Game Design
- Animation I
- Animation II
- Game Programming & Design
- Graphic Design & Illustration I
- Graphic Design & Illustration II
- Practicum I Graphic Design & Illustration

Business, Marketing & Finance

- Principles of Business, Marketing and Finance
- Business Information Management I
- Business Information Management II
- Global Business
- Virtual Business
- Accounting I
- Accounting II
- Financial Mathematics
- Business Management
- Practicum in Business Management
- Entrepreneurship

Hospitality & Tourism

- Introduction to Culinary Arts
- Culinary Arts
- Advanced Culinary Arts
- Practicum in Culinary Arts
- Food Science (Science Credit)

Manufacturing

- Introduction to Welding
- Welding I
- Welding II
- Principles of Manufacturing
- Metal Fabrication & Machining
- Precision Metal Manufacturing I
- Precision in Metal Manufacturing II/Lab

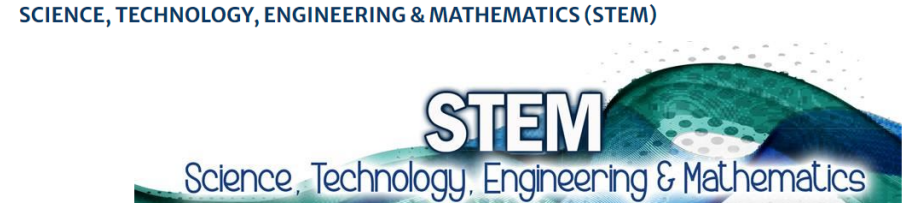
Transportation & Logistics

- Energy, Power, & Transportation Systems
- Automotive Technology I – Maintenance & Lightt Repair
- Automotive Technology II
- Collision Repair
- Collision Repair
- Paint & Refinishing Basic

CTE COURSES DIRECTLY RELATED TO THE STEM ENDORSEMENT BY CAREER CLUSTER

Science, Technology, Engineering & Mathematics

- Principles of Information Technology
- Foundations of Cybersecurity
- Networking
- Practicum in Information Technology
- Principles of Applied Engineering
- Engineering Design & Problem Solving
- Engineering Design & Presentation
- Engineering Design & Presentation II
- Computer Science I – Honors
- AP Computer Science Principles
- AP Computer Science A - Math
- AP Computer Science A - LOTE
- Computer Science II
- Computer Science III



CTE COURSES DIRECTLY RELATED TO THE PUBLIC SERVICE ENDORSEMENT BY CAREER CLUSTER

Health Science

- Principles of Health Science
- Health Science Theory
- Medical Terminology
- Medical Microbiology (Science Credit)
- Pathophysiology (Science Credit)
- Anatomy and Physiology (Science Credit)
- Practicum in Health Science I (Clinical Rotations)
- Practicum in Health Science II - Pharmacy Technician
- Practicum in Health Science II – C.N.A. – Certified Nurse Aide
- Practicum in Health Science II - EKG/Phlebotomy Technician

Human Services

- Principles of Human Services
- Child Development
- Lifetime Nutrition and Wellness
- Dollars and Sense
- Professional Communications
- Family & Community Services
- Principles of Cosmetology Design & Color Theory
- Cosmetology 1
- Cosmetology 2

Education

- Principles of Education
- Child Development
- Human Growth & Development
- Instructional Practices
- Practicum in Education & Training

Law and Public Service

- Principles of Law, Public Safety, Corrections & Security
- Law Enforcement 1
- Federal Law Enforcement & Protective Services
- Criminal Investigations
- Law Enforcement 2
- Forensic Science
- Practicum in Law, Safety, Corrections & Security

CTE Courses Meeting High School Graduation Requirements

Beginning with the 2017-2018 school year, several CTE courses meet English, Fine Arts, Mathematics, and Science high school graduation requirements. The sections below list the CTE courses by area.

Career and Technical (CTE) Courses for Academic Credit			
Effective 2/3/2021			
Course	**Credit Satisfied**	**TAC Chapter 130 & 127 Career Clusters**	**Program(s) of study in which course appears**
Business English	English	§130.135, Business Management and Administration	N/A
Accounting II	Mathematics	§130.188, Business Management and Administration	Accounting & Financial Services
Applied Mathematics for Technical Professionals	Mathematics	§127.13, Career Development	N/A
Digital Electronics	Mathematics	§130.407, STEM	Renewable Energy
Engineering Mathematics	Mathematics	§130.413, STEM	N/A
Financial Mathematics	Mathematics	§130.180, Finance	Accounting & Financial Services
Mathematical Applications in Agriculture, Food, and Natural Resources	Mathematics	§130.5, Agriculture, Food and Natural Resources	N/A
Mathematics for Medical Professionals	Mathematics	§130.229, Health Science	Health Informatics
Manufacturing Engineering Technology II	Mathematics	§130.356, Manufacturing	Advanced Manufacturing and Machinery Mechanics, Engineering
Statistics and Business Decision Making	Mathematics	§130.190, Finance	Business Management, Marketing & Sales
Robotics II	Mathematics	§130.409, STEM	Manufacturing
AP Computer Science A	Mathematics	§130.409, STEM	Programming and Software Development, Cybersecurity
IB Computer Science Higher Level, Math	Mathematics	§130.409, STEM	Programming and Software Development, Cybersecurity
Discrete Mathematics for Computer Science	Mathematics	§130.409, STEM	Programming and Software Development, Cybersecurity
Advanced Animal Science	Science	§130.10, Agriculture, Food, and Natural Resources	Animal Science
Advanced Plant and Soil Science	Science	§130.25, Agriculture, Food, and Natural Resources	Plant Science
Anatomy and Physiology	Science	§130.224, Health Science	Exercise Science and Wellness, Healthcare Diagnostics, Healthcare
Biotechnology I	Science	§130.415, STEM	Biomedical Science
Biotechnology II	Science	§130.416, STEM	Biomedical Science
Engineering Design and Problem Solving	Science	§130.412, STEM	Engineering, Renewable Energy
Engineering Science	Science	§130.414, STEM	Engineering
Food Science	Science	§130.256, Hospitality and Tourism	Culinary Arts
Forensic Science	Science	§130.339, Law, Public Safety, Corrections, and Security	Law Enforcement
Medical Microbiology	Science	§130.225, Health Science	Health Diagnostics, Healthcare Therapeutic, Nursing Science, Biomedical Science
Pathophysiology	Science	§130.227, Health Science	Health Diagnostics, Healthcare Therapeutic, Nursing Science, Biomedical
Principles of Technology	Science	§130.404, STEM	N/A
Scientific Research and Design	Science	§130.417, STEM	Animal Science, Applied Agriculture Engineering, Environmental and Natural Resources, Food Science and Technology, Plant Science, Biomedical Science, Engineering

Agriculture, Food, and Natural Resources Career Cluster

The Agriculture, Food, and Natural Resources (AFNR) Career Cluster focuses on the essential elements of life food, water, land, and air. This career cluster includes a diverse spectrum of occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist. It also includes non-traditional agricultural occupations like wind energy, solar energy, and oil and gas production.

Animal Science
Statewide Program of Study

The Animal Science program of study focuses on the science, research, and business of animals and other living organisms. It teaches CTE learners how to apply biology and life science to real-world life processes of animals and wildlife, either in laboratories or in the field, which could include a veterinary office, a farm or ranch, or any outdoor area harboring animal life. Students may also research and analyze the growth and destruction of species and research or diagnose diseases and injuries of animals.

Secondary Courses for High School Credit

Level 1
- Principles of Agriculture, Food, and Natural Resources

Level 2
- Small Animal Management
- Equine Science

Level 3
- Livestock Production/Lab

Level 4
- Advanced Animal Science
- Veterinary Medical Applications/Lab
- Practicum in Agriculture, Food, and Natural Resources
- Project-Based Research
- Scientific Research and Design

Postsecondary Opportunities

Associates Degrees
- Food Science and Technology
- Veterinary Studies
- Biotechnology Laboratory Technician
- Biology Technician

Bachelor's Degrees
- Animal Sciences
- Agriculture
- Biology
- Zoology/ Animal Biology

Master's, Doctoral, and Professional Degrees
- Genetics
- Veterinary Medicine
- Biological and Physical Sciences
- Biological and Biomedical Sciences

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in Texas FFA	• Compete in an Agri-Science Fair 4H • Volunteer at a local farm or with a veterinarian • Participate in an FFA supervised agriculture experience

Industry-Based Certifications

- Agricultural Biotechnology
- Certified Veterinary Assistant, Level 1
- Elanco Fundamentals of Animal Science Certification
- Elanco Veterinary Medical Applications Certification
- Equine Management & Evaluation Certification
- Feedyard Technician in Cattle Care and Handling
- Licensed Veterinary Technician
- Production Agriculture - Job Ready
- Small Animal Science and Technology

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Animal Breeders	$39,139	28	9%
Animal Scientists	$57,533	22	12%
Medical Scientists	$63,898	435	27%
Veterinarians	$93,496	294	24%
Zoologists and Wildlife Biologists	$67,309	45	32%

Successful completion of the Animal Science program of study will fulfill requirements of a Business and Industry endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022

Agriculture, Food, and Natural Resources Career Cluster

The Agriculture, Food, and Natural Resources (AFNR) Career Cluster focuses on the essential elements of life - food, water, land, and air. This career cluster includes a diverse spectrum of occupations, ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist. It also includes non-traditional agricultural occupations like wind energy, solar energy, and oil and gas production.

Plant Science
Statewide Program of Study

The Plant Science program of study focuses on the science, research, and business of plants and other living organisms. It teaches students how to apply biology and life science to real-world life processes of plants and vegetation, either in laboratories or in the field.

Secondary Courses for High School Credit

Level 1
- Principles of Agriculture, Food, and Natural Resources

Level 2
- Landscape Design and Management
- Turf Grass Management
- Greenhouse Operation and Production/Lab

Level 3
- Floral Design/Lab
- Horticultural Science/Lab
- Viticulture

Level 4
- Practicum in Agriculture, Food, and Natural Resources
- Advanced Plant and Soil Science
- Advanced Floral Design
- Project-Based Research
- Scientific Research and Design

Postsecondary Opportunities

Associates Degrees
- Applied Horticulture/ Horticulture Operations, General
- Ornamental Horticulture
- Agricultural Business and Management, General
- Turf and Turfgrass Management

Bachelor's Degrees
- Applied Horticulture/ Horticulture Operations, General
- Agronomy and Crop Science
- Agricultural Business and Management, General
- Turf and Turfgrass Management

Master's, Doctoral, and Professional Degrees
- Applied Horticulture/ Horticulture Operations, General
- Agronomy and Crop Science
- Agricultural Business and Management, General
- Farm/Farm and Ranch Management

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in Texas FFA	• Work at a florist or landscaper business • Participate in an FFA supervised agriculture experience

Industry-Based Certifications

- Agricultural Biotechnology
- BASF Plant Science Certification
- Commercial/Non-Commercial Pesticide Applicator
- Commercial/Noncommercial Pesticide Applicator "Vegetation Management" License
- Horticulture - Landscaping - Job Ready
- Landscape Irrigator
- Principles of Floral Design Certification
- Production Agriculture - Job Ready
- Texas Certified Landscape Associate (TCLA)
- Texas Certified Nursery Professional
- Texas State Florist's Association Knowledge Based Floral Certification
- Texas State Florist's Association Level I Floral Certification
- Texas State Florist's Association Level II Floral Certification

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Soil and Plant Scientists	$54,662	116	21%
Tree Trimmers and Pruners	$32,240	589	14%
Pesticide Handlers, Sprayers, and Applicators	$36.733	196	22%
Landscaping Supervisors	$44,408	807	19%
Biological Technicians	$42,931	452	17%

Successful completion of the Plant Science program of study will fulfill requirements of a Business and Industry endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022

Architecture and Construction Career Cluster

The Architecture and Construction Career Cluster focuses on designing, planning, managing, building, and maintaining the built environment. Principles of Architecture provides an overview to the various fields of architecture, interior design, and construction management.

Architectural Design
Statewide Program of Study

The Architectural Design program of study explores the occupations and educational opportunities associated with developing, engineering, and designing building structures and facilities. This program of study may also include exploration into collecting and interpreting geographic information, researching and preparing maps, and interior design.

Secondary Courses for High School Credit

Level 1
- Principles of Architecture

Level 2
- Architectural Design I
- Interior Design I
- Computer Aided Drafting for Architecture

Level 3
- Architectural Design II
- Interior Design II
- Civil Engineering and Architecture (PLTW)

Level 4
- Practicum in Architectural Design
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Architecture
- Interior Design
- Civil Engineering, General
- Geographic Information Science and Cartography

Bachelor's Degrees
- Architecture
- Interior Design
- Civil Engineering, General
- Geographic Information Science and Cartography

Master's, Doctoral, and Professional Degrees
- Architecture
- Interior Architecture
- Civil Engineering, General
- Geographic Information Science and Cartography

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Shadow an architect, interior designer or civil engineer • Participate in SkillsUSA	• Intern at an architectural firm

Industry-Based Certifications

- Autodesk Associate (Certified User) 3ds MAX
- Autodesk Associate (Certified User & Professional) AutoCAD
- Autodesk Associate (Certified User & Professional) Fusion 360
- Autodesk Associate (Certified User) Revit Architecture
- Autodesk Associate (Certified User) Revit for Electrical
- Autodesk Associate (Certified User) Revit for Structural Design
- Autodesk Certified Professional in AutoCAD for Design and Drafting
- Autodesk Certified Professional & Certified User in Civil 3D for Infrastructure Design
- Autodesk Certified Professional in Revit for Architectural Design
- Autodesk Certified Professional in Revit for Electrical Design
- Autodesk Certified Professional in Revit for Structural Design
- Certified SOLIDWORKS Associate (CSWA) - Electrical
- Certified SOLIDWORKS Associate (CSWA) & Professional (CSWP) - Academic
- Certified SOLIDWORKS Professional (CSWP) - Drawing Tools Certified SOLIDWORKS Professional (CSWP) - Model Based Definition
- Certified SOLIDWORKS Associate (CSWA) & Professional (CSWP)- Simulation
- Certified SOLIDWORKS Associate (CSWA- Sustainability
- LEED Green Associate

- Certified SOLIDWORKS Associate*
- Mastercam Associate Certification*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Architects	$77,043	808	16%
Geographic Information Analysts and Surveyors	$58,926	162	27%
Architectural/ Civil Drafters	$50,170	1,068	9%
Construction Managers	$87,402	2,401	14%

Successful completion of the Architectural Design program of study will fulfill requirements of the Business and Industry endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022

Arts, Audio/Video Technology, and Communications Career Cluster

The Arts, A/V Technology and Communications (AAVTC) Career Cluster focuses on careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. Careers in the AAVTC career cluster require a creative aptitude, a strong background in computer and technology applications, a strong academic foundation, and a proficiency in oral and written communication.

Graphic Design & Multimedia Arts (Photography)

Statewide Program of Study

The Graphic Design and Multimedia Arts program of study explores the occupations and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. This program of study may also include exploration into designing clothing and accessories, and creating special effects, animation, or other visual images using film, video, computers, or other electronic tools and media, for use in computer games, movies, music videos, and commercials.

Secondary Courses for High School Credit

Level 1
- Principles of Arts, A/V Technology, and Communications
- Video Game Design
- Digital Media

Level 2
- Graphic Design and Illustration I/Lab
- Animation I/Lab
- Video Game Programming
- Commercial Photography I/Lab
- Fashion Design I/Lab
- Digital Design and Media Productions
- Game Programming and Design

Level 3
- Graphic Design and Illustration II/Lab
- Animation II/Lab
- Advanced Video Game Programming
- Commercial Photography II/Lab
- Fashion Design II/Lab
- Digital Arts and Animation
- 3-D Modeling and Animation
- Web Game Development

Level 4
- Practicum in Graphic Design and Illustration
- Practicum in Animation
- Practicum in Commercial Photography
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Game and Interactive Media Design

Bachelor's Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Game and Interactive Media Design

Master's, Doctoral, and Professional Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Intermedia/Multimedia

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join a website development or coding club • Participate in SkillsUSA or TSA	• Intern with a multimedia or animation studio • Obtain a certificate or certification in graphic design

Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro
- Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator
- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Visual Design
- Adobe Certified Professional in Visual Design Using Adobe Photoshop
- Adobe Certified Professional In Visual Effects and Motion Graphics Using Adobe After Effects
- Audio-Visual Communications - Job Ready
- Autodesk Associate (Certified User) 3ds MAX
- Certified Professional Photographer
- Certified Professional Programmer
- Graphic Production Technology - Job Ready
- C++ Certified Associate Programmer
- Certified User: Programmer
- CodeHS Phython Level 1 Certification
- Oracle Certified Associate Java SE 9 Programmer
- Certified Entry-Level Python Programmer (PCEP)

- Adobe Certified Professional Animate*

*IBC Sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Graphic Designers	$44,824	1,433	15%
Multimedia Artists and Animators	$67,392	186	21%

Successful completion of the Graphic Design & Multimedia Arts program of study will fulfill requirements of the Business and Industry endorsement. Revised – October 2022

Arts, Audio/Video Technology, and Communications Career Cluster

The Arts, A/V Technology and Communications (AAVTC) Career Cluster focuses on careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. Careers in the AAVTC career cluster require a creative aptitude, a strong background in computer and technology applications, a strong academic foundation, and a proficiency in oral and written communication.

Graphic Design & Multimedia Arts (Animation & Video Game Design)

Statewide Program of Study

The Graphic Design and Multimedia Arts program of study explores the occupations and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. This program of study may also include exploration into designing clothing and accessories, and creating special effects, animation, or other visual images using film, video, computers, or other electronic tools and media, for use in computer games, movies, music videos, and commercials.

Secondary Courses for High School Credit

Level 1
- Principles of Arts, A/V Technology, and Communications
- Video Game Design
- Digital Media

Level 2
- Graphic Design and Illustration I/Lab
- Animation I/Lab
- Video Game Programming
- Commercial Photography I/Lab
- Fashion Design I/Lab
- Digital Design and Media Productions
- Game Programming and Design

Level 3
- Graphic Design and Illustration II/Lab
- Animation II/Lab
- Advanced Video Game Programming
- Commercial Photography II/Lab
- Fashion Design II/Lab
- Digital Arts and Animation
- 3-D Modeling and Animation
- Web Game Development

Level 4
- Practicum in Graphic Design and Illustration
- Practicum in Animation
- Practicum in Commercial Photography
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Game and Interactive Media Design

Bachelor's Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Game and Interactive Media Design

Master's, Doctoral, and Professional Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Intermedia/Multimedia

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join a website development or coding club • Participate in SkillsUSA or TSA	• Intern with a multimedia or animation studio • Obtain a certificate or certification in graphic design

Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro
- Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator
- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Visual Design
- Adobe Certified Professional in Visual Design Using Adobe Photoshop
- Adobe Certified Professional In Visual Effects and Motion Graphics Using Adobe After Effects
- Audio-Visual Communications - Job Ready
- Autodesk Associate (Certified User) 3ds MAX
- Certified Professional Photographer
- Certified Professional Programmer
- Graphic Production Technology - Job Ready
- C++ Certified Associate Programmer
- Certified User: Programmer
- CodeHS Phython Level 1 Certification
- Oracle Certified Associate Java SE 9 Programmer
- Certified Entry-Level Python Programmer (PCEP)
- Adobe Certified Professional Animate*

*IBC Sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Graphic Designers	$44,824	1,433	15%
Multimedia Artists and Animators	$67,392	186	21%

Successful completion of the Graphic Design & Multimedia Arts program of study will fulfill requirements of the Business and Industry endorsement. Revised – October 2022

Arts, Audio/Video Technology, and Communications Career Cluster

The Arts, A/V Technology and Communications (AAVTC) Career Cluster focuses on careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. Careers in the AAVTC career cluster require a creative aptitude, a strong background in computer and technology applications, a strong academic foundation, and a proficiency in oral and written communication.

Graphic Design & Multimedia Arts (Journalism)

Statewide Program of Study

The Graphic Design and Multimedia Arts program of study explores the occupations and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. This program of study may also include exploration into designing clothing and accessories, and creating special effects, animation, or other visual images using film, video, computers, or other electronic tools and media, for use in computer games, movies, music videos, and commercials.

Secondary Courses for High School Credit

Level 1
- Principles of Arts, A/V Technology, and Communications
- Video Game Design
- Digital Media

Level 2
- Graphic Design and Illustration I/Lab
- Animation I/Lab
- Video Game Programming
- Commercial Photography I/Lab
- Fashion Design I/Lab
- Digital Design and Media Productions
- Game Programming and Design

Level 3
- Graphic Design and Illustration II/Lab
- Animation II/Lab
- Advanced Video Game Programming
- Commercial Photography II/Lab
- Fashion Design II/Lab
- Digital Arts and Animation
- 3-D Modeling and Animation
- Web Game Development

Level 4
- Practicum in Graphic Design and Illustration
- Practicum in Animation
- Practicum in Commercial Photography
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Game and Interactive Media Design

Bachelor's Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Game and Interactive Media Design

Master's, Doctoral, and Professional Degrees
- Animation, Interactive Technology, Video Graphics and Special Effects
- Graphic Design
- Intermedia/Multimedia

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join a website development or coding club • Participate in SkillsUSA or TSA	• Intern with a multimedia or animation studio • Obtain a certificate or certification in graphic design

Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro
- Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator
- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Visual Design
- Adobe Certified Professional in Visual Design Using Adobe Photoshop
- Adobe Certified Professional In Visual Effects and Motion Graphics Using Adobe After Effects
- Audio-Visual Communications - Job Ready
- Autodesk Associate (Certified User) 3ds MAX
- Certified Professional Photographer
- Certified Professional Programmer
- Graphic Production Technology - Job Ready
- C++ Certified Associate Programmer
- Certified User: Programmer
- CodeHS Phython Level 1 Certification
- Oracle Certified Associate Java SE 9 Programmer
- Certified Entry-Level Python Programmer (PCEP)
- Adobe Certified Professional Animate*

*IBC Sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Graphic Designers	$44,824	1,433	15%
Multimedia Artists and Animators	$67,392	186	21%

Successful completion of the Graphic Design & Multimedia Arts program of study will fulfill requirements of the Business and Industry endorsement. Revised – October 2022

Arts, Audio/Video Technology, and Communications Career Cluster

The Arts, A/V Technology and Communications (AAVTC) Career Cluster focuses on careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services. Careers in the AAVTC career cluster require a creative aptitude, a strong background in computer and technology applications, a strong academic foundation, and a proficiency in oral and written communication.

Digital Communications (A/V Production)

Statewide Program of Study

The Digital Communications program of study explores the occupations and educational opportunities associated with the production of audio and visual media formats for various purposes, such as TV broadcasts, advertising, video production, or motion pictures. This program of study may also include exploration into operating machines and equipment to record sound and images, such as microphones, sound speakers, video screens, projectors, video monitors, sound and mixing boards, and related electronic equipment.

Secondary Courses for High School Credit

Level 1
- Principles of Arts, Audio/Video Technology, and Communications
- Professional Communications
- Web Communications
- Digital Communications in the 21st Century

Level 2
- Audio/Video Production I/Lab
- Digital Audio Technology I

Level 3
- Audio/Video Production II/Lab
- Digital Audio Technology II

Level 4
- Practicum of Audio/Video Production
- Practicum in Digital Audio Technology
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Recording Arts Technology/Technician
- Cinematography and Film/Video Production
- Radio and Television Broadcasting Technology/Technician
- Music Technology

Bachelor's Degrees
- Recording Arts Technology/Technician
- Cinematography and Film/Video Production
- Radio and Television
- Agricultural Communication/Journalism

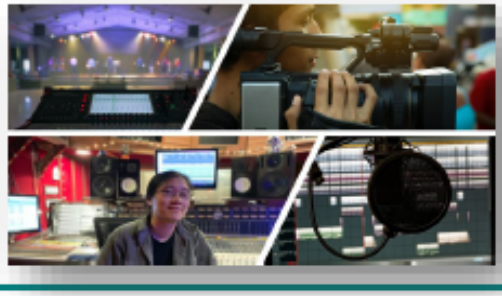
Master's, Doctoral, and Professional Degrees
- Communications Technology/Technician
- Cinematography and Film/Video Production
- Radio and Television
- Agricultural Communication/Journalism

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Shadow a production team • Participate in SkillsUSA or TSA	• Intern at a local television station or video production company • Work with a local company on a project

Industry-Based Certifications

- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Visual Design
- Adobe Certified Professional in Visual Design Using Adobe Photoshop
- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro
- Audio-Visual Communications - Job Ready
- Broadcasting and Journalism



Aligned Occupations

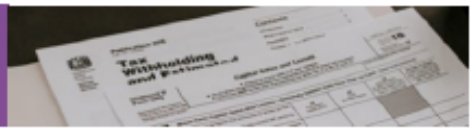
Occupations	Median Wage	Annual Openings	% Growth
Sound Engineering Technicians	$39,562	79	27%
Camera Operators, Television, Video, and Motion Picture	$50,024	129	9%
Audio and Video Equipment Technicians	$40,581	757	29%
Film and Video Editors	$47,382	118	23%

Successful completion of the Digital Communications program of study will fulfill requirements of the Business and Industry endorsement. Revised – October 2022

Business, Marketing, and Finance Career Cluster

The Business, Marketing, and Finance Career Cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.

Accounting and Financial Services
Statewide Program of Study



The Accounting and Financial Services program of study teaches CTE learners how to examine, analyze, and interpret financial records. Through this program of study, students will learn the skills necessary to perform financial services, prepare financial statements, interpret accounting records, give advice, or audit and evaluate statements prepared by others. This program of study will also introduce students to mathematical modeling tools.

Secondary Courses for High School Credit

Level 1
- Principles of Business, Marketing, and Finance
- Money Matters
- Business Information Management I/Lab

Level 2
- Accounting I
- Banking and Financial Services
- Financial Mathematics

Level 3
- Accounting II
- Financial Analysis
- Insurance Operations

Level 4
- Securities and Investments
- Practicum in Business Management
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Real Estate
- Financial, General
- Financial Planning and Services
- Certified Income Specialist

Bachelor's Degrees
- Accounting
- Financial, General
- Financial Planning and Services
- Certified Income Specialist

Master's, Doctoral, and Professional Degrees
- Financial Accounting
- Business Administration
- Financial Planning

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in Business Professionals of America, Future Business Leaders of America, or DECA	• Intern with a local accounting firm • Earn Microsoft Office certifications

Industry-Based Certifications

- Accounting - Basic
- Accounting Foundations
- Certified Insurance Service Representative
- Intuit QuickBooks Certified User
- MB-920: Microsoft Dynamics 365 Fundamentals Finance and Operations Apps
- Microsoft Office Specialist: Microsoft Access Expert (Access and Access 2019) Microsoft Office Specialist: Microsoft Excel Expert (Excel and Excel 2019)
- Volunteer Income Tax Assistance/Tax Counseling Certification: Advanced
- Volunteer Income Tax Assistance/Tax Counseling Certification: Basic
- Volunteer Income Tax Assistance/Tax Counseling Certification: Volunteer for Elderly

- Microsoft Office Specialist-Excel*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Accountants and Auditors	$71,469	14,436	22%
Loan Officers	$68,598	2,419	19%
Personal Financial Advisors	$86,965	1,861	52%
Administrative service Managers	$96,138	2,277	21%
Insurance Underwriters	$66,206	594	14%

Successful completion of the Accounting and Financial Services program of study will fulfill requirements of the Business and Industry endorsement. Revised – October 2022

Business, Marketing, and Finance Career Cluster

The Business, Marketing, and Finance Career Cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.

Business Management
Statewide Program of Study

The Business Management program of study teaches CTE learners how to plan, direct, and coordinate the administrative services and operations of an organization. Through this program of study, students will learn the skills necessary to formulate policies, manage daily operations, and allocate the use of materials and human resources. This program of study will also introduce students to mathematical modeling tools and organizational evaluation methods.

Secondary Courses for High School Credit

Level 1
- Principles of Business, Marketing, and Finance
- Business Information Management I/Lab

Level 2
- Business Law
- Virtual Business
- Business Information Management II/Lab

Level 3
- Business Management
- Global Business
- Human Resources Management

Level 4
- Statistics and Business Decision Making
- Practicum in Business Management
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Business Administration
- Business/Commerce
- Public Administration
- Business Management

Bachelor's Degrees
- Business Administration
- Business/Commerce
- Public Administration
- Management Science

Master's, Doctoral, and Professional Degrees
- Business Administration
- Business Management
- Public Administration
- Management Science

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in Business Professional of America, Future Business Leaders of America, or DECA	• Intern with a local business or chamber of commerce

Industry-Based Certifications

- Administrative Assisting
- Certified Associate in Project Management (CAPM)
- Entrepreneurship and Small Business
- General Management
- MB-920: Microsoft Dynamics 365 Fundamentals-Finance and Operations Apps
- Microsoft Office Specialist 2016 Master
- Microsoft Office Specialist: Microsoft Access Expert (Access 2019)
- Microsoft Office Specialist: Microsoft Excel Expert (Excel 2019)
- Microsoft Office Specialist: Microsoft Word Expert (Word 2019)
- Project Management Institute (PMI) Project Management Ready

- Microsoft Office Specialist-Excel*
- Microsoft Office Specialist-Word*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Administrative Service Managers	$96,138	2,277	21%
Management Analysts	$87,651	4,706	32%
General and Operations Managers	$107,640	18,679	20%
Supervisors of Administrative Support Works	$57,616	14,982	20%

Successful completion of the Business Management program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

Business, Marketing, and Finance Career Cluster

The Business, Marketing, and Finance Career Cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.

Entrepreneurship
Statewide Program of Study

The Entrepreneurship program of study teaches CTE learners how to plan, direct, and coordinate the management and operations of public or private sector organizations. Through this program of study, students will learn the skills necessary to formulate policies, manage daily operations, analyze management structures, and plan for the use of materials and human resources.

Secondary Courses for High School Credit

Level 1
- Principles of Business, Marketing, and Finance
- Business Information Management I/Lab

Level 2
- Entrepreneurship

Level 3
- Mobile Application Development
- Entrepreneurship II

Level 4
- Practicum in Business Management
- Practicum in Marketing
- Practicum in Entrepreneurship
- Project-Based Research
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Business Administration and Management
- Business/Commerce
- Public Administration
- Business Management

Bachelor's Degrees
- Business Administration and Management
- Business/Commerce
- Public Administration
- Management Science

Master's, Doctoral, and Professional Degrees
- Business Administration and Management
- Business/Commerce
- Public Administration
- Management Science

Work-Based Learning and Expanded-Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in Business Professionals of America, Future Leaders of America, or DECA	• Intern with a local management consulting firm

Industry-Based Certifications

- Entrepreneurship and Small Business
- Facebook Digital Marketing Associate Certification

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
General and Operations Managers	$107,640	18,679	20%
Management Analysts	$87,651	4,706	32%
Managers, All Others	$113,110	1,794	26%

Successful completion of the Entrepreneurship program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

Education and Training Career Cluster

The Education and Training Career Cluster focuses on planning, managing, and providing education and training services and related learning support services. All parts of courses are designed to introduce learners to the various careers available within the Education and Training career cluster.

Teaching and Training
Statewide Program of Study

The Teaching and Training program of study prepares CTE learners for careers related to teaching, instruction, and creation of instructional and enrichment materials. The program of study introduces CTE learners to a wide variety of student groups and their corresponding needs. It familiarizes them with the processes for developing curriculum, coordinating educational content, and coaching groups and individuals.

Secondary Courses for High School Credit

Level 1
- Principles of Education and Training
- Principles of Human Service

Level 2
- Human Growth and Development
- Child Development
- Communication and Technology in Education

Level 3
- Instructional Practices
- Teaching Strategies for Special Populations (TBD)

Level 4
- Practicum in Education and Training
- Project Based Research
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Teacher Education
- Education, General (or specific subject area)
- Special Education
- Health and Physical Education/Fitness

Bachelor's Degrees
- Bilingual and Multilingual Education
- Education, General (or specific subject area)
- Special Education
- Health and Physical Education/Fitness

Master's, Doctoral, and Professional Degrees
- Instruction and Learning
- Educational Leadership and Administration, General
- Special Education
- Social and Philosophical Foundations of Education

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in the Texas Association of Future Educators or Family, Career, and Community Leaders of America	• Teach a community education class • Intern as a teaching assistant or tutor • Serve as a camp counselor

Industry-Based Certifications

- Educational Aide I

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Adult Basic and Secondary Education and Literacy Teachers and Instructors	$48,069	862	17%
Middle School Teachers, Except Special and Career/Technical Education	$54,510	6,407	15%
Career and Technical Education Teachers, Secondary School	$56,360	719	9%
Special Education Teachers, Secondary School	$56,720	980	18%

Successful completion of the Teaching and Training program of study will fulfill requirements of the Public Service endorsement. Revised – August 2022

Health Science Career Cluster

The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostics services, health informatics, support services, and biotechnology research and development. To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, communicate effectively, and work well with others.

Healthcare Therapeutic (EKG, Phlebotomy, C.N.A., Pharmacy Tech

Statewide Program of Study

The Healthcare Therapeutic program of study introduces students to occupations and educational opportunities related to diagnosing and treating acute, episodic, or chronic illness independently or as part of a healthcare team. This program of study also includes an introduction to the opportunities associated with providing treatment and counsel to patients as well as rehabilitative programs that help build or restore daily living skills to persons with disabilities or developmental delays.

Secondary Courses for High School Credit

Level 1

- Principles of Health Science
- Principles of Therapeutic Healthcare
- Introduction to Pharmacy Science
- Introduction to Dental Science

Level 2

- Medical Terminology
- Dental Anatomy and Physiology
- Pharmacy I

Level 3

- Anatomy and Physiology
- Health Science Theory/Health Science Clinical
- Medical Microbiology
- Pharmacy II
- Medical Assistant
- Dental Equipment and Procedures

Level 4

- Pathophysiology
- Pharmacology
- Practicum in Health Science

Postsecondary Opportunities

Associates Degrees

- Dental Hygienist
- Medical/Clinical Assistant

Bachelor's Degrees

- Dental Hygienist

Master's, Doctoral, and Professional Degrees

- Dentist
- Physician Assistant
- Family and General Practitioners
- Pharmacist

Work-Based Learning and Expanded Learning Opportunities

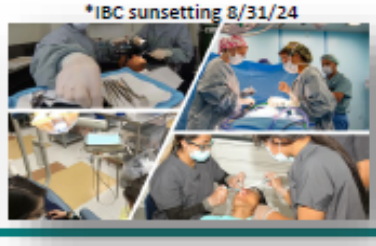
Exploration Activities	Work-Based Learning Activities
• Participate in SkillsUSA or Health Occupation Students of America	• Volunteer at a community wellness center, hospital, assisted living, or nursing home

Industry-Based Certifications

- Certified Clinical Medical Assistant
- Certified Dental Assistant
- Certified EKG Technician
- Emergency Medical Technician - Basic
- Certified Nurse Aide (CNA)
- Certified Occupational Therapy Assistant
- Certified Patient Care Technician (CPCT)
- ECG Technician
- Medical Assistant
- Medical Laboratory Assistant
- Nationally Registered Certified EKG Technician
- Patient Care Technician
- Pharmacy Technician
- Phlebotomy Technician
- Registered Dental Assistant X-Ray Certification

- Certified Ophthalmic Technician*
- Certified Surgical Technologist*
- Licensed Dental Hygienist*
- Orthopedic Technologist*

*IBC sunsetting 8/31/24



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Medical Assistants	$29,598	8,862	30%
Surgical Technologists	$45,032	1,150	20%
Dental Hygienists	$73,507	1,353	38%
Physicians and Surgeons	$213,071	1,151	30%

Successful completion of the Healthcare Therapeutic program of study will fulfill requirements of a Public Service endorsement or STEM endorsement if the math and science requirements are met. Revised – August 2022

Hospitality and Tourism Career Cluster

The Hospitality and Tourism Career Cluster focuses on the management, marketing, and operations of restaurants and other food/beverage services, lodging, attractions, recreation events, and travel-related services. Students acquire knowledge and skills focusing on communication, time management, and customer service that meet industry standards. Students will explore the history of the hospitality and tourism industry and examine characteristics needed for success.

Culinary Arts
Statewide Program of Study

The Culinary Arts program of study introduces CTE learners to occupations and educational opportunities related to the planning, directing, or coordinating activities of a food and beverage organization or department. This program of study also explores opportunities involved in directing and participating in the preparation and cooking of food.

Secondary Courses for High School Credit

Level 1
- Introduction to Culinary Arts
- Principles of Hospitality and Tourism

Level 2
- Culinary Arts
- Foundations of Restaurant Management

Level 3
- Advanced Culinary Arts

Level 4
- Food Science
- Practicum in Culinary Arts
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Hotel and Restaurant Management
- Restaurant Culinary and Catering Management
- Hospitality Administration/ Management, General
- Culinary Arts/ Chef Training

Bachelor's Degrees
- Hotel and Restaurant Management
- Food Service Systems Administration/ Management
- Hospitality Administration/ Management, General
- Culinary Science and Food Service Management

Master's, Doctoral, and Professional Degrees
- Hotel and Restaurant Management
- Food Service Systems Administration/ Management
- Hospitality Administration/ Management, General
- Business Administration Management, General

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in Family, Career, and Community Leaders of America, SkillsUSA, American Culinary Federation, or the Texas Restaurant Association	• Plan a catering event or work for a catering company • Participate in a cooking course • Work in a restaurant

Industry-Based Certifications

- Certified Fundamentals Cook
- Certified Fundamentals Pastry Cook
- Certified Hospitality & Tourism Management Professional
- Commercial Foods
- Culinary Meat Selection & Cookery Certification
- Food Protection Manager Certification
- Food Safety & Science Certification
- ManageFirst Professional
- Pre-Professional Certification in Culinary Arts
- Pre-Professional Certification in Food Science Fundamentals
- ServSafe Manager

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Food and Beverage Managers	$55,619	1,561	28%
Chef and Head Cooks	$43,285	1,366	25%
Food Science Technicians	$34,382	236	11%

Successful completion of the Culinary Arts program of study will fulfill requirements of the Business and Industry endorsement. Revised – October 2022

Human Services Career Cluster

The Human Services Career Cluster focuses on preparing individuals for employment in career pathways that relate to families and human needs such as counseling and mental health services, family and community services, personal care services, and consumer services.

Cosmetology and Personal Care Services
Regional Program of Study

The Cosmetology and Personal Care Services regional program of study introduces CTE learners to knowledge and skills related to providing beauty and personal care services. CTE concentrators may learn about or practice managing personal care facilities and coordinating or supervising personal service workers.

Secondary Courses for High School Credit

Level 1
- Principles of Cosmetology Design and Color Theory
- Microbiology and Safety for Cosmetology Careers

Level 2
- Introduction to Cosmetology
- Nail Care, Enhancements, and Spa Services
- Esthetics

Level 3
- Cosmetology I/Lab
- Barbering I

Level 4
- Cosmetology II/Lab
- Barbering II

Postsecondary Opportunities

Certificate/License
- Certified Aesthetic Laser Operator
- Cosmetologist
- Certified Spa Supervisor
- Nail Technician/Specialist and Manicurist

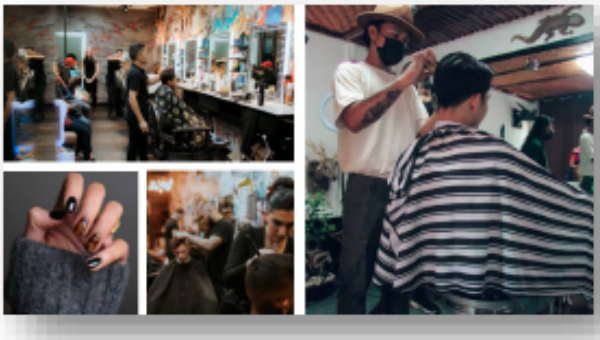
Associates Degrees
- Cosmetology/Cosmetologist, General
- Aesthetician/Esthetician and Skin Care Specialist
- Salon/Beauty Salon Management/Manager
- Cosmetology, Barber/Styling, and Nail Instructor

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in TIVA or SkillsUSA	• Job shadow a cosmetologist • Work part-time at a salon, spa, or barbershop

Industry-Based Certifications

- Cosmetology Operator License
- Cosmetology Esthetician Specialty License
- Cosmetology Manicurist Specialty License
- Barber Operating License



Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
First-Line Supervisors of Personal Service Workers	$36,941	1,634	24%
Barbers	$28,267	348	14%
Hairdressers, Hairstylists, and Cosmetologists	$21,507	3,489	22%
Manicurists and Pedicurists	$21,715	418	45%
Shampooers	$18,720	139	24%
Skincare Specialists	$26,437	637	22%

Successful completion of the Cosmetology and Personal Care Services regional program of study will fulfill requirements of the Public Service endorsement. Revised – August 2022

Human Services Career Cluster

The Human Services Career Cluster focuses on preparing individuals for employment in career pathways that relate to families and human needs such as counseling and mental health services, family and community services, personal care services, and consumer services.

Family and Community Services
Statewide Program of Study

The Family and Community Services program of study introduces students to knowledge and skills related to social services, including child and human development and consumer sciences. CTE learners may learn about or practice managing social and community services or teaching family and consumer sciences. Students may follow career paths in social work or therapy for children, families, or school communities.

Secondary Courses for High School Credit

Level 1
- Principles of Human Services
- Professional Communications
- Interpersonal Studies
- Dollars and Sense
- Principles of Community Services

Level 2
- Lifetime Nutrition and Wellness
- Human Growth and Development
- Child Development
- Social and Community Services

Level 3
- Counseling and Mental Health
- Family and Community Services

Level 4
- Practicum in Human Services
- Practicum in Entrepreneurship
- Project-Based Research
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Human Development and Family Studies
- Human Services/Sciences, General
- Family and Consumer Sciences
- Community Health Services

Bachelor's Degrees
- Human Development and Family Studies
- Human Services/Sciences, General
- Family and Consumer Sciences
- Child and Family Services

Master's, Doctoral, and Professional Degrees
- Human Development and Family Studies
- Marriage and Family Therapy/Counseling
- Human Services/Sciences
- Family Studies

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in American Association of Family and Consumer Sciences or Family, Career and Community Leaders of America	• Volunteer at a community center • Intern for a community non-profit organization

Industry-Based Certifications

- Community Health Workers
- Child Development Associate (CDA)

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Child, Family, and School Social Workers	$41,350	2,221	17%
Social and Community Services Managers	$65,146	608	33%
Marriage and Family Therapists	$42,266	217	35%
Social and Human Service Assistants	$32,448	2,822	25%

Successful completion of the Family and Community Services program of study will fulfill requirements of the Public Service endorsement. Revised – August 2022

Law and Public Service Career Cluster

The Law and Public Service Career Cluster focuses on planning, managing, and providing legal services, public safety, protective services, and homeland security, including professional and technical support services. Students will examine the roles and responsibilities of police, courts, corrections, private security, and fire and emergency services.

Law Enforcement
Statewide Program of Study

The Law Enforcement program of study teaches CTE learners about the development of, adherence to, and protection of various branches of law. Students will learn how to appropriately and legally respond to breaches in the law according to statutory rules and regulations as well as investigate how and why the breaches occurred.

Secondary Courses for High School Credit

Level 1
- Principles of Law, Public Safety, Corrections, and Security

Level 2
- Law Enforcement I
- Federal Law Enforcement and Protective Services
- Criminal Investigation

Level 3
- Law Enforcement II
- Correctional Services
- Forensic Psychology

Level 4
- Counseling and Mental Health
- Forensic Science
- Practicum in Law, Public Safety Corrections, and Security

Postsecondary Opportunities

Associates Degrees
- Criminal Justice/Safety Studies/Law Enforcement Administration
- Criminal Justice/Police Science
- Corrections
- Criminalistics and Criminal Science

Bachelor's Degrees
- Criminal Justice/Safety Studies/Law Enforcement Administration
- Criminal Justice/Police Science
- Juvenile Corrections
- Cyber/Computer Forensics and Counterterrorism

Master's, Doctoral, and Professional Degrees
- Criminal Justice/Safety Studies/Law Enforcement Administration
- Natural Resources
- Law Enforcement and Protective Services

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join the Texas Public Service Association or local criminal justice clubs	• Attend court hearings and other legal procedures

Industry-Based Certifications

- Non-Commissioned Security Officer Level II
- IAED Emergency Telecommunicator

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Police and Sheriff's Patrol Officers	$60,112	5,241	13%
Probation Officers and Correctional Treatment Officers	$44,054	793	9%
Correctional Officers and Jailers	$40,186	4,683	9%
Immigration and Customs Inspectors	$78,104	1,236	9%
First-Line Supervisors of Police and Detectives	$91,312	253	25%

Successful completion of the Law and Public Service program of study will fulfill requirements of the Public Service endorsement. Revised – August 2022

TEA Texas Education Agency

Manufacturing Career Cluster

The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

Manufacturing Technology
Statewide Program of Study

The Manufacturing Technology program of study focuses on the development and use of automatic and computer controlled machines, tools, and robots that perform work on metal or plastic. CTE learners will learn how to set up and operate a variety of machine tools to produce precision parts and instruments. Students will also learn how to modify parts to make or repair machine tools or maintain individual machines, and how to use hand-welding or flame-cutting equipment.

Secondary Courses for High School Credit

Level 1
- Blueprint Reading for Manufacturing Applications
- Principles of Manufacturing
- Principles of Applied Engineering

Level 2
- Metal Fabrication and Machining I
- Diversified Manufacturing I
- Occupational Safety and Environmental Technology I

Level 3
- Precision Metal Manufacturing I
- Metal Fabrication and Machining II
- Diversified Manufacturing II
- Occupational Safety and Environmental Technology II
- Computer Integrated Manufacturing (PLTW)

Level 4
- Precision in Metal Manufacturing II/Lab
- Occupational Safety and Environmental Technology III
- Practicum in Manufacturing
- Practicum in Entrepreneurship

Postsecondary Opportunities

Associates Degrees
- Welding Technology/Welder
- Machine Shop Technology/Assistant
- Operations Management and Supervision
- Occupational Safety and Health Technology/Technician

Bachelor's Degrees
- Welding Engineering Technology/Technician
- Biomedical Technology/ Technician
- Operations Management and Supervision
- Environmental Health

Master's, Doctoral, and Professional Degrees
- Welding Engineering Technology/Technician
- Occupational Health and Industrial Hygiene
- Operations Management and Supervision
- Environmental Health

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate and compete in SkillsUSA • Job shadow a machinist	• Work in a local business or industry apprenticeship • Join the American Welding Society

Industry-Based Certifications
- AWS D.1.1 Structural Steel
- AWS SENSE Level 1: Entry Welder
- C-101 Certified Industry 4.0 Associate – Basic Operations
- C-103 Certified Industry 4.0 Associate - Robot System Operations
- Certified Manufacturing Associate
- Certified Production Technician (CPT) 4.0
- Certified SOLIDWORKS Professional (CSWP)- CAM
- Certified SOLIDWORKS Professional (CSWP) - Additive Manufacturing
- CNC Lathe Operations
- CNC Lathe Set Up and Operations
- Machining CNC Mill Operations Level I
- Machining CNC Mill Programming Setup and Operations Level I
- Machining CNC Milling Skills Level II
- Machining CNC Turning Level II
- Machining Drill Press Level I
- Machining Grinding Level I
- Machining Measurement, Material, and Safety Level I
- Machining Milling Level I
- Manufacturing Technology
- NCCER Core
- NCCER Welding Level 1
- Precision Machining - Job Ready
- Welding - Job Ready
- Mastercam Associate Certification Mill Design and Toolpaths*
- Mastercam Certified Professional Mill Level 1*
- Mastercam Professional Level Certification*
- OSHA 30 Hour General*

*BC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Mechanical Engineering Technicians	$57,117	453	9%
CNC Machine Operators	$39,250	1,319	12%
Aerospace Engineering and Operations Technicians	$60,757	114	9%
Electrical and Electronics Engineering Technicians	$60,382	1,439	9%
Industrial Engineering Technicians	$61,672	326	9%

Successful completion of the Manufacturing Technology program of study will fulfill requirements of the Business and Industry and STEM endorsement if math and science requirements are met. Revised – August 2022

TEA
Texas Education Agency

Manufacturing Career Cluster

The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering.

Welding
Statewide Program of Study

The Welding program of study focuses on the development and use of automatic and computer-controlled machines, tools, and robots that perform work on metal or plastic. CTE learners will learn how to modify parts to make or repair machine tools or maintain individual machines, and how to use hand-welding or flame-cutting equipment.

Secondary Courses for High School Credit

Level 1
- Introduction to Welding

Level 2
- Welding I
- Introduction to Film Interpretation of Weldments

Level 3
- Welding II/Lab

Level 4
- Practicum in Manufacturing
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees
- Certified Welder or Welder Inspector
- Machine Shop Technology/Assistant
- Operations Management and Supervision
- Occupational Safety and Health Technology/Technician

Bachelor's Degrees
- Welding Engineering Technology/Technician
- Biomedical Technology/Technician
- Operations Management and Supervision
- Environmental Health

Master's, Doctoral, and Professional Degrees
- Welding Engineering Technology/Technician
- Occupational Health and Industrial Hygiene
- Operations Management and Supervision
- Environmental Health

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate and compete in SkillsUSA • Job shadow a machinist	• Work in a local business or industry apprenticeship • Join the American Welding Society

Industry-Based Certifications

- API 1104 Welding Pipelines and Related Facilities
- AWS Certified Welder
- AWS D1.1 Structural Steel
- AWS D9.1 Sheet Metal Welding
- AWS SENSE Level 1: Entry Welder
- Industrial Technology Maintenance (ITM) - Maintenance Welding
- NCCER Construction Technology Certification Level I
- NCCER Core
- NCCER Welding Level I
- Welding - Job Ready
- OSHA 30 Hour General*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Welders, Cutters, Solderers, and Brazers	$41,350	6,171	9%
Welding Soldering and Brazing Machine Setters, Operators and Tenders	$40,040	280	9%

Successful completion of the Welding program of study will fulfill requirements of the Business and Industry endorsement. Revised – August 2022

Science, Technology, Engineering, and Mathematics Career Cluster

The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.

Cybersecurity
Statewide Program of Study

The Cybersecurity program of study includes the occupations and educational opportunities related to planning, implementing, upgrading, or monitoring security measure for the protection of computer networks and information. This program of study may also include exploration into responding to computer security breaches and virus and administering network security measures.

Secondary Courses for High School Credit

Level 1
- Principles of Information Technology
- Fundamentals of Computer Science
- Foundations of Cybersecurity

Level 2
- Internetworking Technologies I
- Computer Science I
- AP Computer Science Principles
- Computer Maintenance/Lab

Level 3
- Engineering Applications of Computer Science Principles
- Networking/Lab
- Digital Forensics
- Internetworking Technologies II
- AP Computer Science A-Math
- AP computer Science B-LOTE
- IB Computer Science Standard Level
- Discrete Mathematics for Computer Science

Level 4
- Cybersecurity Capstone
- Practicum in Information Technology
- Practicum in STEM
- Project-Based Research
- Independent Study in Technology Applications
- Independent Study in Evolving/Emerging Technologies
- IB Computer Science Higher Level- Math
- IB Computer Science Higher Level-LOTE

Postsecondary Opportunities

Associates Degrees
- System Networking, and LAN/WAN Management
- Information Technology
- Computer and Information Sciences, General
- Computer Science

Bachelor's Degrees
- Computer Systems Networking and Telecommunications
- Computer Systems Networking and Telecommunications
- Computer and Information Sciences, General
- Computer Science

Master's, Doctoral, and Professional Degrees
- Computer Systems Analysis/Analyst
- Information Technology
- Computer Information Sciences, General
- Computer Science

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join TSA • Job shadow a computer system analyst or information security analyst	• Obtain a cybersecurity IBC

Industry-Based Certifications

- Cisco 100-490 RSTECH Supporting Cisco Routing and Switching Network Devices
- Cisco 200-201 CBROPS - Understanding Cisco Cybersecurity Operations Fundamentals
- Cisco CCNA (200-301) Implementing and Administering Ciisco Solutions
- CodeHS Cybersecurity Level 1 Certification
- CompTIA A+ Certification
- CompTIA Network+
- CompTIA Security+
- Computer Networking Fundamentals- Job Ready
- Cybersecurity Fundamentals
- CyberSecurity Fundamentals: An ISACA Certificate
- Information Technology Specialist: Java
- Information Technology Specialist" JavaScript
- information Technology Specialist: Networking
- Microsoft Security, Compliance, and Identity Fundamentals
- Microsoft 365 Fundamentals
- Oracle Certified Associate Java SE 8 Programmer

- Associate of (ISC)*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Information Security Analysts	$91,915	814	29%
Network and Computer System Administrators	$82,597	2,814	19%
Computer System Analysts	$87,568	5,937	29%

Successful completion of the Cybersecurity program of study will fulfill requirements of the Business and Industry or STEM endorsement if the math and science requirements are met. Revised – October 2022

TEA
Texas Education Agency

Science, Technology, Engineering, and Mathematics Career Cluster

The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.

Engineering
Statewide Program of Study

The Engineering program of study focuses on the design, development, and use of engines, machines, and structures. CTE learners will learn how to apply science, mathematical methods, and empirical evidence to the innovation, design, construction, operation, and maintenance of different manufacturing systems.

Secondary Courses for High School Credit

Level 1
- Principles of Applied Engineering
- Introduction to Engineering Design (PLTW)
- Engineering Essentials (PLTW)

Level 2
- Manufacturing Engineering Technology I

Level 3
- Engineering and Design and Development (PLTW)
- Engineering Design and Presentation I
- Computer Integrated Manufacturing (PLTW)
- Aerospace Engineering (PLTW)
- Digital Electronics
- Civil Engineering and Architecture (PLTW)
- Engineering Science
- Environmental Sustainability (PTLW)

Level 4
- Engineering Design and Problem Solving
- Engineering Design and Presentation II
- Practicum in STEM
- Scientific Research and Design

Postsecondary Opportunities

Associates Degrees
- Electrical and Electronics Engineering
- Drafting and Design Technology/ Technician, General
- Engineering Technology

Bachelor's Degrees
- Electrical and Electronics Engineering
- CAD/CADD Drafting and/or Design Technology/ Technician
- Bioengineering and Biomedical Engineering
- Construction Engineering Technology/ Technician

Master's, Doctoral, and Professional Degrees
- Electrical and Electronics Engineering
- Mechanical Engineering
- Bioengineering and Biomedical Engineering

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in Skills USA competitions	• Intern at an engineering firm • Shadow a machinist

Industry-Based Certifications

- Autodesk Associate (Certified User) AutoCAD
- Autodesk Associate (Certified User) & Professional Fusion 360
- Autodesk Associate (Certified User) & Professional Inventor for Mechanical Design
- Autodesk Associate (Certified User) & Professional Revit Architecture
- Autodesk Associate (Certified User) & Professional Revit for Electrical
- Autodesk Associate (Certified User) & Professional Revit for Structural Design
- Autodesk Certified Professional in AutoCAD for Design and Drafting
- Autodesk Certified Professional in Civil 3D for Infrastructure Design
- Autodesk Certified Professional in Revit for Architectural Design
- Autodesk Certified User& Professional in Inventor
- C-103 Certified Industry 4.0 Associate - Robot System Operations
- Engineering Technology Foundations
- Lean Six Sigma Green Belt Certification
- Pre-Engineering/Engineering Technology - Job Ready
- Certified SOLIDWORKS Associate (CSWA) - Electrical
- Certified SOLIDWORKS Associate (CSWA) - Academic
- Certified SOLIDWORKS Associate (CSWA) - Mechanical Design
- Certified SOLIDWORKS Associate (CSWA) - Simulation
- Certified SOLIDWORKS Associate (CSWA) - Sustainability
- Certified SOLIDWORKS Professional (CSWP) - Model Based Definition
- Certified SOLIDWORKS Professional (CSWP) - Academic
- Certified SOLIDWORKS Professional (CSWP) - Simulation
- Certified SOLIDWORKS Professional (CSWP) - Mechanical Design
- Certified SOLIDWORKS Professional (CSWPA) - Drawing Tools

- Certified SOLIDWORKS Associate*

*BC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Aerospace Engineers	$110,843	481	9%
Industrial Engineers	$97,074	1,263	10%
Mechanical Engineers	$91,107	1,535	11%
Chemical Engineers	$112,819	474	9%
Electrical Engineers	$98,405	1,137	105

Successful completion of the Engineering program of study will fulfill requirements of the Business and Industry or STEM endorsement if the math and science requirements are met. Revised – November 2022

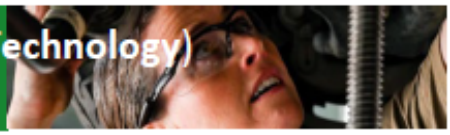
TEA Texas Education Agency

Transportation, Distribution, and Logistics Career Cluster

The Transportation, Distribution, and Logistics Career Cluster focuses on careers in planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water. It also includes related professional support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

Automotive (Automotive Technology)

Statewide Program of Study



The Automotive program of study teaches CTE learners how to repair and refinish automobiles and service various types of vehicles. CTE learners may learn to collect payment for services or supplies and perform typical vehicle maintenance procedures such as lubrication, oil changes, installation of antifreeze, or replacement of accessories like wiper blades or tires.

Secondary Courses for High School Credit

Level 1

- Principles of Transportation Systems
- Small Engine Technology I
- Basic Collision Repair and Refinishing

Level 2

- Automotive Basics
- Introduction to Transportation Technology
- Small Engine Technology II
- Collision Repair/Lab
- Occupational Safety and Environmental Technology I

Level 3

- Automotive Technology I
- Energy and Power of Transportation Systems
- Paint and Refinishing/Lab

Level 4

- Automotive Technology II/Lab
- Practicum in Transportation Systems
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees

- Autobody/ Collision and Repair Technology/ Technician
- Medium/Heavy Vehicle and Truck Technology/ Technician
- Mechanical Engineering/ Mechanical Technology/ Technician

Bachelor's Degrees

- Mechanical Engineering/ Mechanical Technology/ Technician

Master's, Doctoral, and Professional Degrees

- Mechanical Engineering

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join SkillsUSA or the Automotive Service Association	• Work at a local automotive repair or body shop

Industry-Based Certifications

- ASE Entry Level Automobile Maintenance and Light Repair (MR)
- ASE Entry-Level Automobile Automatic Transmission/Transaxle (AT)
- ASE Entry-Level Automobile Brakes (BR)
- ASE Entry-Level Automobile Electronic/Electrical Systems (EE)
- ASE Entry-Level Automobile Engine Performance (EP)
- ASE Entry-Level Automobile Engine Repair (ER)
- ASE Entry-Level Automobile Heating and Air Conditioning (AC)
- ASE Entry-Level Automobile Manual Drive Train and Axles (MD)
- ASE Entry-Level Automobile Service Technology
- ASE Entry-Level Automobile Suspension and Steering (SS)
- ASE Entry-Level Collision Mechanical and Electrical Components (ME)
- ASE Entry-Level Collision Non-Structural Analysis and Damage Repair (SR)
- ASE Entry-Level Collision Painting and Refinishing (PR)
- ASE Entry-Level Collision Structural Analysis and Damage Repair
- ASE Refrigerant Recovery and Recycling
- Principles of Small Engine Technology Certification
- Small Engine Technology
- OSHA 30 Hour General*
- ASE Suspension and Steering*
- ASE Structural Analysis Damage Repair*
- ASE Painting & Refinishing*
- ASE Non-Structural Analysis Damage Repair*
- ASE Mech Elec Components*
- ASE Manual Drive Train Axles*
- ASE Maintenance Light Repair*
- ASE Heating, Ventilation, AC (HVAC)*
- ASE Auto Transmission*
- ASE Automobile Service Technology*
- ASE Brakes*
- ASE Electrical/Electronic Systems*
- ASE Engine Performance*
- ASE Engine Repair*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Automotive Body and Related Repairers	$40,144	1,456	25%
Automotive Service Technician and Mechanics	$38,459	5,557	18%

Successful completion of the Automotive program of study will fulfill requirements of the Business and Industry endorsement. Revised – October 2022

TEA Texas Education Agency

Transportation, Distribution, and Logistics Career Cluster

The Transportation, Distribution, and Logistics Career Cluster focuses on careers in planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water. It also includes related professional support services such as transportation infrastructure planning and management, logistics services, mobile equipment and facility maintenance.

Automotive (Collision Repair)

Statewide Program of Study

The Automotive program of study teaches CTE learners how to repair and refinish automobiles and service various types of vehicles. CTE learners may learn to collect payment for services or supplies and perform typical vehicle maintenance procedures such as lubrication, oil changes, installation of antifreeze, or replacement of accessories like wiper blades or tires.

Secondary Courses for High School Credit

Level 1

- Principles of Transportation Systems
- Small Engine Technology I
- Basic Collision Repair and Refinishing

Level 2

- Automotive Basics
- Introduction to Transportation Technology
- Small Engine Technology II
- Collision Repair/Lab
- Occupational Safety and Environmental Technology I

Level 3

- Automotive Technology I
- Energy and Power of Transportation Systems
- Paint and Refinishing/Lab

Level 4

- Automotive Technology II/Lab
- Practicum in Transportation Systems
- Practicum in Entrepreneurship
- Career Preparation I

Postsecondary Opportunities

Associates Degrees

- Autobody/ Collision and Repair Technology/ Technician
- Medium/Heavy Vehicle and Truck Technology/ Technician
- Mechanical Engineering/ Mechanical Technology/ Technician

Bachelor's Degrees

- Mechanical Engineering/ Mechanical Technology/ Technician

Master's, Doctoral, and Professional Degrees

- Mechanical Engineering

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join SkillsUSA or the Automotive Service Association	• Work at a local automotive repair or body shop

Industry-Based Certifications

- ASE Entry Level Automobile Maintenance and Light Repair (MR)
- ASE Entry-Level Automobile Automatic Transmission/Transaxle (AT)
- ASE Entry-Level Automobile Brakes (BR)
- ASE Entry-Level Automobile Electronic/Electrical Systems (EE)
- ASE Entry-Level Automobile Engine Performance (EP)
- ASE Entry-Level Automobile Engine Repair (ER)
- ASE Entry-Level Automobile Heating and Air Conditioning (AC)
- ASE Entry-Level Automobile Manual Drive Train and Axles (MD)
- ASE Entry-Level Automobile Service Technology
- ASE Entry-Level Automobile Suspension and Steering (SS)
- ASE Entry-Level Collision Mechanical and Electrical Components (ME)
- ASE Entry-Level Collision Non-Structural Analysis and Damage Repair (SR)
- ASE Entry-Level Collision Painting and Refinishing (PR)
- ASE Entry-Level Collision Structural Analysis and Damage Repair
- ASE Refrigerant Recovery and Recycling
- Principles of Small Engine Technology Certification
- Small Engine Technology
- OSHA 30 Hour General*
- ASE Suspension and Steering*
- ASE Structural Analysis Damage Repair*
- ASE Painting & Refinishing*
- ASE Non-Structural Analysis Damage Repair*
- ASE Mech Elec Components*
- ASE Manual Drive Train Axles*
- ASE Maintenance Light Repair*
- ASE Heating, Ventilation, AC (HVAC)*
- ASE Auto Transmission*
- ASE Automobile Service Technology*
- ASE Brakes*
- ASE Electrical/Electronic Systems*
- ASE Engine Performance*
- ASE Engine Repair*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Automotive Body and Related Repairers	$40,144	1,456	25%
Automotive Service Technician and Mechanics	$38,459	5,557	18%

Successful completion of the Automotive program of study will fulfill requirements of the Business and Industry endorsement. Revised – October 2022

TEA Texas Education Agency

Career and technical education instruction provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.

CTE Agriculture, Food and Natural Resources Cluster

Agriculture, Food, and Natural Resources is a dynamic industry. Agriculture is also closely linked with careers in management, natural resources, and environmental science. Agriculture is the nation's largest industry, employing 20% of the nation's workforce. When most people think of agriculture, they often picture raising cattle and growing crops. Only a small percentage of the agricultural jobs are directly related to animal and food production, while the largest percent of careers involve agriculture-related science, sales, and services.

Animal Science

9th	10th	11th	12th
Principles of Ag, Food & Natural Resources	Equine Science and Small Animal Management	Livestock Production	Advanced Animal Science (Science Credit) or Project Based Research or Scientific Research & Design

Plant Science

9th	10th	11th	12th
Principles of Ag, Food & Natural Resources	Floral Design (Fine Arts credit)	Horticulture Science	Advanced Plant & Soil (Science Credit) or Practicum in Agriculture, Food & Natural Resources or Project Based Research or Scientific Research & Design

CTE COURSES

Course	PRINCIPLES OF AGRICULTURE, FOOD AND NATURAL RESOURCES
Course number	QA3830
Credit	1.0 elective credit
Grade level	9-12
Description	Principles of Agriculture, Food, and Natural Resources will allow students to develop knowledge and skills regarding career and educational opportunities, personal development, globalization, industry standards, details, practices, and expectations. To prepare for careers in agriculture, food, and natural resources, students must attain academic skills and knowledge in agriculture.
Prerequisites	None

Course	LIVESTOCK PRODUCTION
Course number	QA18A0 QA18Y0
Credit	1.0 elective credit
Grade level	10-12

Description	In Livestock Production, students will acquire knowledge and skills related to livestock and the livestock production industry. Livestock Production may address topics related to beef cattle, dairy cattle, swine, sheep, goats, and poultry. To prepare for careers in the field of animal science, students must attain academic skills and knowledge, acquire knowledge and skills related to animal systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations.
Prerequisites	Recommended: Principles of Agriculture, Food and Natural Resources, Equine Science/Small Animal Management

Course	**SMALL ANIMAL MANAGEMENT**
Course number	QA2936
Credit	0.5 elective credit
Grade level	10-12
Description	In Small Animal Management, students will acquire knowledge and skills related to small animals and the small animal management industry. Small Animal Management may address topics related to small mammals such as dogs and cats, amphibians, reptiles, and birds. To prepare for careers in the field of animal science, students must enhance academic knowledge and skills, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations.
Prerequisites	Recommended: Principles of Agriculture, Food and Natural Resources.

Course	**EQUINE SCIENCE**
Course number	QW1035
Credit	0.5 elective credit
Grade level	10-12
Description	In Equine Science, students will acquire knowledge and skills related to equine animal systems and the equine industry. Equine Science may address topics related to horses, donkeys, and mules.
Prerequisites	Recommended: Principles of Agriculture, Food and Natural Resources

Course	**ADVANCED ANIMAL SCIENCE**
Course number	QA1030 QA10Y0
Credit	**1.0 science credit**
Grade level	11-12
Description	Advanced Animal Science examines the interrelatedness of human, scientific, and technological dimensions of livestock production. Instruction is designed to allow for the application of scientific and technological aspects of animal science through field and laboratory experiences. To prepare for careers in the field of animal science, students must attain academic skills and knowledge, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry standards. By Texas law this course must contain 40 percent lab and field investigations. *Note: This course satisfies a science credit requirement for students on the Foundation High School Program.*
Prerequisites	*Biology and Chemistry or Integrated Physics and Chemistry; Algebra I and Geometry; and either Small Animal Management, Equine Science or Livestock Production. Recommended Veterinary medical Applications.*

Course	**WILDLIFE, FISHERIES, AND ECOLOGY MANAGEMENT**
Course number	QA1530 QA15A0
Credit	1.0 elective credit
Grade level	9-12

Description	Wildlife, Fisheries, and Ecology Management examines the management of game and non-game wildlife species, fish, and aquacrops and their ecological needs as related to current agricultural practices. To prepare for careers in natural resource systems, students must attain academic skills and knowledge, acquire technical knowledge and skills related to natural resources, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations.
Prerequisites	Recommended: Principles of Agriculture, Food and Natural Resources

Course	**FLORAL DESIGN**
Course number	QW1130
Credit	**1.0 fine arts credit**
Grade level	9-12
Description	Floral Design is designed to develop students' ability to identify and demonstrate the principles and techniques related to floral design as well as develop an understanding of the management of floral enterprises. Through the analysis of artistic floral styles and historical periods, students will develop respect for the traditions and contributions of diverse cultures. Students will respond to and analyze floral designs, thus contributing to the development of lifelong skills of making informed judgments and evaluations. To prepare for careers in floral design, students must attain academic skills and knowledge, acquire technical knowledge and skills related to horticultural systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. *Note: This course satisfies a fine arts credit requirement for students on the Foundation High School Program.*
Prerequisites	Recommended: Principles of Agriculture, Food and Natural Resources

Course	**HORTICULTURAL SCIENCE**
Course number	QA3130 QA31Y0
Credit	1.0 elective credit
Grade level	10-12
Description	Horticultural Science is designed to develop an understanding of common horticultural management practices as they relate to food and ornamental plant production. To prepare for careers in horticultural systems, students must attain academic skills and knowledge, acquire technical knowledge and skills related to horticulture and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations.
Prerequisites	Recommended: Principles of Agriculture, Food and Natural Resources, Floral Design, Turf Grass Management, Landscape Design & Management

Course	**ADVANCED PLANT & SOIL SCIENCE**
Course number	QW2530 QW25Y0
Credit	**1.0 science credit**
Grade level	11-12
Description	Advanced Plant and Soil Science provides a way of learning about the natural world. Students should know how plant and soil science has influenced a vast body of knowledge, that there are still applications to be discovered, and that plant and soil science is the basis for many other fields of science. To prepare for careers in plant and soil science, students must attain academic skills and knowledge, acquire technical knowledge and skills related to plant and soil science and the workplace. Note: This course satisfies a science credit requirement for students on the Foundation High School Program. Note: This course satisfies a science credit requirement for students on the Foundation High School Program
Prerequisites	Recommended: Biology, Integrated Physics and Chemistry, Chemistry, or Physics and a minimum of one credit from the courses in the Agriculture, Food, and Natural Resources Career Cluster

Course	**PRACTICUM IN AGRICULTURE, FOOD, & NATURAL RESOURCES I**
Course number	QA8530 QA85Y0
Credit	2.0 elective credits
Grade level	11-12

Description	Practicum in Agriculture, Food, and Natural Resources is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experiences such as employment, independent study, internships, assistantships, mentorships, or laboratories areas of specialized study could include Horticulture, Vet Med, Ag Mechanics. To prepare for careers in agriculture, food and natural resources, students must attain academic skills and knowledge, acquire technical knowledge and skills related to the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations.
Prerequisites	Recommended: A minimum of one credit from the courses in the Agriculture, Food, and Natural Resources Career Cluster.

Course	**CAREER PREPARATION - AG**
Course number	QA9530 QA95Y0
Credit	2.0 elective credits
Grade level	11-12
Description	Career Preparation I provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.
Prerequisites	None

Course	**SCIENTIFIC RESEARCH & DESIGN**
Course number	QS1030
Credit	**1.0 science credit**
Grade level	11-12
Description	Scientific Research and Design is a broad-based course designed to allow districts and schools considerable flexibility to develop local curriculum to supplement any program of study or coherent sequence. The course has the components of any rigorous scientific or engineering program of study from the problem identification, investigation design, data collection, data analysis, formulation, and presentation of the conclusions. All of these components are integrated with the career and technical education emphasis of helping students gain entry-level employment in high-skill, high-wage jobs and/or continue their education. This course is recommended for students in Grades 11 and 12. Prerequisite: Biology, Chemistry, Integrated Physics and Chemistry (IPC), or Physics. Students must meet the 40% laboratory and fieldwork requirement. This course satisfies a high school science graduation requirement. Students shall be awarded one credit for successful completion of this course. Students may take this course with different course content for a maximum of three credits.
Prerequisites	Recommended: Biology, Integrated Physics and Chemistry, Chemistry, or Physics and a minimum of one credit from the courses in the Agriculture, Food, and Natural Resources Career Cluster

Course	**PROJECT-BASED RESEARCH**
Course number	QT9330 QT93Y 0
Credit	1.0
Grade level	11-12
Description	Project-Based Research is a course for students to research a real-world problem. Students are matched with a mentor from the business or professional community to develop an original project on a topic related to career interests. Students use scientific methods of investigation to conduct in-depth research, compile findings, and present their findings to an audience that includes experts in the field. To attain academic success, students must have opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings. General requirements. This course is recommended for students in Grades 11 and 12. Students shall be awarded one credit for successful completion of this course. Students may repeat this course with different course content for up to three credits.
Prerequisites	None

CTE Architecture and Construction Cluster

The Architecture & Construction Career Cluster focuses on designing, planning, managing, building, and maintaining the built environment.

Architecture

Year 1	Year 2	Year 3	Year 4
	Architectural Design I	Architectural Design II	Practicum in Architectural Design or Career Preparation

Course	**ARCHITECTURAL DESIGN I**
Course number	QW2030 QW20A0
Credit	1.0 elective credit
Grade level	10-12
Description	In Architectural Design I, students will gain knowledge and skills needed to enter a career in architecture or construction or prepare a foundation toward a postsecondary degree in architecture, construction science, drafting, interior design, or landscape architecture. Architectural Design I include the knowledge of the design, design history, techniques, and tools related to the production of drawings, renderings, and scaled models for nonresidential or residential architectural purposes.
Prerequisites	**Algebra I and English I.** Recommended Prerequisites: Geometry

Course	**ARCHITECTURAL DESIGN II**
Course number	QW2130 QW21Y0
Credit	2.0 elective credits
Grade level	12
Description	In Extended Practicum in Construction Technology, students will be challenged with the application of gained knowledge and skills from Construction Technology I and II. In many cases students will be allowed to work at a job (paid or unpaid) outside of school or be involved in local projects the school has approved for this class.
Prerequisites	**Architectural Design I or Advanced Interior Design and Geometry.** Recommended Prerequisites: Principles of Architecture and Principles of Construction

Course	**PRACTICUM IN ARCHITECTURAL DESIGN**
Course number	QW2230 QW22Y0
Credit	2.0 elective credits
Grade level	12
Description	In Extended Practicum in Construction Technology, students will be challenged with the application of gained knowledge and skills from Construction Technology I and II. In many cases students will be allowed to work at a job (paid or unpaid) outside of school or be involved in local projects the school has approved for this class.
Prerequisites	**Architectural Design II**

Course	CAREER PREPARATION I
Course number	QT9530 QT95Y0
Credit	2.0 elective credits
Grade level	12
Description	Career Preparation I provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.
Prerequisites	Recommended: Construction technology I & II or Architectural Design II

CTE Arts, Audio/Video Technology, and Communications Cluster

The Arts, Audio/Video Technology, and Communications Career Cluster focuses on careers in designing, producing, exhibiting, performing, writing, and publishing multimedia content including visual and performing arts and design, journalism, and entertainment services.

Digital Communications (A/V Production

Year 1	Year 2	Year 3	Year 4
Principles of Arts, A/V Technology & Comm. or Professional Comm. or Digital Communications in the 21st Century	Audio Video Production I w/Lab	Audio/Video Production II w/Lab	Practicum in Audio Video Production I or Career Preparation

Graphic Design & Multimedia Arts (Commercial Photography)

Year 1	Year 2	Year 3	Year 4
Principles of Arts, A/V Technology & Communications	Commercial Photography I / Lab	Commercial Photography II / Lab	Practicum in Commercial Photography

Graphic Design & Multimedia Arts (Animation/Video Game Design)

Year 1	Year 2	Year 3	Year 4
Digital Design & Media Production or Digital Media or Digital Arts & Animation	Animation I	Video Game Design or Game Programming & Design	Animation II or Game Programming & Design

Graphic Design & Multimedia Arts (Journalism)

Year 1	Year 2	Year 3	Year 4
Digital Media	Graphic Design & Illustration I	Graphic Design & Illustration II	Practicum in Graphic Design & Illustration

Course	**PRINCIPLES OF ARTS, AUDIO/VIDEO TECHNOLOGY, AND COMMUNICATIONS**
Course number	QT5030
Credit	1.0 elective credit
Grade level	9
Description	The goal of this course is for the student understands 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.
Prerequisites	None

Course	PROFESSIONAL COMMUNICATIONS
Course number	QF1335/6
Credit	0.5 Speech credit
Grade level	9-12
Description	Professional Communications blends written, oral, and graphic communication in a career-based environment. Careers in the global economy require individuals to be creative and have a strong background in computer and technology applications, a strong and solid academic foundation, and a proficiency in professional oral and written communication. Within this context, students will be expected to develop and expand the ability to write, read, edit, speak, listen, apply software applications, manipulate computer graphics, and conduct Internet research.
Prerequisites	None

Course	DIGITAL COMMUNICATIONS IN THE 21ST CENTURY
Course number	QQ2435/6
Credit	1.0
Grade level	9-12
Description	Digital Communications in the 21st Century will prepare students for the societal demands of increased civic literacy, independent working environments, global awareness, and the mastery of a base set of analysis and communication skills. Students will be expected to design and present an effective product based on well-researched issues in order to thoughtfully propose suggested solutions to authoritative stakeholders. The outcome of the process and product approach is to provide students an authentic platform to demonstrate effective application of multimedia tools within the contexts of global communication and collaborative communities and appropriately share their voices to affect change that concerns their future. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts
Prerequisites	None

Course	AUDIO/VIDEO PRODUCTION I
Course number	QW4630 QW46Y0
Credit	2.0 (1 blk) elective credits
Grade level	9-12
Description	In addition to developing technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the industry with a focus on pre-production, production, and post-production audio and video products.
Prerequisites	Recommended: Principles of Art, Audio/Video Technology, and Communications.

Course	AUDIO/VIDEO PRODUCTION II
Course number	QW4730 QW47Y0
Credit	2.0 (1 blk) elective credits
Grade level	10-12
Description	Building upon the concepts taught in Audio/Video Production, in addition to developing advanced knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced understanding of the industry with a focus on pre-production, production, and post- production products. This course may be implemented in an audio format or a format with both audio and video.
Prerequisites	**Audio/Video Production I** Recommended: Principles of Arts, Audio/Video Technology & Communications

Course	PRACTICUM IN AUDIO/VIDEO PRODUCTION I
Course number	QW4830 QW48Y0
Credit	2.0 elective credits
Grade level	11-12
Description	Building upon the concepts taught in Audio/Video Production II, in addition to developing advanced technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an increasing understanding of the industry with a focus on applying pre- production, production, and post-production audio and video products in a professional

	environment.
Prerequisites	**Audio/Video Production II and Audio/Video Production II Lab**

Course	**COMMERCIAL PHOTOGRAPHY I**
Course number	QW3430 QW34Y0
Credit	2.0 (1 blk) elective credit
Grade level	9-12
Description	In addition to developing knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the commercial photography industry with a focus on creating quality photographs. Districts are encouraged to offer this lab in a consecutive block with Commercial Photography I to allow students sufficient time to master the content of both courses.
Prerequisites	Recommended: Principles of Arts, Audio/Video Production & Communications

Course	**COMMERCIAL PHOTOGRAPHY II**
Course number	QW3530 QW35Y0
Credit	2.0 (1 blk) elective credit
Grade level	10-12
Description	In addition to developing advanced technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced technical understanding of the commercial photography industry with a focus on producing, promoting, and presenting professional quality photographs.
Prerequisites	Commercial Photography I

Course	**PRACTICUM IN COMMERCIAL PHOTOGRAPHY**
Course number	QW4530 QW45y0
Credit	2.0 (1 blk) elective credit
Grade level	10-12
Description	In addition to developing advanced technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced technical understanding of the commercial photography industry with a focus on producing, promoting, and presenting professional quality photographs.
Prerequisites	**Commercial Photography I or Commercial Photography I/Lab**

Course	**ANIMATION I**
Course number	QW4030
Credit	1.0 elective credit
Grade level	10-12
Description	In addition to developing technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the history and techniques of the animation industry.
Prerequisites	Recommended: Art I or Principles of Art, Audio/Video Technology, and Communications

Course	**ANIMATION II**
Course number	QW4230 QW42Y0
Credit	1.0 elective credit
Grade level	11-12

Description	In addition to developing advanced knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to create two- and three- dimensional animations. The instruction also assists students seeking careers in the animation industry.
Prerequisites	**Animation I** Recommended: Principles of Information Technology

Course	**GAME PROGRAMMING & DESIGN**
Course number	QQ2030
Credit	1.0 elective credit
Grade level	9-12
Description	Game Programming and Design will foster student creativity and innovation by presenting students with opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve gaming problems. Through data analysis, students will include the identification of task requirements, plan search strategies, and use programming concepts to access, analyze, and evaluate information needed to design games. By acquiring programming knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will create a computer game that is presented to an evaluation panel. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.
Prerequisites	Pre-requisite: Algebra I

Course	**VIDEO GAME DESIGN**
Course number	QW4430 QW44Y0
Credit	1.0 elective credit
Grade level	9-12
Description	Video Game Design will allow students to explore one of the largest industries in the global marketplace and the new emerging careers it provides in the field of technology. Students will learn gaming, computerized gaming, evolution of gaming, artistic aspects of perspective, design, animation, technical concepts of collision theory, and programming logic. Students will participate in a simulation of a real video game design team while developing technical proficiency in constructing an original game design.
Prerequisites	Recommended: Principles of Art, Audio/Video Technology, and Communications, Animation II or Graphic Design & Illustration II, Animation I or Graphic Design & Illustration I

Course	**GRAPHIC DESIGN AND ILLUSTRATION I**
Course number	QW4130
Credit	2.0 (1 blk) elective credits
Grade level	10-12
Description	Within this context, in addition to developing knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the industry with a focus on fundamental elements and principles of visual art and design.
Prerequisites	Recommended: Principles of Art, Audio/Video Technology, and Communications

Course	**GRAPHIC DESIGN AND ILLUSTRATION II**
Course number	QW4330 QW43Y0

Credit	2.0 (1 blk) elective credits
Grade level	10-12
Description	Within this context, in addition to developing knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the industry with a focus on fundamental elements and principles of visual art and design.
Prerequisites	Recommended: Principles of Art, Audio/Video Technology & Communications, Graphic Design and Illustration I or Graphic Design and Illustration I/Lab

Course	**PRACTICUM IN GRAPHIC DESIGN AND ILLUSTRATION**
Course number	QW9830 QW98Y0
Credit	2.0 (1 blk) elective credits
Grade level	10-12
Description	The practicum course is a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the Arts, Audio/Video Technology, and Communications Career Cluster..
Prerequisites	Prerequisites: Graphic Design and Illustration II and Graphic Design and Illustration II Lab. Corequisite: Practicum in Graphic Design and Illustration. This course must be taken concurrently with Practicum in Graphic Design and Illustration and may not be taken as a stand-alone course. Students shall be awarded one credit for successful completion of this course. A student may repeat this course once for credit provided that the student is experiencing different aspects of the industry and demonstrating proficiency in additional and more advanced knowledge and skills

Course	**CAREER PREPARATION**
Course number	QT9530 QT95Y0
Credit	2.0 elective credits
Grade level	12
Description	Career Preparation I- provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.
Prerequisites	None

Business, Marketing, and Finance

CTE Business, Marketing & Finance

The Business, Marketing, and Finance Career Cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations.

Accounting

Year 1	Year 2	Year 3	Year 4
Principles of Business, Marketing & Finance	Business Information I	Accounting I or Financial Mathematics	Accounting II or Practicum in Business Management

Business Management

Virtual Business and/or Global Business, or Principles of Business, Marketing & Finance	Business Information I	Business Information Management II or Business Management	Practicum in Business Management

Entrepreneurship

Principles of Business, Marketing & Finance	Business Information I	Entrepreneurship	Practicum in Business Management or Career Preparation or Project-Based Research

COURSES

Course	**PRINCIPLES OF BUSINESS, MARKETING, AND FINANCE**
Course number	QB1230
Credit	1.0 elective credit
Grade level	9-11
Description	In Principles of Business, Marketing, and Finance, students gain knowledge and skills in economies and private enterprise systems, the impact of global business, the marketing of goods and services, advertising, and product pricing. Students analyze the sales process and financial management principles. This course allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings in business, marketing, and finance
Prerequisites	None

Course	**BUSINESS INFORMATION MANAGEMENT I**
Course number	QB6030
Credit	1.0 elective credit
Grade level	9-12
Description	In Business Information Management I, students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce and postsecondary education. Students apply technical skills to address business applications of emerging technologies, create word- processing documents, develop a spreadsheet, formulate a database, and make an electronic presentation using appropriate software.
Prerequisites	Recommended: Touch Systems Data Entry

Course	ACCOUNTING I
Course number	QB3730
Credit	1.0 elective credit
Grade level	10-12
Description	Accounting encompasses careers that record, classify, summarize, analyze, and communicate a business's financial information/business transactions for use in management decision making. Accounting includes such activities as bookkeeping, systems design, analysis, and interpretation of accounting information.
Prerequisites	Recommended prerequisite: Principles of Business, Marketing, and Finance

Course	ACCOUNTING II
Course number	QB4030
Credit	**1.0 Mathematics credit**
Grade level	11-12
Description	In Accounting II, students will continue the investigation of the field of accounting, including how it is impacted by industry standards as well as economic, financial, technological, international, social, legal, and ethical factors. Students will reflect on this knowledge as they engage in various managerial, financial, and operational accounting activities. Students will formulate, interpret, and communicate financial information for use in management decision making. Students will use equations, graphical representations, accounting tools, spreadsheet software, and accounting systems in real-world situations to maintain, monitor, control, and plan the use of financial resources.
Prerequisites	Prerequisite: Accounting I. This course satisfies a high school mathematics graduation requirement. Students shall be awarded one credit for successful completion of this course.

Course	BUSINESS INFORMATION MANAGEMENT II
Course number	QB1530 QB65D0
Credit	1.0 elective credit
Grade level	10-12
Description	In Business Information Management II, students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce or postsecondary education. Students apply technical skills to address business applications of emerging technologies, create complex word-processing documents, develop sophisticated spreadsheets using charts and graphs, and make an electronic presentation using appropriate multimedia software
Prerequisites	**Business Information Management I** Recommended: Touch Systems Data Entry

Course	ENTREPRENEURSHIP
Course number	QM1030 QM10Y0 QM10D0
Credit	1.0 elective credit
Grade level	10-12
Description	Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services
Prerequisites	None Recommended: Principles of Business, Marketing, & Finance, Business Information Management I

Course	PRACTICUM IN BUSINESS MANAGEMENT
Course number	QB8530 QB85Y0 QB85D0
Credit	2.0 elective credit
Grade level	11-12
Description	Practicum in Business Management is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. Students apply technical skills to address business applications of emerging technologies. Students develop a foundation in the economic, financial, technological, international, social, and ethical aspects of business to become competent consumers, employees, and entrepreneurs. Students enhance reading, writing, computing, communication, and reasoning skills and apply them to the business environment. Students incorporate a broad base of knowledge that includes the legal, managerial, marketing, financial, ethical, and international dimensions of business to make appropriate business decisions.
Prerequisites	Recommended: Touch System Data Entry and Business Management or Business Information Management II

Course	CAREER PREPARATION
Course number	QB9030 QB90Y0
Credit	2.0 elective credits
Grade level	12
Description	Career Preparation I provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success
Prerequisites	None

CTE Education and Training Cluster

The Education and Training Cluster focuses on planning, managing, and providing education and training services and related learning support services. All parts of courses are designed to introduce learners to the various careers available within the Education & Training Career Cluster.

Teaching & Training

Year 1	Year 2	Year 3	Year 4
Principles of Education & Training or Principles of Human Services	Child Development or Human Growth & Development	Instructional Practices	Practicum in Education & Training or Project Based Research

Course	**PRINCIPLES OF EDUCATION AND TRAINING**
Course number	QE3030
Credit	1.0 elective credit
Grade level	9-10
Description	Principles of Education and Training is designed to introduce learners to the various careers available within the Education and Training Career Cluster. Students use self- knowledge as well as educational and career information to analyze various careers within the Education and Training Career Cluster. Students will develop a graduation plan that leads to a specific career choice in the student's interest area
Prerequisites	None
Course	**PRINCIPLES OF HUMAN SERVICES**
Course number	QE1330
Credit	1.0 elective credit
Grade level	9-12
Description	Principles of Human Services is a laboratory course that will enable students to investigate careers in the Human Services Career Cluster, including counseling and mental health, early childhood development, family and community, personal care, and consumer services. Each student is expected to complete the knowledge and skills essential for success in high-skill, high-wage, or high-demand human services careers.
Prerequisites	None

Course	**HUMAN GROWTH AND DEVELOPMENT**
Course number	QE7030
Credit	1.0 elective credit
Grade level	10-12
Description	Human Growth and Development is an examination of human development across the lifespan with emphasis upon research, theoretical perspectives, and common physical, cognitive, emotional, and social developmental milestones. The course covers material that is generally taught in a postsecondary, one-semester introductory course in developmental psychology or human development.
Prerequisites	Recommended: Principles of Education and Training

Course	CHILD DEVELOPMENT
Course number	QE1030 QE10Y0
Credit	1.0 elective credit
Grade level	10-12
Description	Child Development is a technical laboratory course that addresses knowledge and skills related to child growth and development from prenatal through school -age children, equipping students with child development skills. Students use these skills to promote the well -being and healthy development of children and investigate careers related to the care and education of children.
Prerequisites	None Recommended: Principles of Human Services.

Course	INSTRUCTIONAL PRACTICES
Course number	QW5130 QW51Y0
Credit	2.0 elective credits
Grade level	11-12
Description	Instructional Practices is a field-based (practicum) internship that provides students with background knowledge of child and adolescent development as well as principles of effective teaching and training practices. Students work under the joint direction and supervision of both a teacher with knowledge of early childhood, middle childhood, and adolescence education and exemplary educators or trainers in direct instructional roles with elementary-, middle- school-, and high-school-aged students. Students learn to plan and direct individualized instruction and group activities, prepare instructional materials, develop materials for educational environments, assist with record keeping, and complete other responsibilities of teachers, trainers, paraprofessionals, or other educational personnel.
Prerequisites	Recommended: Principles of Education, Human Growth and Development
Course	**PRACTICUM IN EDUCATION AND TRAINING**
Course number	QE6430 QE64Y0
Credit	2.0 elective credits
Grade level	12
Description	This course is a continuation of the teacher education program. Practicum in Education and Training is a field-based internship that provides students background knowledge of child and adolescent development principles as well as principles of effective teaching and training practices. Students in the course work under the joint direction and supervision of both a teacher with knowledge of early childhood education and exemplary educators in direct instructional roles with elementary-, middle school-, and high school-aged students. Students learn to plan and direct individualized instruction and group activities, prepare instructional materials, assist with record keeping, make physical arrangements, and complete other responsibilities of classroom teachers, trainers, paraprofessionals, or other educational personnel.
Prerequisites	**Instructional Practices**

Course	CAREER PREPARATION
Course number	QE9030 QE90Y0
Credit	2.0 elective credits
Grade level	12
Description	Career Preparation I provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.
Prerequisites	None

Course	PROJECT-BASED RESEARCH
Course number	QT933 QT93Y 0
Credit	1.0
Grade level	11-12
Description	Project-Based Research is a course for students to research a real-world problem. Students are matched with a mentor from the business or professional community to develop an original project on a topic related to career interests. Students use scientific methods of investigation to conduct in-depth research, compile findings, and present their findings to an audience that includes experts in the field. To attain academic success, students must have opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings. General requirements. This course is recommended for students in Grades 11 and 12. Students shall be awarded one credit for successful completion of this course. Students may repeat this course with different course content for up to three credits.
Prerequisites	None

Health Science

CTE Health Science Cluster

The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development. To pursue a career in the health science industry, students should learn to reason, think critically, make decisions, solve problems, communicate effectively, and work well with others.

Healthcare Diagnostics (C.N.A., EKG, Phlebotomy, Pharmacy Technician)

Year 1	Year 2	Year 3	Year 4
Principles of Health Science	Health Science Theory	Practicum in Health Science I-Clinical Rotations or Medical Terminology ***or*** Anatomy & Physiology or Medical Microbiology	Pathophysiology AND Practicum in Health Science II – C.N.A., EKG, Phlebotomy or Pharmacy Technician

Course	**PRINCIPLES OF HEALTH SCIENCE**
Course number	QH1030
Credit	1.0 health credit
Grade level	9-10
Description	Principles of Health Science is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.
Prerequisites	None

Course	**HEALTH SCIENCE THEORY**
Course number	QW5630
Credit	1.0 health credit
Grade level	11-12
Description	The Health Science Theory course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experiences for continued knowledge and skill development.
Prerequisites	**Biology**

Course	**PRACTICUM IN HEALTH SCIENCE I – Clinical Rotations**
Course number	QH8030 QH80Y 0
Credit	2.0 elective credits
Grade level	11-12
Description	The Practicum in Health Science course is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience
Prerequisites	**Health Science Theory and Biology** Recommended: Principles of Health Science

Course	MEDICAL TERMINOLOGY
Course number	QW5230 QW52Y0
Credit	1.0 elective credit
Grade level	9-12
Description	The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology
Prerequisites	Recommended: Principles of Health Science

Course	ANATOMY AND PHYSIOLOGY
Course number	QH1130 QH11Y0
Credit	**1.0 science credit**
Grade level	10-12
Description	In Anatomy and Physiology, students conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem-solving. Students in Anatomy and Physiology study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. Texas law requires at least 40 percent lab and field investigations. **Note: This course satisfies a science credit requirement for students on the Foundation High School Program**
Prerequisites	**Biology and a second science credit.** Recommended: One course from Health and Science Career Cluster.

Course	MEDICAL MICROBIOLOGY
Course number	QW5330 QW53Y0
Credit	**1.0 science credit**
Grade level	10-12
Description	Medical Microbiology is designed to explore the microbial world, studying topics such as pathogenic and non- pathogenic microorganisms, laboratory procedures, identifying microorganisms, drug resistant organisms, and emerging diseases. Texas law requires at least 40 percent lab and field investigations. **Note: This course satisfies a science credit requirement for students on the Foundation High School Program**
Prerequisites	**Biology and Chemistry.** Recommended: One course from Health and Science Career Cluster.
Course	**PATHOPHYSIOLOGY**
Course number	QW5430 QW54Y0
Credit	**1.0 science credit**
Grade level	11-12
Description	The Pathophysiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Pathophysiology will study disease processes and how humans are affected. Emphasis is placed on prevention and treatment of disease. Students will differentiate between normal and abnormal physiology. Students should know that some questions are outside the realm of science because they deal with phenomena that are not scientifically testable. **Note: This course satisfies a science credit requirement for students on the Foundation High School Program.**
Prerequisites	**Biology and Chemistry**. Recommended: One course from Health and Science Career Cluster.

Course	PRACTICUM IN HEALTH SCIENCE II - Certified Nurse Aide (C.N.A.)
Course number	QH8130 QH81Y0
Credit	2.0 elective credits
Grade level	11-12
Description	The Practicum in Health Science course is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.
Prerequisites	**Health Science Theory and Biology** Recommended: Principles of Health Science.

Course	PRACTICUM IN HEALTH SCIENCE II - Pharmacy Technician
Course number	QH8230 QH82Y0
Credit	2.0 elective credits
Grade level	11-12
Description	The Practicum in Health Science course is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience
Prerequisites	**Health Science Theory and Biology**. Recommended: Principles of Health Science.

Course	PRACTICUM IN HEALTH SCIENCE II - EKG - Electrocardiogram/Phlebotomy
Course number	QH8730 QH87Y0
Credit	2.0 elective credits
Grade level	11-12
Description	The Practicum in Health Science course is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience
Prerequisites	**Health Science Theory and Biology** Recommended: Principles of Health Science.

CTE Hospitality and Tourism Cluster

The Hospitality and Tourism Career Cluster focuses on the management, marketing, and operations of restaurants and other food/beverage services, lodging, attractions, recreation events and travel related services. Students acquire knowledge and skills focusing on communication, time management, and customer service that meet industry standards. Students will explore the history of the hospitality and tourism industry and examine the characteristics needed for success.

Culinary Arts

Year 1	Year 2	Year 3	Year 4
Introduction to Culinary Arts	Culinary Arts	Advanced Culinary Arts	Advanced Culinary Arts AND Food Science OR Practicum in Culinary Arts AND Principles of Hospitality & Tourism

Course	**INTRODUCTION TO CULINARY ARTS**
Course number	QW6030
Credit	1.0 elective credit
Grade level	9-10
Description	Introduction to Culinary Arts will emphasize the principles of planning, organizing, staffing, directing and controlling the management of a variety of food service operations. The course will provide insight into the operation of a well-run restaurant. Introduction to Culinary Arts will provide insight into food production skills, various levels of industry management and hospitality.
Prerequisites	None

Course	**CULINARY ARTS**
Course number	QE25Y0
Credit	2.0 elective credits
Grade level	10-12
Description	Culinary Arts begins with the fundamentals and principles of the art of cooking and the science of baking and includes management and production skills and techniques. Students can pursue a national sanitation certification or other appropriate industry certification.
Prerequisites	Recommended: Introduction to Culinary Arts

Course	**FOOD SCIENCE**
Course number	QE2030
Credit	**1.0 science credit**
Grade level	11-12
Description	In Food Science students conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Food Science is the study of the nature of foods, the causes of deterioration, the principles underlying food processing, and the improvement of foods for the consuming public.
Prerequisites	**(3) three units of science, including chemistry and biology.** Recommended prerequisite: Principles of Hospitality and Tourism. Students must meet the 40% laboratory and fieldwork requirement. This course satisfies a high school science graduation requirement. Students shall be awarded one credit for successful completion of this course.

Course	ADVANCED CULINARY ARTS
Course number	QW2330 QW23Y0
Credit	2.0 elective credits
Grade level	10-12
Description	Advanced Culinary Arts will extend content and enhance skills introduced in Culinary Arts by in-depth instruction of industry-driven standards to prepare students for success in higher education, certifications, and/or immediate employment.
Prerequisites	**Culinary Arts**

Course	PRACTICUM IN CULINARY ARTS
Course number	QE8530 QE85Y0
Credit	2.0 elective credits
Grade level	11-12
Description	This course is a continuation of Culinary Arts. This course is a unique practicum that provides occupationally specific opportunities for students to participate in a learning experience that combines classroom instruction with laboratory-based actual business and industry career experiences.
Prerequisites	**Culinary Arts**

Course	CAREER PREPARATION
Course number	QT9530 QT95Y0
Credit	2.0 elective credits
Grade level	12
Description	Career Preparation I provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.
Prerequisites	None

CTE Human Services Cluster

The Human Services Career Cluster focuses on preparing individuals for employment in career pathways that relate to families and human needs such as counseling and mental health services, family and community services, personal care services, and consumerservices.

Family & Community Services

Year 1	Year 2	Year 3	Year 4
Principles of Human Services or Professional Communications	Child Development	Dollars & Sense or Lifetime Nutrition & Wellness or Professional Communications	Family & Community Services or Child Guidance or Project-Based Research

Cosmetology

Year 1	Year 2	Year 3	Year 4
		Principles of Cosmetology, Design & Color Theory **AND** Cosmetology I Lab	Cosmetology II & Lab

Course	**PRINCIPLES OF HUMAN SERVICES**
Course number	QE1330
Credit	1.0 elective credit
Grade level	9-12
Description	Professional Communications blends written, oral, and graphic communication in a career-based environment. Careers in the global economy require individuals to be creative and have a strong background in computer and technology applications, a strong and solid academic foundation, and a proficiency in professional oral and written communication. Within this context, students will be expected to develop and expand the ability to write, read, edit, speak, listen, apply software applications, manipulate computer graphics, and conduct Internet research. This course is recommended for students in Grades 9-12. This course satisfies a speech credit or skills graduation requirement. Students shall be awarded one-half credit for successful completion of this course.
Prerequisites	None

Course	**PROFESSIONAL COMMUNICATIONS**
Course number	QF1335/6 QF13D5/6
Credit	**0.5 Speech credit**
Grade level	9-12
Description	Principles of Human Services is a laboratory course that will enable students to investigate careers in the Human Services Career Cluster, including counseling and mental health, early childhood development, family and community, personal care, and consumer services. Each student is expected to complete the knowledge and skills essential for success in high-skill, high-wage, or high-demand human services careers.
Prerequisites	None

Course	CHILD DEVELOPMENT
Course number	QE10 30 QE10 Y0
Credit	1.0 elective credit
Grade level	10-12
Description	This technical laboratory course addresses knowledge and skills related to a technical laboratory course that addresses knowledge and skills related to child growth and development from prenatal through school-age children, equipping students with child development skills. Students use these skills to promote the well- being and healthy development of children and investigate careers related to the care and education of children.
Prerequisites	Recommended: Principles of Human Services

Course	DOLLARS AND SENSE
Course number	QW6235 and QW6236 QW62Y5 and QW62Y6
Credit	0.5 elective credit
Grade level	11-12
Description	Dollars and Sense focuses on consumer practices and responsibilities, the money management process, decision-making skills, impact of technology, and preparation for human services careers.
Prerequisites	Recommended: Principles of Human Services

Course	LIFETIME NUTRITION AND WELLNESS
Course number	QW6135 and QW6136 QW61Y5 and QW61Y6
Credit	0.5 elective credit
Grade level	9-12
Description	Lifetime Nutrition and Wellness is a laboratory course that allows students to use principles of lifetime wellness and nutrition to help them make informed choices that promote wellness as well as pursue careers related to hospitality and tourism, education and training, human services, and health sciences.
Prerequisites	Recommended: Principles of Human Services, Principles of Hospitality or Principles of Health Science

Course	FAMILY AND COMMUNITY SERVICES
Course number	QW6330 QW63Y0
Credit	1.0 elective credit
Grade level	10-12

Description	Family and Community Services is a laboratory-based course designed to involve students in realistic and meaningful community-based activities through direct service or service-learning experiences. Students are provided opportunities to interact with and provide services to individuals, families, and the community through community or volunteer services. Emphasis is placed on developing and enhancing organizational and leadership skills and characteristics.
Prerequisites	Recommended: Principles of Human Services

Course	CHILD GUIDANCE
Course number	QE2130
Credit	2.0 elective credit
Grade level	10-12
Description	Child Guidance is a technical laboratory course that addresses the knowledge and skills related to child growth and guidance equipping students to develop positive relationships with children and effective caregiver skills. Students use these skills to promote the well being and healthy development of children, strengthen a culturally diverse society, and pursue careers related to the care, guidance, and education of children, including those with special needs.Instruction may be delivered through school -based laboratory training or through work -based delivery arrangements such as cooperative education, mentoring, and job shadowing.
Prerequisites	Recommended: Principles of Human Services , Recommended Co-requisite: Child Development

Course	PROJECT BASED RESEARCH
Course number	QT9330 QT93Y0
Credit	1.0 elective credit
Grade level	11-12
Description	Project-Based Research is a course for students to research a real-world problem. Students are matched with a mentor from the business or professional community to develop an original project on a topic related to career interests. Students use scientific methods of investigation to conduct in-depth research, compile findings, and present their findings to an audience that includes experts in the field. To attain academic success, students must have opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.
Prerequisite	None

Course	COSMETOLOGY I
Course number	QE1630 QE16Y0
Credit	3.0 elective credits
Grade level	10-11
Description	In Cosmetology I, students coordinate integration of academic, career, and technical knowledge and skills in this laboratory instructional sequence course designed to provide job-specific training for employment in cosmetology careers. Instruction includes sterilization and sanitation procedures, hair care, nail care, and skin care and meets the Texas Department of Licensing and Regulation (TDLR) requirements for licensure upon passing the state examination. Analysis of career opportunities, license requirements, knowledge and
	skills expectations, and development of workplace skills are included.
Prerequisites	None

Course	COSMETOLOGY II
Course number	QW0230 QW02Y0
Credit	3.0 elective credits
Grade level	11-12
Description	In Cosmetology II, students will demonstrate proficiency in academic, technical, and practical knowledge and skills. The content is designed to provide the occupational skills required for licensure. Instruction includes advanced training in professional standards/employability skills; Texas Department of Licensing and Regulation (TDLR) rules and regulations; use of tools, equipment, technologies and materials; and practical skills.
Prerequisites	**Cosmetology I**

Law and Public Service

CTE Law, Public Safety, Corrections, and Security Cluster

The Law, Public Safety, Corrections, and Security Career Cluster focuses on planning, managing, and providing legal services, public safety, protective services, and homeland security, including professional and technical support services. Students will examine the roles and responsibilities of police, courts, corrections, private security, and protective agencies of fire and emergency services.

Law Enforcement

Year 1	Year 2	Year 3	Year 4
Principles of Law, Public Safety, Corrections & Security	Law Enforcement I	Federal Law Enforcement & Protective Services or Correctional Services or Criminal Investigations	Law Enforcement II or Forensic Science or Practicum in Law, Public Safety, Corrections & Security

Course	**PRINCIPLES OF LAW, PUBLIC SAFETY, CORRECTIONS AND SECURITY P**
Course number	QL3530
Credit	1.0 elective credit
Grade level	9-12
Description	Principles of Law, Public Safety, Corrections, and Security introduces students to professions in law enforcement, security, corrections, and fire and emergency management services. Students will examine the roles and responsibilities of police, courts, corrections, private security, and protective agencies of fire and emergency services. The course provides students with an overview of the skills necessary for careers in law enforcement, fire service, security, and corrections.
Prerequisites	None.

Course	**LAW ENFORCEMENT I**
Course number	QL4530 QL45D0
Credit	1.0 elective credit
Grade level	10-12
Description	Law Enforcement I is an overview of the history, organization, and functions of local, state, and federal law enforcement. This course includes the role of constitutional law, the United States legal system, criminal law, law enforcement terminology, and the classification and elements of crime.
Prerequisites	Recommended: Principles of Law, Public Safety, Corrections and Security

Course	**CORRECTIONAL SERVICES**
Course number	QL2730 QL23D0
Credit	1.0 elective credit
Grade level	10-12
Description	In Correctional Services, students prepare for certification required for employment as a municipal, county, state, or federal correctional officer. Students will learn the role and responsibilities of a county or municipal correctional officer; discuss relevant rules, regulations, and laws of municipal, county, state, or federal facilities; and discuss defensive tactics, restraint techniques, and first aid procedures as used in the municipal, county, state, or federal correctional setting. Students will analyze rehabilitation and alternatives to institutionalization for inmates
Prerequisites	Recommended: Principles of Law, Public Safety, Corrections and Security

Course	LAW ENFORCEMENT II
Course number	QL3430 QL34Y0 Q34D0
Credit	1.0 elective credit
Grade level	10-12
Description	Law Enforcement II provides the knowledge and skills necessary to prepare for a career in law enforcement. Students will understand ethical and legal responsibilities, patrol procedures, first responder roles, telecommunications, emergency equipment operations, and courtroom testimony.
Prerequisites	Recommended: Law Enforcement I

Course	FORENSIC SCIENCE
Course number	QL9630 QL96Y0
Credit	**1.0 science credit**
Grade level	11-12
Description	Forensic Science is a course that introduces students to the application of science to connect a violation of law to a specific criminal, criminal act, or behavior and victim. Students will learn terminology and procedures related to the search and examination of physical evidence in criminal cases as they are performed in a typical crime laboratory. Using scientific methods, students will collect and analyze evidence such as fingerprints, bodily fluids, hairs, fibers, paint, glass, and cartridge cases. Students will also learn the history and the legal aspects as they relate to each discipline of forensic science. Methods of investigation can be experimental, descriptive, or comparative. The method chosen should be appropriate to the question being asked. **Note: This course satisfies a science credit requirement for students on the Foundation High School Program.**
Prerequisites	**Biology and Chemistry** Recommended or Corequisite: Any Law, Public Safety, Corrections, and Security Career Cluster course.

Course	CRIMINAL INVESTIGATIONS
Course number	QW7030 QW70Y0 QW70D0
Credit	1.0 elective credit
Grade level	10-12
Description	Criminal Investigation is a course that introduces students to the profession of criminal investigations by introducing students will understand basic functions of criminal investigations and procedures how to investigate or follow up during investigations. Students will learn terminology and investigative procedures related to criminal investigation, crime scene processing, evidence collection, fingerprinting, and courtroom presentation. Through case studies and simulated crime scenes, students will collect and analyze evidence such as fingerprint analysis, bodily fluids, hairs, fibers, shoe and tire impressions, bite marks, drugs, tool marks, firearms and ammunition, blood spatter, digital evidence and other types of evidence.
Prerequisites	Recommended: Principles of Law, Public Safety, Corrections and Security

Course	FEDERAL LAW ENFORCEMENT AND PROTECTIVE SERVICES
Course number	QW6930 QW69y0 QW69D0
Credit	1.0 elective credit
Grade level	10-12
Description	Federal Law Enforcement and Protective Services provides the knowledge and skills necessary to prepare for certification in security services for federal law enforcement and protective services. The course provides an overview of security elements and types of organizations with a focus on security measures used to protect lives, property, and proprietary information, to ensure computer security, to provide information assurance, and to prevent cybercrime
Prerequisites	Recommended: Principles of Law, Public Safety, Corrections and Security

Course	PRACTICUM IN LAW, PUBLIC SAFETY, CORRECTIONS, AND SECURITY
Course number	QL8030 QL80Y0
Credit	2.0 elective credits
Grade level	11-12
Description	The practicum course is designed to give students supervised practical application of previously studied knowledge and skills in law, public safety, corrections, and security. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
Prerequisites	None

Course	CAREER PREPARATION
Course number	QT9530 QT95Y0
Credit	2.0 elective credits
Grade level	12
Description	Career Preparation I provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.
Prerequisites	None

Manufacturing

CTE Manufacturing Cluster

The Manufacturing Career Cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and manufacturing/process engineering

Manufacturing Technology

Year 1	Year 2	Year 3	Year 4
	Principles of Manufacturing	Metal Fabrication & Machining I	Metal Fabrication & Machining II OR Practicum in Manufacturing

Welding Technology

Year 1	Year 2	Year 3	Year 4
	Introduction to Welding	Welding I	Welding II or Practicum in Manufacturing or Career Preparation

Course	**PRINCIPLES OF MANUFACTURING**
Course number	QT5230 QT52Y0
Credit	1.0 elective credit
Grade level	9-12
Description	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.
Prerequisites	Recommended prerequisite: Algebra I or Geometry
Course	**METAL FABRICATION & MACHINING I**
Course number	QW29D0
Credit	2.0 elective credits
Grade level	10-12
Description	Metal Fabrication and Machining I provides the knowledge, skills, and certifications required for equal employment opportunities in the metal production industry. Students must have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.
Prerequisites	Recommended prerequisite: Algebra I or Geometry.
Course	**METAL FABRICATION & MACHINING II**
Course number	QW36D0
Credit	2.0 elective credits
Grade level	11 -12
Description	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 as related to personal and career development. This course integrates academic and technical knowledge and skills. Students will have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.
Prerequisites	**Prerequisite: Metal Fabrication and Machining I**. Recommended prerequisites: Geometry and Algebra II.

Course	**PRACTICUM IN MANUFACTURING**
Course number	QW71Y0

Credit	2.0 elective credit
Grade level	12
Description	The Practicum in Manufacturing course is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience. The practicum course is a paid or unpaid capstone experience for students participating in a coherent sequence of career and technical education courses in the Manufacturing Career Cluster. Students shall be awarded two credits for successful completion of this course. A student may repeat this course once for credit provided that the student is experiencing different aspects of the industry and demonstrating proficiency in additional and more advanced knowledge and skills.
Prerequisites	None

Course	**INTRODUCTION TO WELDING**
Course number	QW7330
Credit	1.0 elective credit
Grade level	9-12
Description	Introduction to Welding will introduce welding technology with an emphasis on basic welding laboratory principles and operating procedures. Students will be introduced to the three basic welding processes. Topics include: industrial safety and health practices, hand tool and power machine use, measurement, laboratory operating procedures, welding power sources, welding career potentials, and introduction to welding codes and standards. Introduction to Welding will provide students with the knowledge, skills, and technologies required for employment in welding industries. This course supports integration of academic and technical knowledge and skills. Students will reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills will prepare students for future success.
Prerequisites	Recommended or corequisite: Algebra I

Course	**WELDING I**
Course number	QW7430 QW74Y0 QW74D0
Credit	2.0 elective credit
Grade level	10-12
Description	Welding I provide the knowledge, skills, and technologies required for employment in metal technology systems. Students will develop knowledge and skills related to this system and apply them to personal career development. This course supports integration of academic and technical knowledge and skills. Students will reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills prepare students for future success.
Prerequisites	Recommended prerequisites: Algebra I, Principles of Manufacturing, Introduction to Precision Metal Manufacturing, or Introduction to Welding.

Course	**WELDING TECHNOLOGY II**
Course number	QW7530 QW75Y0 QW75D0
Credit	2.0 elective credit
Grade level	11-12
Description	Welding II builds on the knowledge and skills developed in Welding I. Students will develop advanced welding concepts and skills as related to personal and career development. Students will integrate academic and technical knowledge and skills. Students will have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.
Prerequisites	**Welding I.** Recommended prerequisites: Algebra I or Geometry. Recommended corequisite: Welding II Lab

Course	**PRACTICUM IN MANUFACTURING**
Course number	QW71Y0

Credit	2.0 elective credit
Grade level	12
Description	The Practicum in Manufacturing course is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.
Prerequisites	None

Course	**CAREER PREPARATION**
Course number	QT9530

	QT95Y0
Credit	2.0 elective credits
Grade level	12
Description	Career Preparation I provides opportunities for students to participate in a work-based learning experience that combines classroom instruction with business and industry employment experiences. The goal is to prepare students with a variety of skills for a changing workplace. Career preparation is relevant and rigorous, supports student attainment of academic standards, and effectively prepares students for college and career success.
Prerequisites	None

Science, Technology, Engineering & Mathematics

CTE Science, Technology, Engineering and Mathematics (STEM) Cluster

The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster focuses on planning, managing, and providing scientific research and professional and technical services, including laboratory and testing services, and research and development services.

Programming & Software Development

Year 1	Year 2	Year 3	Year 4
Computer Science I Honors	AP Computer Science Principles OR AP Computer Science A (Math & LOTE) OR Computer Science II	AP Computer Science A (Math & LOTE) OR AP Computer Science Principles OR Computer Science III	Computer Science II Honors

Cyber Security

Year 1	Year 2	Year 3	Year 4
Principles of Information Technology	Foundations of Cyber Security	Networking Lab	Practicum in Information Technology or Project-Based Research

Engineering

Year 1	Year 2	Year 3	Year 4
	Principles of Applied Engineering	Engineering Design & Problem Solving	Engineering Design & Presentation or Practicum in Science, technology, Engineering & Mathematics

Course	**COMPUTER SCIENCE I HONORS**
Course number	QW0670
Credit	1.0 elective credit
Grade level	9-12
Description	Computer Science I will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of the principles of computer science through the study of technology operations, systems, and concepts. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.
Prerequisites	**Algebra I**

Course	AP COMPUTER SCIENCE PRINCIPLES
Course number	QW0790 QWL890 (LOTE)
Credit	1.0 elective credit
Grade level	9-12
Description	AP Computer Science Principles introduces students to the breadth of the field of computer science. In this course, students will learn to design and evaluate solutions and to apply computer science to solve problems through the development of algorithms and programs. They will incorporate abstraction into programs and use data to discover new knowledge. Students will also explain how computing innovations and computing systems, including the Internet, work, explore their potential impacts, and contribute to a computing culture that is collaborative and ethical. It is important to note that the AP Computer Science Principles course does not have a designated programming language. Teachers have the flexibility to choose a programming language(s) that is most appropriate for their students to use in the classroom.
Prerequisites	**Recommended prerequisite: Algebra I.**

Course	AP COMPUTER SCIENCE A
Course number	QWL790 (LOTE) QW0990 (Math)
Credit	2..0 elective credits
Grade level	9-12
Description	AP Computer Science A introduces students to computer science through programming. Fundamental topics in this course include the design of solutions to problems, the use of data structures to organize large sets of data, the development and implementation of algorithms to process data and discover new information, the analysis of potential solutions, and the ethical and social implications of computing systems. The course emphasizes object-oriented programming and design using the Java programming language
Prerequisite	Recommended prerequisites: Algebra I or a student should be comfortable with functions and the concepts found in the uses of functional notation such as f(x) = x + 2 and f(x) = g(h(x)).

Course	COMPUTER SCIENCE II / HONORS
Course number	QW9170
Credit	1..0 elective credits
Grade level	10-12
Description	Computer Science II will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through computational thinking and data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will gain an understanding of computer science through the study of technology operations, systems, and concepts.
Prerequisite	**Prerequisites: Algebra I and Computer Science I or AP Computer Science Principles.**

Course	COMPUTER SCIENCE III
Course number	
Credit	1..0 elective credits
Grade level	11-12
Description	Computer Science III will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through computational thinking and data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will gain an understanding of advanced computer science data structures through the study of technology operations, systems, and concepts
Prerequisite	**Prerequisite: Computer Science II, Advanced Placement (AP) Computer Science A, or International Baccalaureate (IB) Computer Science Standard Level or IB Computer Science Higher Level**

Course	PRINCIPLES OF INFORMATION TECHNOLOGY
Course number	QT4630
Credit	1.0 elective credit
Grade level	9-10
Description	In Principles of Information Technology, students will develop computer literacy skills to adapt to emerging technologies used in the global marketplace. Students will implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. Students will enhance reading, writing, computing, communication, and reasoning skills and apply them to the information technology environment.
Prerequisite	None

Course	FOUNDATIONS OF CYBER SECURITY
Course number	QW9630
Credit	1.0 elective credit
Grade level	9-10
Description	In the Foundations of Cybersecurity course, students will develop the knowledge and skills needed to explore fundamental concepts related to the ethics, laws, and operations of cybersecurity. Students will examine trends and operations of cyberattacks, threats, and vulnerabilities. Students will review and explore security policies designed to mitigate risks. The skills obtained in this course prepare students for additional study in cybersecurity. A variety of courses are available to students interested in this field. Foundations of Cybersecurity may serve as an introductory course in this field of study.
Prerequisite	None

Course	NETWORKING LAB
Course number	QW67Y0
Credit	2.0 elective credits
Grade level	10-12
Description	In Networking Lab, students will develop knowledge of the concepts and skills related to telecommunications and data networking technologies and practices in order to apply them to personal or career development. To prepare for success, students must have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.
Prerequisite	Recommended prerequisites: Principles of Information Technology, Computer Maintenance, and Computer Maintenance Lab. Corequisite: Networking. This course must be taken concurrently with Networking and may not be taken as a stand-alone course.

Course	PRACTICUM IN INFORMATION TECHNOLOGY
Course number	QW67Y0
Credit	2.0 elective credits
Grade level	12
Description	In the Practicum in Information Technology, students will gain advanced knowledge and skills in the application, design, production, implementation, maintenance, evaluation, and assessment of products, services, and systems. Knowledge and skills in the proper use of analytical skills and application of IT concepts and standards are essential to prepare students for success in a technology-driven society. Critical thinking, IT experience, and product development may be conducted in a classroom setting with an industry mentor, as an unpaid or paid internship, as part of a capstone project, or as career preparation.
Prerequisite	**Prerequisite: a minimum of two high school information technology (IT) courses**

Course	PROJECT BASED RESEARCH
Course number	QT9330 QT93Y0
Credit	1.0 elective credit
Grade level	11-12
Description	Project-Based Research is a course for students to research a real-world problem. Students are matched with a mentor from the business or professional community to develop an original project on a topic related to career interests. Students use scientific methods of investigation to conduct in-depth research, compile findings, and present their findings to an audience that includes experts in the field. To attain academic success, students must have opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.
Prerequisite	None

Course	PRINCIPLES OF APPLIED ENGINEERING
Course number	QW8130
Credit	1.0 elective credit
Grade level	9-10
Description	Principles of Applied Engineering provides an overview of the various fields of science, technology, engineering, and mathematics and their interrelationships. Students will develop engineering communication skills, which include computer graphics, modeling, and presentations, by using a variety of computer hardware and software applications to complete assignments and projects. Upon completing this course, students will have an understanding of the various fields of engineering and will be able to make informed career decisions. Further, students will have worked on a design team to develop a product or system. Students will use multiple software applications to prepare and present course assignments.
Prerequisite	None

Course	ENGINEERING DESIGN AND PROBLEM SOLVING
Course number	QS60Y5
Credit	**1.0 Science credit**
Grade level	11-12
Description	The Engineering Design and Problem-Solving course is the creative process of solving problems by identifying needs and then devising solutions. The solution may be a product, technique, structure, or process depending on the problem. Science aims to understand the natural world, while engineering seeks to shape this world to meet human needs and wants. Engineering design takes into consideration limiting factors or "design under constraint." Various engineering disciplines address a broad spectrum of design problems using specific concepts from the sciences and mathematics to derive a solution. The design process and problem solving are inherent to all engineering disciplines. This course satisfies a high school science graduation requirement. Students shall be awarded one credit for successful completion of this course. **Note: This course satisfies a science credit requirement for students on the Foundation High School Program.**
Prerequisites	**Algebra 1 and Geometry** Recommended: TWO Science, Technology Engineering & Mathematics Career Cluster CREDITS

Course	ENGINEERING DESIGN AND PRESENTATION I
Course number	QW82Y6
Credit	1.0 elective credit
Grade level	10-12
Description	Engineering Design and Presentation I is a continuation of knowledge and skills learned in Principles of Applied Engineering. Students enrolled in this course will demonstrate knowledge and skills of the design process as it applies to engineering fields using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Students will use a variety of computer hardware and software applications to complete assignments and projects. Through implementation of the design process, students will transfer advanced academic skills to component designs. Additionally, students explore career opportunities in engineering, technology, and drafting and what is required to gain and maintain employment in these areas.
Prerequisites	**Algebra 1** Recommended: Principles of Applied Engineering

Course	ENGINEERING DESIGN AND PRESENTATION II
Course number	QW8330 QW83Y0
Credit	2.0 elective credit
Grade level	10-12
Description	Engineering Design and Presentation II is a continuation of knowledge and skills learned in Engineering Design and Presentation I. Students enrolled in this course will demonstrate knowledge and skills of the design process as it applies to engineering fields using multiple software applications and tools necessary to produce and present working drawings, solid model renderings, and prototypes. Students will use a variety of computer hardware and software applications to complete assignments and projects. Through implementation of the design process, students will transfer advanced academic skills to component designs. Emphasis will be placed on using skills from ideation through prototyping.
Prerequisites	**Algebra 1 and Geometry** Recommended: Principles of Applied Engineering or Engineering Design & Presentation I

Course	SCIENTIFIC RESEARCH AND DESIGN I, II or III
Course number	QS1030, QS10Y0 QS1130, QS11Y0 QS1380
Credit	**1.0 science credit**
Grade level	11-12
Description	Scientific Research and Design is a broad-based course designed to allow districts and schools considerable flexibility to develop local curriculum to supplement any program of study or coherent sequence. The course has the components of any rigorous scientific or engineering program of study from the problem identification, investigation design, data collection, data analysis, formulation, and presentation of the conclusions. These components are integrated with the career and technical education emphasis of helping students gain entry-level employment in high-skill, high-wage jobs and/or continue their education. Students must meet the 40% laboratory and fieldwork requirement. This course satisfies a high school science graduation requirement. Students may take this course with different course content for a maximum of three credits. **Note: This course satisfies a science credit requirement for students on the Foundation High School Program**
Prerequisites	**Biology, Chemistry, Integrated Physics and Chemistry (IPC), or Physics**

Transportation, Distribution & Logistics

CTE Transportation, Distribution, and Logistics Cluster

The Transportation, Distribution, and Logistics Career Cluster focuses on planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water and related professional support services such as transportation infrastructure planning and management, logistics services, mobile equipment, and facility maintenance.

Automotive Technology

Year 1	Year 2	Year 3	Year 4
	Energy and Power of Transportation Systems	Automotive Technology I – Maintenance & Light Repair	Automotive Technology II – Automotive Service or Practicum in Transportation Systems or Career Prep

Collision Repair

Year 1	Year 2	Year 3	Year 4
	Energy and Power of Transportation Systems	Collision Repair	Paint & Refinishing or Career Preparation or Practicum in Transportation Systems

Course	**ENERGY AND POWER OF TRANSPORTATION SYSTEMS**
Course number	QT0130
Credit	1.0 elective credit
Grade level	10-12
Description	Energy and Power of Transportation Systems will prepare students to meet the expectations of employers in this industry and to interact and relate to others. Students will learn the technologies used to provide products and services in a timely manner. The businesses and industries of the Transportation, Distribution, and Logistics Career Cluster are rapidly expanding to provide new career and career advancement opportunities. Performance requirements will include academic and technical skills. Students will need to understand the interaction between various vehicle systems, including engines, transmissions, brakes, fuel, cooling, and electrical. Students will also need to understand the logistics used to move goods and services to consumers, as well as the components of transportation infrastructure.
Prerequisites	None

Course	**AUTOMOTIVE TECHNOLOGY I: MAINTENANCE AND LIGHT REPAIR**
Course number	QW8430 QW84Y0 QW84D0
Credit	2.0 elective credits
Grade level	9-12
Description	Automotive Technology I: Maintenance and Light Repair includes knowledge of the major automotive systems and the principles of diagnosing and servicing these systems. This course includes applicable safety and environmental rules and regulations. In Automotive Technology I: Maintenance and Light Repair, students will gain knowledge and skills in the repair, maintenance, and diagnosis of vehicle systems. This study will allow students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. The focus of this course is to teach safety, tool identification, proper tool use, and employability
Prerequisites	Recommended: Energy & Power of Transportation Systems

Course	AUTOMOTIVE TECHNOLOGY II: AUTOMOTIVE SERVICE
Course number	QW8530 QW85Y0 QW85D0
Credit	2.0 elective credits
Grade level	11-12
Description	Automotive Technology II: Automotive Service includes knowledge of the major automotive systems and the principles of diagnosing and servicing these systems. Automotive Technology II: Automotive Service includes applicable safety and environmental rules and regulations. In this course, students will gain knowledge and skills in the repair, maintenance, and diagnosis of vehicle systems. This study will allow students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. The focus of this course is to teach safety, tool identification, proper tool use, and employability
Prerequisites	**Automotive Technology I: Maintenance and Light Repair**

Course	BASIC COLLISION REPAIR
Course number	QW9430
Credit	1.0 elective credit
Grade level	9-12
Description	Basic Collision Repair and Refinishing includes knowledge of the processes, technologies, and materials used in the reconstruction of vehicles. This course is designed to teach the concepts and theory of systems related to automotive collision repair and refinishing.
Prerequisites	None

Course	COLLISION REPAIR
Course number	QT1030 QT10Y0 QT10D0
Credit	2.0 elective credits
Grade level	10-12
Description	Collision Repair includes knowledge of the processes, technologies, and materials used in the reconstruction of vehicles. This course is designed to teach the concepts and theory of systems related to automotive collision repair and refinishing
Prerequisites	Recommended: Energy & Power of Transportation Systems
Course	**PAINT AND REFINISHING**
Course number	QW8730 QW87Y0 QW87D0
Credit	2.0 elective credits
Grade level	10-12
Description	Paint and Refinishing includes knowledge of the processes, technologies, and materials used in the reconstruction of vehicles. This course is designed to teach the concepts and theory of systems related to automotive paint and refinishing.
Prerequisites	Collision Repair