Willis ISD

CTE Programs of Study

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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.

Agribusiness
Statewide Program of Study

The Agribusiness program of study explores the occupations and educational opportunities associated with the business of farming and agriculturally related business that supplies farm inputs, such as machinery and seeds. This program of study may also include exploration into the marketing of farm products, the purchase of farm products either for further processing or resale and grading or classifying unprocessed food or other agricultural products.

Secondary Courses for High School Credit

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

Level 2

Level 3
- Agribusiness Management and Marketing

Level 4
- Practicum in Agriculture, Food, and Natural Resources

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Tour a farm machinery products company • Participate in Texas FFA	• Intern with a farm machinery products company • Work on a farm or ranch

Industry-Based Certifications

- Entrepreneurship and Small Business
- Microsoft Office Specialist: Microsoft Excel Expert (Excel and Excel 2019)
- Production Agriculture - Job Ready

- Microsoft Office Specialist Excel*

*IBC sunsetting 8/31/24

Postsecondary Opportunities

Associates Degrees
- Agricultural Business and Management, General
- Banking and Financial Support Services
- Advertising
- Marketing/ Marketing Management, General

Bachelor's Degrees
- Agricultural Business and Management, General
- Finance, General
- Financial Mathematics
- Marketing/ Marketing Management, General

Master's, Doctoral, and Professional Degrees
- Agricultural Business and Management, General
- Finance, General
- Financial Mathematics
- Marketing/ Marketing Management, General

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Farmers, Ranchers, and Other Agricultural Managers	$59.134	405	9%
Farm and Ranch Loan Officers	$45,594	268	25%
Buyers and Purchasing Agents, Farm Products	$46,488	268	20%

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

TEA Texas Education Agency

Agribusiness
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Agriculture, Food, and Natural Resources	13000200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Agribusiness Management and Marketing	13000900 (1 credit)	Principles of Agriculture, Food, and Natural Resources	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Agriculture, Food, and Natural Resources	13002500 (2 credits)	Agribusiness Management and Marketing	None

FOR ADDITIONAL INFORMATION ON THE AGRICULTURE, FOOD, AND NATURAL RESOURCE CAREER CLUSTER, PLEASE CONTACT: CTE@tea.texas.gov
https://tea.texas.gov/cte

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Agriculture, Food, and Natural Resources Career Cluster

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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

Level 4
- Advanced Animal Science
- Veterinary Medical Applications/Lab
- Practicum in Agriculture, Food, and Natural Resources
- 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

TEA Texas Education Agency

Animal Science
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Agriculture, Food, and Natural Resources	13000200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Small Animal Management	13000400 (0.5 credit)	Principles of AFNR	None
Equine Science	13000500 (0.5 credit)	Principles of AFNR	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Livestock Production	13000300 (1 credit)	Principles of AFNR	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Advanced Animal Science	13000700 (1 credit)	Biology and Chemistry or IPC) Geometry; and either Small Animal Management, Equine Science, or Livestock Production	None
Veterinary Medical Applications	13000600 (1 credit)	Equine Science, Small Animal Management,	None
Practicum in Agriculture, Food, and Natural Resources	13002500 (2 credits)	Veterinary Medical Applications	None
Scientific Research and Design	13037200 (1 credit)	Biology, Chemistry, Integrated Physics, and Chemistry (IPC), or Physics	None

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Environmental and Natural Resources
Statewide Program of Study

The Environmental and Natural Resources program of study explores the occupations and educational opportunities associated with the research, design, and planning of engineering or technical duties in the prevention and control of environmental hazards. This program of study may also include exploration into conducting research for the purpose of identifying, abating, or eliminating sources of pollutants or hazards that affect either the environment or the health of the population.

Secondary Courses for High School Credit

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

Level 2
- Wildlife, Fisheries, and Ecology Management

Level 3

Level 4
- Practicum in Agriculture, Food, and Natural Resources
- Scientific Research and Design

Postsecondary Opportunities

Associates Degrees
- Environmental Science
- Environmental Studies
- Wildlife, Fish, and Woodlands Science and Management
- Environmental Engineering Technology/ Environmental Technology

Bachelor's Degrees
- Environmental Science
- Environmental/ Environmental Health Engineering
- Wildlife, Fish, and Woodlands Science and Management
- Natural Resources Law Enforcement and Protective Services

Master's, Doctoral, and Professional Degree
- Environmental Science
- Environmental/ Environmental Health Engineering
- Wildlife, Fish, and Woodlands Science and Management
- Fishing and Fisheries Science and Management

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Attend summer leadership events • Participate in Texas FFA	• Intern at a waste treatment plant • Participate in an FFA supervised agriculture experience

Industry-Based Certifications

- Natural Resources Systems
- Water Operators, Class D

- Wastewater Collections*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Environmental Engineering Technicians	$53,352	101	32%
Environmental Engineers	$86,757	288	25%
Environmental Science and Protection Technicians, Including Health	$40,268	508	17%
Environmental Scientists and Specialists, Including Health	$77,896	644	24%
Zoologists and Wildlife Biologists	$67,309	45	32%

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

TEA Texas Education Agency

Environmental and Natural Resources Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Agriculture, Food, and Natural Resources	13000200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Wildlife, Fisheries, and Ecology Management	13001500 (1 credit)	Principles of Agriculture, Food, and Natural Resources	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Agriculture, Food, and Natural Resources	13002500 (2 credits)	2 credits in AFNR	None
Scientific Research and Design	13037200 (1 credit)	Biology, Chemistry, Integrated Physics, and Chemistry (IPC), or Physics	None

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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
- Greenhouse Operation and Production

Level 3
- Floral Design
- Horticultural Science

Level 4
- Practicum in Agriculture, Food, and Natural Resources
- 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

TEA Texas Education Agency

Plant Science
Course information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Agriculture, Food, and Natural Resources	13000200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Greenhouse Operation and Production	13002050 (1 credit)	Principles of AFNR	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Floral Design	13001800 (1 credit)	Principles of AFNR	None
Horticultural Science	13002000 (1 credit)	Principles of AFNR	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Agriculture, Food, and Natural Resources	13002500 (2 credits)	2 credits in AFNR	None
Scientific Research and Design	13037200 (1 credit)	Biology, Chemistry, Integrated Physics and Chemistry (IPC), or Physics	None

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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

Level 3
- Architectural Design II
- Interior Design II

Level 4
- Practicum in Architectural Design

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) AutoCAD
- Autodesk Associate (Certified User) 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 Fusion 360
- 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 Professional in Revit for Electrical Design
- Autodesk Certified Professional in Revit for Structural Design
- 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

Architectural Design
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Architecture	13004210 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Architectural Design I	13004600 (1 credit)	Algebra I and English I	None
Interior Design I	13004300 (1 credit)	Algebra I and English I	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Architectural Design II	13004700 (2 credits)	Architectural Design l or Interior Design II and Geometry	None
Interior Design II	13004400 (2 credits)	English ll, Geometry, and Interior Design I	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Architectural Design	13004800 (2 credits) 13004810 (2 credits)	Architectural Design II	None

FOR ADDITIONAL INFORMATION ON THE ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER,
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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.

Carpentry
Statewide Program of Study

The Carpentry program of study explores the occupations and educational opportunities related to constructing, installing, or repairing structures and fixtures made of wood, such as concrete forms (including frameworks, partitions, joists, studding, rafters, and stairways). This program of study may also include exploration into installing, dismantling, or moving machinery and heavy equipment according to layout plans, blueprints, or other drawings.

Secondary Courses for High School Credit

Level 1
- Principles of Construction

Level 2
- Construction Technology I

Level 3
- Construction Technology II

Level 4
- Practicum in Construction Technology

Postsecondary Opportunities

Associates Degrees
- Carpentry/Carpenter
- Industrial Mechanics and Maintenance Technology

Bachelor's Degrees
- Construction Science

Master's, Doctoral, and Professional Degrees
- Construction Management

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Shadow a carpenter or millwright • Participate in SkillsUSA	• Obtain an NCCER certification in Millwright Level 1 or Carpentry Level 1

Industry-Based Certifications

- HBI Pre-Apprenticeship Certificate Training (PACT), Basic Carpentry
- HBI Pre-Apprenticeship Certificate Training (PACT), Core
- HBI Pre-Apprenticeship Certificate Training (PACT), Green Core
- NCCER Carpentry Level I
- NCCER Carpentry Level II
- NCCER Commercial Carpenter
- NCCER Construction Technology Certification Level I
- NCCER Core
- NCCER Painting: Commercial and Residential Level I

- OSHA 30 Hour Construction*
- OSHA 30 Hour General*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Carpenters	$35,922	5,031	26%
Cost Estimators	$63,939	2,239	21%

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

Carpentry
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Construction	13004220 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Construction Technology I	13005100 (2 credits)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Construction Technology II	13005200 (2 credits)	Construction Technology I	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Construction Technology	13005250 (2 credits)	Construction Technology II	None

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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
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

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

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
- Audio-Visual Communications - Job Ready
- Broadcasting and Journalism
- Digital Video Production Foundations

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 – August 2022

Digital Communications Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Arts, A/V Technology, and Communications	13008200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Audio/Video Production I/Lab	13008500 (1 credit) 13008510 (2 credits)	Principles of AAVTC	None
Digital Audio Technology I	13009950 (1 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES (CREQ)
Audio/Video Production II/Lab	13008600 (1 credit) 13008610 (2 credits)	Audio/Video Production I	None
Digital Audio Technology II	13009960 (1 credit)	Digital Audio Technology I	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Audio/Video Production	13008700 (2 credits)	Audio/Video Production II/Lab	None
Practicum in Digital Audio Technology	N1300996 (2 credits)	Digital Audio Technology II	None

FOR ADDITIONAL INFORMATION ON THE ARTS, AUDIO/VIDEO TECHNOLOGY, AND COMMUNICATIONS CAREER CLUSTER, PLEASE CONTACT: CTE@tea.texas.gov
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Graphic Design & Multimedia Arts
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
- Animation I
- Commercial Photography I/Lab
- Fashion Design I/Lab

Level 3
- Animation II
- Commercial Photography II/Lab
- Fashion Design II/Lab
- Web Game Development

Level 4
- Practicum in Commercial Photography

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
- Graphic Production Technology - Job Ready

- 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 – August 2022

Graphic Design & Multimedia Arts
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Arts, A/V Technology, & Communications	13008200 (1 credit)	None	None
Video Game Design	13009970 (1 credit)	None	None
Digital Media	13027800 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Animation I	13008300 (1 credit)	None	None
Commercial Photography I/Lab	13009100 (1 credit) 13009110 (2 credits)	None	None
Fashion Design I/Lab	13009300 (1 credit) 13009310 (2 credits)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Animation II	13008400 (1 credit)	Animation I	None
Fashion Design II/Lab	13009400 (1 credit) 13009410 (2 credits)	Fashion Design I	None
Commercial Photography II/Lab	13009200 (1 credit) 13009210 (2 credits)	Commercial Photography I	None
Web Game Development	03580830 (1 credit)	Principles of AAVTC	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Commercial Photography	13009250 (2 credits)	Commercial Photography II	None

FOR ADDITIONAL INFORMATION ON THE ARTS, AUDIO/VIDEO TECHNOLOGY, AND COMMUNICATIONS CAREER CLUSTER, PLEASE CONTACT: CTE@tea.texas.gov
https://tea.texas.gov/cte

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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

Level 2
- Accounting I
- Financial Mathematics

Level 3
- Accounting II
- Insurance Operations

Level 4

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
- 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 – August 2022

TEA Texas Education Agency

Accounting and Financial Services
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Business, Marketing, and Finance	13011200 (1 credit)	None	None
Money Matters	13016200 (1 credit)	None	None
Business Information Management I	13011400 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Accounting I	13016600 (1 credit)	None	None
Financial Mathematics	13018000 (1 credit)	Algebra I	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Accounting II	13016700 (1 credit)	Accounting I	None
Insurance Operations	13016500 (1 credit)	None	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES

FOR ADDITIONAL INFORMATION ON THE BUSINESS, MARKETING, AND FINANCE CAREER CLUSTER,
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https://tea.texas.gov/cte

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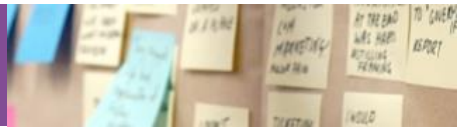
Business, Marketing, and Finance Career Cluster

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

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

Level 3
- Business Management

Level 4
- Statistics and Business Decision Making

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
- MB-920: Microsoft Dynamics 365 Fundamentals Finance and Operations Apps
- Microsoft Office Specialist 2016 Master
- Microsoft Office Specialist: Microsoft Access Expert (Access and Access 2019)
- Microsoft Office Specialist: Microsoft Excel Expert (Excel and Excel 2019)
- Microsoft Office Specialist: Microsoft Word Expert (Word and 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 Management
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Business, Marketing, and Finance	13011200 (1 credit)	None	None
Business Information Management I	13011400 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Business Law	13011700 (1 credit)	None	None
Virtual Business	13012000 (.5 credit)	None	None
Business Information Management II	13011500 (1 credit)	Business Information Management I	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Business Management	13012100 (1 credit)	None	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Statistics and Business Decision Making	13016900 (1 credit)	Algebra II	None

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Business, Marketing, and Finance Career Cluster

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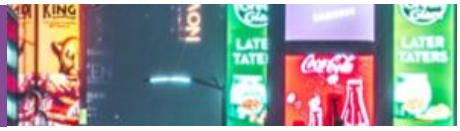
Marketing & Sales
Statewide Program of Study



The Marketing and Sales program of study teaches CTE learners how to collect information to determine potential sales of a product or service and/or create a marketing campaign to market or distribute goods and services. Through this program of study, students will learn the skills necessary to understand and apply data on customer demographics, preferences, needs, and buying habits.

Secondary Courses for High School Credit

Level 1
- Principles of Business, Marketing, and Finance

Level 2
- Sports and Entertainment Marketing
- Virtual Business

Level 3
- Social Media Marketing
- Advertising
- Statistics and Business Decision Making
- Fundamentals of Real Estate

Level 4
- Advanced Marketing
- Practicum in Marketing

Postsecondary Opportunities

Associates Degrees
- Marketing/ Marketing Management, General
- Consumer Merchandising/ Retailing Management
- International Marketing
- Business

Bachelor's Degrees
- Marketing/ Marketing Management, General
- Business Administration
- Applied Economics
- Marketing Research

Master's, Doctoral, and Professional Degrees
- Marketing
- Business Administration
- Applied Economics
- Advertising

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 marketing firm • Shadow a real estate agent • Operate a school store on campus

Industry-Based Certifications

- Certified Insurance Service Representative
- Entrepreneurship and Small Business
- Facebook Digital Marketing Associate Certification
- Real Estate Sales Agent License
- Retail Merchandising - Job Ready
- Stukent Social Media Marketing Certification
- Google Analytics Individual Qualification*
  *IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Marketing Research Analysts and Marketing Specialists	$70,346	4,664	40%
Insurance Sales Agent	$43,181	5,886	30%
First-Line Supervisors of Retail Sales Workers	$72,550	2,826	15%
Wholesale and Retail Buyers	$51,106	1,229	19%

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

Texas Education Agency

Marketing & Sales
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Business, Marketing, and Finance	13011200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Sports and Entertainment Marketing	13034600 (.5 credit)	None	None
Virtual Business	13012000 (.5 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Social Media Marketing	13034650 (.5 credit)	None	None
Advertising	13034200 (.5 credit)	None	None
Statistics and Business Decision Making	13016900 (1 credit)	Algebra II	None
Fundamentals of Real Estate	N1301120 (2 credits)	None	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Advanced Marketing	13034700 (2 credits)	One credit from the courses in the Marketing Career Cluster	None
Practicum in Marketing	13034800 (2 credits)	Advanced Marketing	None

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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.

Early Learning
Statewide Program of Study

The Early Learning program of study focuses on early childhood education, which consists of instructing and supporting preschool and early elementary school students in activities that promote social, physical and intellectual growth as well as in basic elements of science, art, music, and literature. This program of study introduces CTE learners to tasks necessary for planning, directing, and coordinating activities for young children.

Secondary Courses for High School Credit

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

Level 2
- Child Development

Level 3
- Child Guidance

Level 4
- Practicum in Early Learning

Postsecondary Opportunities

Associates Degrees
- Early Childhood Education and Teaching
- Multicultural Early Childhood Development
- Kindergarten/Preschool Education and Training
- Psychology/Sociology

Bachelor's Degrees
- Early Childhood Education and Teaching
- Multicultural Early Childhood Development
- Early Childhood
- Psychology/Sociology

Master's, Doctoral, and Professional Degrees
- Early Childhood Education and Teaching
- Multicultural Early Childhood Development
- Educational, Instructional, and Curriculum Supervision
- Educational Leadership and Administration

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 • Volunteer as a teaching assistant

Industry-Based Certifications

- Child Development Associate (CDA)
- Early Childhood Education and Care – Advanced
- Early Childhood Education and Care – Basic
- Pre-Professional Certification in Early Childhood Education

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Kindergarten Teachers, except Special Education	$53,310	1,848	17%
Preschool Teachers	$27,851	4,330	17%
Elementary School Teachers	$54,140	13,121	16%
Education Administrators, Elementary and Secondary School	$79,830	2407	16%

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

Early Learning
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Education and Training	13014200 (1 credit)	None	None
Principles of Human Services	13024200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Child Development	13024700 (1 credit)	Principles of Human Services or Principles of E&T	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Child Guidance	13024800 (2 credits)	Child Development	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Early Learning	13014520 (2 credits)	Child Guidance	None

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Education and Training Career Cluster

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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

Level 3
- Instructional Practices

Level 4
- Practicum in Education and Training

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

Texas Education Agency

Teaching and Training
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Education and Training	13014200 (1 credit)	None	None
Principles of Human Services	13024200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Human Growth and Development	13014300 (1 credit)	Principles of Human Services or Principles of E&T	None
Child Development	13024700 (1 credit)	Principles of Human Services or Principles of E&T	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Instructional Practices	13014400 (2 credits)	1 credit from Education and Training Career Cluster	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Education and Training	13014500 (2 credits)	Instructional Practices	None

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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
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

Level 2
- Medical Terminology

Level 3
- Anatomy and Physiology
- Health Science Theory/Health Science Clinical

Level 4
- 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
- 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

TEA Texas Education Agency

Healthcare Therapeutic Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Health Science	13020200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Medical Terminology	13020300 (1 credit)	Principles of Health Science	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Anatomy and Physiology	13020600 (1 credit)	One credit in Biology, one credit in Chemistry, Integrated Physics and Chemistry, or Physics.	None
Health Science Theory/ Health Science Clinical	13020400 (1 credit) 13020410 (2 credits)	Principles of Health Science	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Pharmacology	13020950 (1 credit)	Biology and Chemistry	None
Practicum in Health Science – CNA or Pharmacy	13020500 (2 credits)	Health Science Theory and Clinical	None

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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

Level 3
- Advanced Culinary Arts

Level 4
- Food Science
- Practicum in Culinary Arts

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 – August 2022

Texas Education Agency

Culinary Arts
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Introduction to Culinary Arts	13022550 (1 credit)	None	None
Principles of Hospitality and Tourism	13022200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Culinary Arts	13022600 (1 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Advanced Culinary Arts	13022650 (2 credits)	Culinary Arts	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Food Science	13023000 (1 credit)	Culinary Arts	None
Practicum in Culinary Arts	13022700 (2 credits)	Advanced Culinary Arts	None

FOR ADDITIONAL INFORMATION ON THE HOSPITALITY AND TOURISM CAREER CLUSTER,
PLEASE CONTACT: CTE@tea.texas.gov
https://tea.texas.gov/cte

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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
- Interpersonal Studies
- Dollars and Sense

Level 2
- Lifetime Nutrition and Wellness
- Human Growth and Development
- Child Development

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

Level 4
- Practicum in Human Services

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

Texas Education Agency

Family and Community Services
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Human Services	13024200 (1 credit)	None	None
Interpersonal Studies	13024400 (.5 credit)	None	None
Dollars and Sense	13024300 (.5 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Lifetime Nutrition and Wellness	13024500 (.5 credit)	None	None
Human Growth and Development	13014300 (1 credit)	Principles of Human Services	None
Child Development	13024700 (1 credit)	Principles of Human Services	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Counseling and Mental Health	13024600 (1 credit)	Principles of Human Services	None
Family and Community Services	13024900 (1 credit)	Principles of Human Services	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Human Services	13025000 (2 credits)	2 credits in FCS	None

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PLEASE CONTACT: CTE@tea.texas.gov
https://tea.texas.gov/cte

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Human Services Career Cluster

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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

Level 2
- Introduction to Cosmetology

Level 3
- Cosmetology I Lab

Level 4
- Cosmetology II Lab

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

Texas Education Agency

Cosmetology and Personal Care Services
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Introduction to Cosmetology	13025100 (1 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Cosmetology I/Lab	13025210 (3 credits)	Intro to Cosmetology	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Cosmetology II/Lab	13025310 (3 credits)	Cosmetology I	None

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Information Technology Career Cluster

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.

Information Technology Support and Services

Statewide Program of Study

The Information Technology Support and Services program of study explores the occupations and educational opportunities associated with administering, testing, and implementing computer databases and applying knowledge of database management systems. This program of study may also include analyzing user requirements and problems to automate or improve existing systems and review computer system capabilities. This program of study may also include exploration into the research, design, or testing of computer or computer-related equipment for commercial, industrial, military, or scientific use.

Secondary Courses for High School Credit

Level 1

- Principles of Information Technology

Level 2

- Computer Maintenance

Level 3

- Computer Technician Practicum

Level 4

- Practicum of Information Technology

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join TSA • Job shadow a database administrator or computer hardware engineer	• Earn an IT certification

Industry-Based Certifications

- Business Information Processing
- Cloud Essentials+
- CompTIA A+ Certification
- CompTIA IT Fundamentals+
- Computer Repair Technology - Job Ready
- Google IT Support Professional Certificate

Postsecondary Opportunities

Associates Degrees

- Computer and Information Sciences, General
- Computer and Information Systems Security/ Information Assurance
- Information Technology
- Computer Systems Networking and Telecommunications

Bachelor's Degrees

- Computer and Information Sciences, General
- Computer and Information Systems Security /Information Assurance
- Computer Engineering, General
- Computer Systems Networking and Telecommunications

Master's, Doctoral, and Professional Degrees

- Computer and Information Sciences, General
- Computer Systems Analysis/ Analyst
- Computer Engineering, General
- Information Technology

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Database Administrator	$83,075	1,063	19%
Computer Hardware Engineer	$111,738	343	24%
Computer System Analyst and Support	$87,568	5,937	29%

Successful completion of the Information Technology Support and Services 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

Texas Education Agency

Information Technology Support and Services
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Information Technology	13027200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Computer Maintenance	13027300 (1 credit)	Principles of Information Technology	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Computer Technician Practicum	13027500 (2 credits)	Computer Maintenance	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Information Technology	13028000 (2 credits)	A minimum of two high school Information Technology (IT) courses	None

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Information Technology Career Cluster

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.

Networking Systems
Statewide Program of Study

The Networking Systems program of study explores the occupations and educational opportunities associated with designing and implementing computer and information networks, such as local area networks (LAN), wide area networks (WAN), intranets, extranets, and other data communications networks. This program of study may also include exploration into analyzing science, engineering, and other data processing problems to implement and improve computer systems.

Secondary Courses for High School Credit

Level 1
- Computer Science I
- Principles of Information Technology

Level 2
- Computer Maintenance

Level 3
- Networking

Level 4
- Practicum in Information Technology

Postsecondary Opportunities

Associates Degrees
- Computer and Information Sciences, General
- Computer Systems Networking And Telecommunications
- Information Technology
- Network and System Administration/ Administrator

Bachelor's Degrees
- Computer and Information Sciences, General
- Computer Systems Networking And Telecommunications
- Computer and Information Systems Security/ Information Assurance
- Computer Engineering, General

Master's, Doctoral, and Professional Degrees
- Computer and Information Sciences, General
- Information Technology
- Computer and Information Systems Security/ Information Assurance
- Computer Engineering, General

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join TSA • Job shadow a computer network architect or support specialist	• Earn an IT certification

Industry-Based Certifications

- Cisco 100-490 RSTECH Supporting Cisco Routing and Switching Network Devices
- Cisco CCNA (200-301) Implementing and Administering Cisco Solutions
- CompTIA A+ Certification
- CompTIA Network+
- CompTIA Server+
- Computer Networking Fundamentals - Job Ready
- Google Cloud Certified Professional - Cloud Architect

- Associate of (ISC)*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Computer Network Architects	$111,633	1,082	23%
Computer Systems Analysts	$87,568	5,937	29%
Computer Network Support Specialists	$68,037	1,824	19%

Successful completion of the Networking Systems 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

Texas Education Agency

Networking Systems
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITIES	COREQUISITES
Computer Science I	03580200 (1 credit)	None	Algebra I
Principles of Information Technology	13027200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Computer Maintenance	13027300 (1 credit)	Principles of Information Technology	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Networking	13027400 (1 credit)	Computer Maintenance	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Information Technology	13028000 (2 credits)	Minimum of two high school Information Technology (IT) courses	None

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Information Technology Career Cluster

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.

Web Development
Statewide Program of Study

The Web Development program of study explores the occupations and educational opportunities associated with designing, creating, and modifying websites. This program of study may also explore integrating websites with other computer applications, and converting written, graphic, audio, and video components to compatible web formats by using software designed to facilitate the creation of web and multimedia content.

Secondary Courses for High School Credit

Level 1
- Principles of Information Technology

Level 2
- Computer Science I

Level 3
- Web Design
- Web Game Development

Level 4
- Practicum in Information Technology

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join TSA • Participate in a coding or computer programming club • Create a web page	• Earn an Oracle or web certification

Industry-Based Certifications

- Certified Web and Mobile App Developer Apprentice
- Certified Web Animator Associate
- Oracle Certified Associate Java SE 8 Programmer
- Web Design- Job Ready

- Google Analytics Individual Qualification*
- WD Certified Web Design*

*IBC sunsetting 8/31/24

Postsecondary Opportunities

Associates Degrees
- Computer Programming/Programmer, General
- Computer Science
- Web Page, Digital/Multimedia and Information Resources Design
- Computer Systems Networking and Telecommunications

Bachelor's Degrees
- Web/Multimedia Management and Webmaster
- Computer Science
- Web Page, Digital/Multimedia and Information Resources Design
- Computer Systems Networking and Telecommunications

Master's, Doctoral, and Professional Degrees
- Computational Science
- Computer Science
- Information Science/Studies
- Computer Systems Networking and Telecommunications

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Web Developers	$67,912	1,079	39%
Web Administrators, Computer Occupations	$85,197	1,616	20%
Software Developers	$104,499	6,311	30%

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

TEA Texas Education Agency

Web Development
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Information Technology	13027200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Computer Science I	03580200 (1 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Web Design	03580820 (1 credit)	None	None
Web Game Development	03580830 (1 credit)	None	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Information Technology	13028000 (2 credits)	A minimum of two high school Information Technology (IT) courses	None

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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
- Criminal Investigation
- Court Systems and Practices*

Level 3
- Law Enforcement II

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

*not included in the Law Enforcement statewide Program of Study

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

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

Law Enforcement
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Law, Public Safety, Corrections, and Security	13029200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Law Enforcement I	13029300 (1 credit)	Principles of LPSCS	None
Criminal Investigation	13029550 (1 credit)	Principles of LPSCS	None
Court Systems and Practices	13029600 (1 credit)	Principles of LPSCS	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Law Enforcement II	13029400 (1 credit)	Law Enforcement I	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Counseling and Mental Health	13024600 (1 credit)	None	None
Forensic Science	13029500 (1 credit)	Biology and Chemistry	None
Practicum in Law, Public Safety, Corrections, and Security	13030100 (2 credits)	Law Enforcement II	None

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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.

Advanced Manufacturing and Machinery Mechanics
Statewide Program of Study

The Advanced Manufacturing and Machinery Mechanics program of study focuses on the assembly, operation, maintenance, and repair of electromechanical equipment or devices. CTE learners may work in a variety of mechanical fields, gaining knowledge and experience in robotics, refinery and pipeline systems, deep ocean exploration, or hazardous waste removal. CTE concentrators may work in a variety of fields of engineering.

Secondary Courses for High School Credit

Level 1
- Principles of Applied Engineering

Level 2
- Robotics I

Level 3
- Engineering Design and Presentation I
- Robotics II

Level 4
- Practicum in Manufacturing

Postsecondary Opportunities

Associates Degrees
- Electromechanical Engineering/Technology
- Certified Quality Technician
- Industrial Mechanics and Maintenance Technology

Bachelor's Degrees
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering

Master's, Doctoral, and Professional Degrees
- Electrical Engineering
- Industrial Engineering
- Mechanical Engineering

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Participate in SkillsUSA and local STEM events	• Work at a local business or industry apprenticeship • Join the American Welding Society

Industry-Based Certifications

- C-101 Certified Industry 4.0 Associate - Basic Operations
- C-103 Certified Industry 4.0 Associate - Robot System Operations
- C-200 Certified Industry 4.0 Automation System Specialist I - 216 Robotic System Integration 1
- C-200 Certified Industry 4.0 Automation Systems Specialist I - 208 Programmable Controller Troubleshooting 1
- C-200 Certified Industry 4.0 Automation Systems Specialist I - 215 Robotic Operations 1
- Certified Manufacturing Associate
- CNC Lathe Operations
- CNC Lathe Set Up and Operations
- FANUC Robot Operator 1
- FESTO Certified Industry 4.0 Associate Fundamentals
- Industrial Technology Maintenance (ITM) - Process Control Systems
- Machining CNC Mill Operations Level I
- Machining CNC Mill Programming Setup and Operations Level I
- Machining CNC Milling Skills Level II
- Machining CNC Milling Skills Level II
- Industrial Technology Maintenance (ITM) - Electronic Control Systems*
- ISCET Certified Electronics Technicians*
- Mastercam Associate Certification Mill Design and Toolpaths*
- Mastercam Certified Professional Mill Level 1*
- Mastercam Professional Level Certification*
- OSHA 30 Hour General*

*IBC sunsetting 8/31/24

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Electro-Mechanical Assemblers	$30,160	951	9%
Electro-Mechanical Technicians	$56,555	127	9%
Industrial Machinery Mechanics	$49,816	3,788	27%

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

Advanced Manufacturing and Machinery Mechanics Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Applied Engineering	13036200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Robotics I	13037000 (1 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Engineering Design and Presentation I	13036500 (1 credit)	Algebra I	None
Robotics II	13037050 (1 credit)	Robotics I	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Manufacturing	13033000 (2 credits)	2 credits in Manufacturing	None

FOR ADDITIONAL INFORMATION ON THE MANUFACTURING CAREER CLUSTER,
PLEASE CONTACT: CTE@tea.texas.gov
https://tea.texas.gov/cte

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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

Level 3
- Welding II

Level 4
- Practicum in Manufacturing

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

Texas Education Agency

Welding
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Introduction to Welding	13032250 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Welding I	13032300 (2 credits)	Introduction to Welding	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Welding II	13032400 (2 credits)	Welding I	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Practicum in Manufacturing	13033000 (2 credits)	Welding II	None

FOR ADDITIONAL INFORMATION ON THE MANUFACTURING CAREER CLUSTER,
PLEASE CONTACT: CTE@tea.texas.gov
https://tea.texas.gov/cte

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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
- Computer Science I
- Computer Maintenance

Level 3
- Networking
- Discrete Mathematics for Computer Science

Level 4
- Cybersecurity Capstone
- Practicum in Information Technology

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 200-201 CBROPS - Understanding Cisco Cybersecurity Operations Fundamentals
- CompTIA A+ Certification
- CompTIA Network+
- CompTIA Security+
- Cybersecurity Fundamentals
- CyberSecurity Fundamentals: An ISACA Certificate
- Oracle Certified Associate Java SE 8 Programmer

- Associate of (ISC)*

*IBC sunsetting 8/31/24

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

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

Texas Education Agency

Cybersecurity
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Information Technology	1302700 (1 credit)	None	None
Fundamentals of Computer Science	03580140 (1 credit)	None	None
Foundations of Cybersecurity	03580850 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Computer Science I	03580200 (1 credit)	None	Algebra I
Computer Maintenance	13027300 (1 credit)	Principles of Information Technology	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Networking	13027400 (1 credit)	Computer Maintenance	None
Discrete Mathematics for Computer Science	03580370 (1 credit)	Algebra II	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Cybersecurity Capstone	03580855 (1 credit)	Foundations of Cybersecurity	None
Practicum in Information Technology	13028000 (2 credits)	Two high school Information Technology courses	None

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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

Level 2

Level 3
- Engineering Design and Presentation I

Level 4
- Engineering Design and Presentation II
- 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) Fusion 360
- Autodesk Associate (Certified User) Inventor for Mechanical Design
- Autodesk Associate (Certified User) Revit Architecture
- Autodesk Associate (Certified User) Revit for Electrical
- Autodesk Associate (Certified User) Revit for Structural Design
- Autodesk Certified Professional Fusion 360
- Autodesk Certified Professional in AutoCAD for Design and Drafting
- Autodesk Certified Professional in Civil 3D for Infrastructure Design
- Autodesk Certified Professional in Inventor for Mechanical 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
- 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*

*IBC 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 – August 2022

Engineering
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Principles of Applied Engineering	13036200 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Engineering Design and Presentation I	13036500 (1 credit)	Algebra I	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Engineering Design and Presentation II	13036600 (2 credits)	Engineering Design Presentation I and Geometry	None
Scientific Research & Design	13037200 (1 credit)	Biology, Chemistry and either Integrated Physics (IPC) or Physics	None

FOR ADDITIONAL INFORMATION ON THE SCIENCE, TECHNOLOGY, ENGINEERING AND MATH CAREER CLUSTER, PLEASE CONTACT: CTE@tea.texas.gov
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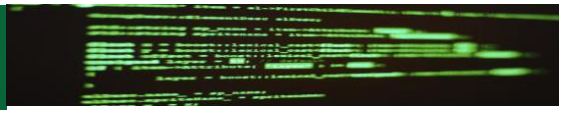
Science, Technology, Engineering, and Mathematics Career Cluster

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.

Programming and Software Development

Statewide Program of Study



The Programming and Software Development program of study explores the occupations and education opportunities associated with researching, designing, developing, and testing operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computer applications. This program of study may also include exploration into creating, modifying, and testing the codes, forms, and script that allow computer applications to run.

Secondary Courses for High School Credit

Level 1

- Fundamentals of Computer Science

Level 2

- Computer Science I

Level 3

- Computer Science II
- Discrete Mathematics for Computer Science

Level 4

- Computer Science III
- Practicum in Information Technology

Postsecondary Opportunities

Associates Degrees

- Computer Programming/Programmer General
- Computer Software Engineer
- Computer Science
- Certified Software Analyst

Bachelor's Degrees

- Management Information Systems, General
- Computer Software Engineer
- Computer Science
- Information Science/ Studies

Master's, Doctoral, and Professional Degrees

- Computer Software Engineer
- Computer Science
- Information Science/ Studies

Work-Based Learning and Expanded Learning Opportunities

Exploration Activities	Work-Based Learning Activities
• Join TSA • Participate in a coding club at school	• Obtain a programming IBC

Industry-Based Certifications

- C++ Certified Associate Programmer
- Certified Entry-Level Python Programmer (PCEP)
- Certified Professional Programmer
- CompTIA Linux+
- Oracle Certified Associate Java SE 8 Programmer
- Oracle Database SQL Certified Associate

Aligned Occupations

Occupations	Median Wage	Annual Openings	% Growth
Software Developer, Systems Software	$103,334	2,985	25%
Software Developers, Application	$104,499	6,311	30%
Computer Programmers	$79,893	1,454	9%

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

Texas Education Agency

Programming and Software Development
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Fundamentals of Computer Science	03580140 (1 credit)	None	None

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Computer Science I	03580200 (1 credit)	None	Algebra I

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Computer Science II	03580300 (1 credit)	Computer Science I	None
Discrete Mathematics for Computer Science	03580370 (1 credit)	Algebra I	None

Level 4

Course Name	Service ID	PREREQUISITES	COREQUISITES
Computer Science III	03580350 (1 credit)	Computer Science II	None
Practicum in Information Technology	13028000 (2 credits)	Two high school Information Technology courses	None

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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
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

Level 2
- Automotive Basics

Level 3
- Automotive Technology I

Level 4
- Automotive Technology II
- Practicum in Transportation Systems

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
- 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 – August 2022

Automotive
Course Information

Level 1

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES

Level 2

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Automotive Basics	13039550 (1 credit)	None	None

Level 3

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Automotive Technology I: Maintenance and Light Repair	13039600 (2 credits)	None	None

Level 4

COURSE NAME	SERVICE ID	PREREQUISITES	COREQUISITES
Automotive Technology II	13039700 (2 credits)	Automotive Technology I: Maintenance and Light Repair	None
Practicum in Transportation Systems	13040450 (2 credits)	Automotive Technology II	None

FOR ADDITIONAL INFORMATION ON THE TRANSPORTATION, DISTRIBUTION, AND LOGISTICS CAREER CLUSTER, PLEASE CONTACT: CTE@tea.texas.gov
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Willis ISD

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