



2026-2027

Career & Technical Education

For more information about Career and Technical Education in Dickinson ISD, contact your counselor or visit our webpage at <https://www.dickinsonisd.org/page/ct.home>. You may also email at CTE@dickinsonisd.org.

Career and Technical Education

Annual Public Notification of Nondiscrimination

Dickinson ISD offers career and technical education programs in Agriculture, Food and Natural Resources; Architecture and Construction; Arts, A/V Technology and Communications; Business Management and Administration; Education and Training; Finance; Government and Public Administration; Health Science; Human Services; Information Technology; Law, Public Safety, Corrections and Security; Manufacturing; Marketing; Science, Technology, Engineering and Mechanics; as well as Transportation, Distribution and Logistics. Admission to these programs is based on student interest, student needs and grade level requirements set by the Texas Education Agency.

It is the policy of Dickinson ISD not to discriminate on the basis of race, color, national origin, sex or handicap in its vocational programs, services or activities and provides equal access to the Boy Scouts and other designated youth groups as required by Title VI of the Civil Rights Act of 1964, as amended; Title IX of the Education Amendments of 1972; and Section 504 of the Rehabilitation Act of 1973, as amended.

It is the policy of Dickinson ISD not to discriminate on the basis of race, color, national origin, sex, handicap, or age in its employment practices as required by Title VI of the Civil Rights Act of 1964, as amended; Title IX of the Education Amendments of 1972; the Age Discrimination Act of 1975, as amended; and Section 504 of the Rehabilitation Act of 1973, as amended.

DISD will take steps to assure that lack of English language skills will not be a barrier to admission and participation in all educational and services programs.

For information about your rights or grievance procedures, contact the Title IX Coordinator at rcobb@dickinsonisd.org , (281) 229-6000, and/or the Section 504 Coordinator pmonaghan@dickinsonisd.org (281) 229-6000.

Career and Technical Education

Annual Public Notification of Nondiscrimination

El Distrito Escolar Independiente de Dickinson ofrece programas de educación técnica y vocacional en Agricultura; Alimentos y Recursos Naturales; Arquitectura y Construcción; Artes; Tecnología y Comunicaciones de Audio/Video; Gerencia y Administración de Empresas; Educación y Entrenamiento; Finanzas; Administración Pública y Gubernamental; Ciencia Médica; Servicios Humanos; Informática; Derecho; Seguridad Pública; Correcciones y Seguridad; Manufactura; Mercadeo; Ciencia, Tecnología, Ingeniería y Mecánica; así como también Transportación, Distribución y Logística. La admisión a estos programas se basa en necesidades del estudiante y requerimientos de nivel académico impuestos por la Agencia de Educación de Texas.

Es norma de Distrito Escolar Independiente de Dickinson no discriminar en sus procedimientos de empleo por motivos de raza, color, origen nacional, sexo, impedimento o edad, tal como lo requieren el Título VI de la Ley de Derechos Civiles de 1964, según enmienda; Título IX de las Enmiendas en la Educación, de 1972, la ley de Discriminación por Edad, de 1975, según enmienda; y la Sección 504 de la Ley de Rehabilitación de 1973, según enmienda.

Es norma de Distrito Escolar Independiente de Dickinson no discriminar en sus programas, servicios o actividades vocacionales por motivos de raza, color, origen nacional, sexo o impedimento, tal como lo requieren el Título VI de la Ley de Derechos Civil es de 1964, según enmienda; Título IX de las Enmiendas en la Educación de 1972, y la Sección 504 del a Ley de Rehabilitación de 1973, según enmienda.

Distrito Escolar Independiente de Dickinson tomará las medidas necesarias para asegurar que la falta de habilidad en el uso del inglés no sea un obstáculo para la admisión y participación en todos los programas educativos y vocacionales.

Para información sobre sus derechos o procedimientos de quejas, comuníquese con el Coordinador del Título IX en rcobb@dickinsonisd.org, (281) 229-6000, y/o el Coordinador de la Sección 504 en pmonaghan@dickinsonisd.org (281) 229-6000

Career and Technical Education Programs of Study Table (Updated 12/19/25)

Programs of Study	Level 1	Level 2	Level 3	Level 4	Certification/Dual Credit
Agriculture Career Cluster					
Animal Science	Principles of Agriculture, Food and Natural Resources (Offered in 8th grade as high school credit)	Small Animal Management and Equine Science	Livestock Production	Practicum in Agriculture, Food and Natural Resources (Animal Science)	<i>Elanco Fundamentals of Animal Science (9th grade) ; *NHJCA Equine Management & Evaluation Certification Strategies for Success (11th Grade)</i>
Animal Science (Vet Med)	Principles of Agriculture, Food and Natural Resources (Offered in 8th grade as high school credit)	Small Animal Management and Equine Science	Veterinary Science	Advanced Animal Science (Science Credit); Practicum in Agriculture, Food, and Natural Resources (Animal Science)	<i>Elanco Veterinary Medical Applications; * Certified Veterinary Assistant, Level 1; NHJCA Equine Management & Evaluation Certification Strategies for Success (11th Grade)</i>
Agriculture Technology and Mechanical Systems (AG Mechanics)	Principles of Agriculture, Food and Natural Resources (Offered in 8th grade as high school credit)	Agricultural Mechanics and Metal Technologies	Agricultural Structures Design and Fabrications	Agriculture Equipment and Structure Fabrication; or Practicum in Agriculture, Food, and Natural Resources (Applied Agriculture Engineering)	<i>AWS D1.1; AWS D9.1; NCCER Core (10th-12th Grade)</i>
Plant Science	Principles of Agriculture, Food and Natural Resources (Offered in 8th grade as high school credit)	Floral Design I (Fine Arts Credit)	Advanced Floral Design	Plant and Soil Science (Science Credit)	<i>BASF Plant Science (12th Grade); *Principles of Floral Design; Texas State Florist's Association Level I Floral Certification</i>
Architecture & Construction Career Cluster					
HVAC & Sheet Metal	Principles of Construction	HVAC & Refrigeration Technology I	Practicum in Construction Technology: Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology	Career Preparation for Programs of Study: Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology	Refrigerant Handling (EPA 608)
Arts, Audio/Video Technology, and Communications Career Cluster					
Digital Communications (Audio/Video)	Principles of Arts, Audio/Video Technology, and Communications	Audio/Video Production I (Dual Credit)	Audio/Video Production II (Dual Credit)	Practicum of Audio Video Production (Dual Credit)	<i>Adobe Certified Professional in Digital Video Using Adobe Premiere Pro (11th Grade)</i>
Graphic Design & Interactive Media (Photography)	Principles of Arts, Audio/Video Technology, and Communications	Commercial Photography I	Commercial Photography II	Practicum in Commercial Photography	<i>Adobe Certified Professional in Visual Design using Adobe Photoshop (11th Grade)</i>
Graphic Design & Interactive Media (Video Game Design)	Principles of Arts, Audio/Video Technology, and Communications	Video Game Programming	Advanced Video Game Programming	Practicum in Animation	<i>Adobe Certified Professional Graphic Design & Illustration using Adobe Illustrator (10th-11th Grade)</i>
Graphic Design & Interactive Media (Yearbook)	Principles of Arts, Audio/Video Technology, and Communications	Graphic Design and Illustration I	Graphic Design and Illustration II	Practicum in Graphic Design and Illustration	<i>Adobe Certified Professional Print & Digital Media Publication using Adobe InDesign (11th Grade)</i>

Programs of Study	Level 1	Level 2	Level 3	Level 4	Certification/Dual Credit
Business, Marketing and Finance Career Cluster					
Accounting and Financial Services	Principles of Business, Marketing, and Finance	Accounting I (No Pre-Req)	Accounting II (Pre-Req Acct 1) (Math Credit)	Financial Analysis (Pre-req Acct 1) or Career Prep	Accounting - Basics (12th Grade); Accounting Foundations (12th Grade); Intuit QuickBooks Certified User (11th Grade); Intuit Certified Bookkeeping Professional (12th Grade)
Marketing and Sales	Principles of Business, Marketing, and Finance	Marketing	Retail Management	Practicum in Entrepreneurship (School Store) or Career Prep	Stukent Social Media Marketing (C/O 25 Seniors Only- Sunsetting) ; Entrepreneurship and Small Business (11th-12th Grade)
Real Estate	Principles of Business, Marketing, and Finance	Financial Mathematics; Marketing	Fundamentals of Real Estate (2 credits)	Practicum in Entrepreneurship (Real Estate) or Career Prep	Personal Lines Property and Casualty Agent (12th Grade); Real Estate Sales Agent License (12th Grade)
*College Board AP	Advanced Placement Business with Personal Finance				AP Exam - Students have the potential to earn up to 6 hours of college credit for each AP Exam with qualifying scores
Education and Training					
Teacher and Training	Principles of Human Services (Can be taken in 8th grade) ; Principles of Education and Training	Child Development (Dual Credit)	Instructional Practices (Ready Set, Teach I) (Dual Credit)	Practicum in Education and Training (Ready, Set, Teach II)	Educational Aide I (12th Grade)
Energy Career Cluster					
Refining and Chemical Process (11th/12th Dual Credit - Students Must: Pass TSIA; B or better in Algebra I & Chemistry; Have Own Transportation to COM)			Introduction to Process Technology (Fall) Petrochemical Safety, Health & Environment (Spring) (Dual Credit)	Practicum in Energy (Fall) Advanced Instrument and Electrical (Spring) (Dual Credit)	Dual Credit Earned
Engineering Career Cluster					
Engineering Foundations	Engineering Design Process or Principles of Applied Engineering (Can be taken in 8th grade)	Engineering Science (Science Credit)	Engineering Design and Presentation	Advanced Engineering Design and Presentation	Certified SolidWorks Associate-Academic
Mechanical and Aerospace Engineering	Engineering Design Process or Principles of Applied Engineering (Can be taken in 8th grade)	Engineering Science (Science Credit)	Aerospace Design I	Practicum in Engineering	Autodesk Certified User Fusion 360 (12th Grade)
Engineering Foundations (Robotics)	Engineering Design Process or Principles of Applied Engineering (Can be taken in 8th grade)	Robotics I	Robotics II (Math Credit)	Practicum in Engineering	Autodesk Associate (Certified User) Fusion 360 (12th Grade)

Programs of Study	Level 1	Level 2	Level 3	Level 4	Certification/Dual Credit
Health Science Career Cluster					
Diagnostic and Therapeutic Services (Dual Credit: Imaging)	Introduction to Imaging Technology (yearly course beginning with c/o 2029) ; Medical Terminology (Dual Credit)	Imaging Technology I (Dual Credit)	Imaging Technology II (Dual Credit)	Practicum in Health Science in Imaging (Dual Credit)	Limited Medical Radiologic Technologist (12th Grade)
Diagnostic and Therapeutic Services	Principles of Health Science	Medical Terminology	Medical Microbiology (Science Credit)	Anatomy and Physiology (Science Credit)	Science Credit/Honors Course
Diagnostic and Therapeutic Services_ (EMT, EKG, PCT, Pharm Tech, Dental)	Principles of Health Science	Medical Terminology	Health Science Theory or Pharmacology (Pharm Tech)	Practicum in Health Science (EMT, EKG, PCT, PharmTech, Dental)	Emergency Medical Technician - Basic; Certified EKG Technician; Patient Care Technician; Pharmacy Technician; Registered Dental Assistant X-Ray (All Earned 12th Grade)
Hospitality & Tourism					
Culinary Arts	Introduction to Culinary Arts	Culinary Arts	Advanced Culinary Arts	Practicum in Culinary Arts OR Food Science (cience Credit)	Food Protection Manager - 933 (12th Grade); Servsafe Manager (12th Grade)
Human Services Career Cluster					
Cosmetology and Personal Care Services (Barbering)		Principles of Cosmetology Design and Color Theory	Barbering I	Barbering II	Barber Operating License (12th Grade)
Cosmetology and Personal Care Services (Cosmetology)		Introduction to Cosmetology	Cosmetology I	Cosmetology II	Cosmetology Operator License (12th Grade)
Information Technology Career Cluster					
Cybersecurity (Level I Certificate, Computer Support Specialist)	Foundations of Cybersecurity (Dual Credit SHSU)	Computer Maintenance (Dual Credit SHSU)	Networking (Dual Credit SHSU)	Practicum in Information Technology (Dual Credit SHSU)	Level I Certificate, Computer Support Specialist, Dual Credit Earned (SHSU); CompTIA Network+, CompTIA Security+, CompTIA A+ Certification (12 grade)
Programming and Software Development	Fundamentals of Computer Science	Computer Science I (LOTE Credit)	Computer Science II (LOTE Credit)	Practicum in Engineering	Certified Entry-Level Python Programmer (10th-11th Grade)
Law and Public Services Career Cluster					
Firefighting	Principles of Law, Public Safety, Corrections, and Security	Disaster Response	Firefighter I (Dual Credit)	Firefighter II (Dual Credit)	Basic Structure Fire Protection (12th grade)
Air Force JROTC	Junior Reserve Officers' Training Corps (JROTC) I (PE Substitution)	Junior Reserve Officers' Training Corps (JROTC) II	Junior Reserve Officers' Training Corps (JROTC) III	Junior Reserve Officers' Training Corps (JROTC) IV	Complete Levels I-IV & ASVAB (Need to pass)
Law Enforcement	Principles of Law, Public Safety, Corrections, and Security	Law Enforcement I	Law Enforcement II	Forensic Science (Science Credit) ; or Counseling and Mental Health; or Practicum of Law, Public Safety, Corrections, and Security	IAED Emergency Telecommunicator (10th-11th Grade)

Programs of Study	Level 1	Level 2	Level 3	Level 4	Certification/Dual Credit
Transportation Career Cluster					
Automotive	Automotive Basics	Automotive Technology I: Maintenance and Light Repair	Automotive Technology II: Automotive Services	Practicum in Transportation Systems	ASE Entry Level Electrical/Electronic Systems ASE Entry Level Brakes ASE Entry Level Suspension and Steering ASE Entry Level Heating and Air Conditioning ASE Entry Level Engine Repair ASE Entry Level Engine Performance ASE Entry Level Automatic Transmission and Transaxle ASE Entry Level Manual Drive Train and Axles ASE Maintenance and Light Repair (10th-12th Grade)

Junior High Level: Principles of Agriculture, Food and Natural Resources; Principles of Applied Engineering; Principles of Human Services; & Career Exploration



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 occupations ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

Statewide Program of Study: *Animal Science*

The Animal Science program of study focuses on occupational and educational opportunities associated with the science, research, and business of animals and other living organisms. This program of study includes applying 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 will research and analyze the growth and destruction of species and research or diagnose diseases and injuries of animals.



Secondary Courses for High School Credit

- | | |
|-------------------|---|
| 9th Grade | <ul style="list-style-type: none">Principles of Agriculture, Food, and Natural Resources
(Offered in 8th grade as high school credit) |
| 10th Grade | <ul style="list-style-type: none">Small Animal ManagementEquine Science |
| 11th Grade | <ul style="list-style-type: none">Livestock Production |
| 12th Grade | <ul style="list-style-type: none">Practicum in Agriculture, Food, and Natural Resources (Animal Science) |

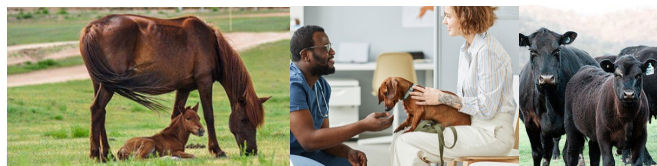
Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none">Shadow an animal scientist in a biology lab to learn about applying science to understand animals and wildlifeIntern in a veterinary clinic, caring for animals and wildlife being treated in the clinic
Expanded Learning Opportunities	<ul style="list-style-type: none">Participate in an FFA career, leadership, and speaking contest like an agriscience fairAttend an agricultural industry seminar



Aligned Industry-Based Certifications

- Elanco Fundamentals of Animal Science
- Equine Management & Evaluation Certification



Example Postsecondary Opportunities

Apprenticeships

- Reproduction Technician

Associate Degrees

- Biological and Physical Sciences
- Entomology

Bachelor's Degrees

- Animal Science
- Zoology/Animal Biology

Master's, Doctoral, and Professional Degrees

- Marine Sciences
- Biotechnology

Additional Stackable IBCs/License

- Veterinarian
- Certified Veterinary Technician



Example Aligned Occupations

Veterinary Assistants and Laboratory Animal Caretakers

Median Wage: \$33,581
Annual Openings: 1,953
10-Year Growth: 24%

Veterinary Technologists and Technicians

Median Wage: \$35,698
Annual Openings: 1,820
10-Year Growth: 24%

Veterinarians

Median Wage: \$125,030
Annual Openings: 435
10-Year Growth: 26%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024

For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/afnr-animal-science-extended.pdf>






Agriculture, Food, and Natural Resources Career Cluster



Statewide Program of Study: *Animal Science*

Course Information


9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Agriculture, Food, and Natural Resources 13000200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	


10th Grade

Course	Prerequisites Corequisites	Career Clusters
Small Animal Management and Equine Science 13000400 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Agriculture, Food, and Natural Resources Recommended Corequisites: None	
Equine Science 13000500 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Agriculture, Food, and Natural Resources Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Livestock and Poultry Production 13000300 (1 credit)	Prerequisites: At least one course from the Agriculture, Food, and Natural Resources career cluster Corequisites: None Recommended Prerequisites: Principles of Agriculture, Food, and Natural Resources Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Agriculture, Food, and Natural Resources* First Time Taken: 13002500 (2 credits)	Prerequisites: A minimum of two credits with at least one course in a Level 2 or higher course from the Agriculture, Food, and Natural Resources career cluster Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	



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 occupations ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

Statewide Program of Study: **Animal Science (VET MED)**

The Animal Science program of study focuses on occupational and educational opportunities associated with the science, research, and business of animals and other living organisms. This program of study includes applying 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 will research and analyze the growth and destruction of species and research or diagnose diseases and injuries of animals.



Secondary Courses for High School Credit

- | | |
|-------------------|---|
| 9th Grade | <ul style="list-style-type: none">Principles of Agriculture, Food, and Natural Resources |
| 10th Grade | <ul style="list-style-type: none">Small Animal ManagementEquine Science |
| 11th Grade | <ul style="list-style-type: none">Veterinary Science |
| 12th Grade | <ul style="list-style-type: none">Advanced Animal Science (Science Credit)Practicum in Agriculture, Food, and Natural Resources |

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Shadow an animal scientist in a biology lab to learn about applying science to understand animals and wildlife
- Intern in a veterinary clinic, caring for animals and wildlife being treated in the clinic

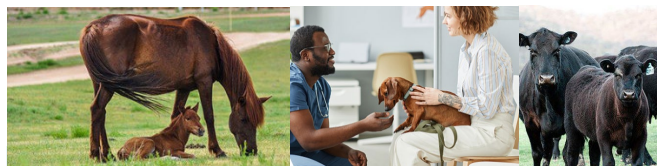
Expanded Learning Opportunities

- Participate in an FFA career, leadership, and speaking contest like an agriscience fair
- Attend an agricultural industry seminar



Aligned Industry-Based Certifications

- Certified Veterinary Assistant, Level 1
- Elanco Veterinary Medical Applications Certification
- Equine Management & Evaluation Certification



Example Postsecondary Opportunities

Apprenticeships

- Reproduction Technician

Associate Degrees

- Biological and Physical Sciences
- Entomology

Bachelor's Degrees

- Animal Science
- Zoology/Animal Biology

Master's, Doctoral, and Professional Degrees

- Marine Sciences
- Biotechnology

Additional Stackable IBCs/License

- Veterinarian
- Certified Veterinary Technician



Example Aligned Occupations

Veterinary Assistants and Laboratory Animal Caretakers

Median Wage: \$33,581
Annual Openings: 1,953
10-Year Growth: 24%

Veterinary Technologists and Technicians

Median Wage: \$35,698
Annual Openings: 1,820
10-Year Growth: 24%

Veterinarians

Median Wage: \$125,030
Annual Openings: 435
10-Year Growth: 26%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024

For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/afnr-animal-science-extended.pdf>






Agriculture, Food, and Natural Resources Career Cluster



Statewide Program of Study: *Animal Science*

Course Information


9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Agriculture, Food, and Natural Resources* 13000200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Small Animal Management 13000400 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Agriculture, Food, and Natural Resources Recommended Corequisites: None	
Equine Science 13000500 (0.5 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Agriculture, Food, and Natural Resources Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Veterinary Science 13000600 (1 credit)	Prerequisites: Equine Science, Small Animal Management, or Livestock and Poultry Production Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Advanced Animal Science 13000700 (1 credit)	Prerequisites: Biology and chemistry or Integrated Physics and Chemistry (IPC); Algebra I and Geometry; and either Small Animal Management, Equine Science, or Livestock and Poultry Production Corequisites: None Recommended Prerequisites: Veterinary Science Recommended Corequisites: None	
Practicum in Agriculture, Food, and Natural Resources* First Time Taken: 13002500 (2 credits)	Prerequisites: A minimum of two credits with at least one course in a Level 2 or higher course from the Agriculture, Food, and Natural Resources career cluster Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	



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 occupations ranging from farmer, rancher, and veterinarian to geologist, land conservationist, and florist.

Statewide Program of Study: **Agricultural Technology and Mechanical Systems**

The Agricultural Technology and Mechanical Systems program of study focuses on occupational and educational opportunities associated with applying engineering technology and biological science to agricultural problems related to power and machinery, electrification, structures, soil and water use, and processing agricultural products. This program of study includes diagnosing, repairing, or overhauling farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems.

Secondary Courses for High School Credit

- | | |
|-------------------|--|
| 9th Grade | <ul style="list-style-type: none"> Principles of Agriculture, Food, and Natural Resources
(Offered in 8th grade as a high school credit) |
| 10th Grade | <ul style="list-style-type: none"> Agricultural Mechanics and Metal Technologies |
| 11th Grade | <ul style="list-style-type: none"> Agricultural Structures Design and Fabrication |
| 12th Grade | <ul style="list-style-type: none"> Practicum in Agriculture, Food, and Natural Resources Agricultural Equipment Design and Fabrication |

Aligned Advanced Academic Courses

Dual Credit	Dual credit offerings will vary by Local Education Agency
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Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses, not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Participate in a farm mechanic apprenticeship at an equipment production company
- Intern at an equipment manufacturing facility working with agricultural engineers

Expanded Learning Opportunities

- Participate in an FFA career, leadership, and speaking contest like an agriscience fair
- Participate in an agriculture robotics event



Aligned Industry-Based Certifications

- AWS D1.1
- AWS D9.1
- NCCER Core



Example Postsecondary Opportunities

Apprenticeships

- Farm Equipment Mechanic I

Associate Degrees

- Diesel Mechanics Technology
- Industrial Mechanics and Maintenance Technology

Bachelor's Degrees

- Agricultural Engineering
- Agricultural Systems Management

Master's, Doctoral, and Professional Degrees

- Agricultural Engineering
- Industrial Technology

Additional Stackable IBCs/License

- Diesel Equipment Technology-Off Highway Specialization CER1
- Accredited Farm Manager



Example Aligned Occupations

Farm Equipment Mechanics and Service Technicians

Median Wage: \$46,582
Annual Openings: 326
10-Year Growth: 23%

Mobile Heavy Equipment Mechanics

Median Wage: \$57,943
Annual Openings: 2,637
10-Year Growth: 31%

Farmers, Ranchers, and Other Agricultural Managers

Median Wage: \$65,490
Annual Openings: 28,020
10-Year Growth: 4%

Data Source: Texas Wages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/ag-technology-and-mechanical-systems-extended.pdf>




Agriculture, Food, and Natural Resources Career Cluster



Statewide Program of Study: Agricultural Technology and Mechanical Systems

Course Information


9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Agriculture, Food, and Natural Resources 13000200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	



10th Grade

Course	Prerequisites Corequisites	Career Clusters
Agricultural Mechanics and Metal Technologies 13002200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Agriculture, Food, and Natural Resources Recommended Corequisites: None Course Fee: \$100.00	 

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Agricultural Structures Design and Fabrication 13002300 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Agricultural Mechanics and Metal Technologies Recommended Corequisites: None Course Fee: \$100.00	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Agriculture, Food, and Natural Resources First Time Taken: 13002500 (2 credits)	Prerequisites: A minimum of two credits with at least one course in a Level 2 or higher course from the Agriculture, Food, and Natural Resources career cluster Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None Course Fee: \$100.00	
Agricultural Equipment Design and Fabrication 13002350 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Agricultural Mechanics and Metal Technologies Recommended Corequisites: None Course Fee: \$100.00	

- **Required Safety Equipment for Level 2, 3, & 4 (provided by student)**
 - Safety Glasses (z87 coded)
 - Leather Gauntlet style gloves no cloth, rubber, or garden gloves of any kind
 - Leather boots
 - Blue jeans (no holes)
 - Long sleeve shirt with no pocket or pockets with flap cover (cotton or fire retardant only)
 - Welding hood preferable auto darkening (available at Harbor Freight)
 - Welding cap



Agriculture, Food, and Natural Resources Career Cluster

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Statewide Program of Study: *Plant Science*

The Plant Science program of study focuses on occupational and educational opportunities associated with the science, research, and business of plants and other living organisms. This program of study includes the application of 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

- | | |
|-------------------|---|
| 9th Grade | <ul style="list-style-type: none">Principles of Agriculture, Food, and Natural Resources
(Offered in 8th grade as a high school credit) |
| 10th Grade | <ul style="list-style-type: none">Floral Design 1 (Fine Arts Credit) |
| 11th Grade | <ul style="list-style-type: none">Advanced Floral Design |
| 12th Grade | <ul style="list-style-type: none">Advanced Plant and Soil Science (Science Credit) |

Aligned Advanced Academic Courses

AP or IB	AP Biology AP Environmental Science IB Biology SL IB Biology HL	AP Chemistry IB Chemistry SL IB Chemistry HL
Dual Credit	Dual credit offerings will vary by Local Education Agency	

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none">Work in a part-time job at a landscaping company to learn about production and management of plants.Intern at an agricultural research company, working alongside a biological technician to learn about application of biology to plant production
Expanded Learning Opportunities	<ul style="list-style-type: none">Participate in an FFA career, leadership, and speaking contest like an agriscience fairParticipate in an industry-related competition like an agriscience fair



Aligned Industry-Based Certifications

- BASF Plant Science Certification
- Principles of Floral Design Certification
- Texas State Florist's Association Level I Floral Certification



Example Postsecondary Opportunities

Apprenticeships

- Horticulturist

Associate Degrees

- Biology/Biological Sciences
- Biological and Physical Sciences

Bachelor's Degrees

- Horticulture
- Plant Pathology/Phytopathology

Master's, Doctoral, and Professional Degrees

- Plant Breeding
- Botany/Plant Biology

Additional Stackable IBCs/License

- Nursery Floral License
- Horticulturist Certification



Example Aligned Occupations

Pesticide Handlers, Sprayers, and Applicators, Vegetation

Median Wage: \$46,153
Annual Openings: 205
10-Year Growth: 17%

Biological Technicians

Median Wage: \$45,787
Annual Openings: 879
10-Year Growth: 14%

Farmers, Ranchers, and Other Agricultural Managers

Median Wage: \$65,490
Annual Openings: 28,020
10-Year Growth: 4%

Data Source: Texas Wages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/afnr-plant-science-extended.pdf>




Agriculture, Food, and Natural Resources Career Cluster


Statewide Program of Study: *Plant Science*

Course Information


9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Agriculture, Food, and Natural Resources 13000200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	


10th Grade

Course	Prerequisites Corequisites	Career Clusters
Floral Design 1 13001800 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None Course Fee: \$100.00	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Advanced Floral Design N1300270 (1 credit)	Prerequisites: Floral Design Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None Course Fee: \$100.00	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Advanced Plant and Soil Science 13002100 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Biology, Integrated Physics and Chemistry, Chemistry, or Physics and a minimum of one credit from the courses in the AFNR career cluster Recommended Corequisites: None	



Architecture and Construction Career Cluster

The Architecture and Construction career cluster focuses on designing, planning, managing, building, and maintaining the built environment. This career cluster includes occupations ranging from architects, carpenters, and construction managers to electricians, plumbers, and heating, air conditioning, and refrigeration technicians.

Statewide Program of Study: HVAC and Sheet Metal

The HVAC and Sheet Metal program of study focuses on occupational and educational opportunities associated with installing, servicing, or repairing heating and air conditioning systems. The program of study addresses fabrication, assembly, installation, and repair of sheet metal products and equipment, such as ducts, control boxes, drainpipes, and furnace casings.



Secondary Courses for High School Credit

- | | |
|-------------------|--|
| 9th Grade | • Principles of Construction |
| 10th Grade | • Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology I |
| 11th Grade | • Practicum in Construction Technology |
| 12th Grade | • Career Preparation for Programs of Study |

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Participate in a pre-apprenticeship in HVAC and refrigeration
- Intern with an HVAC company to practice installing and repairing heating and cooling systems

Expanded Learning Opportunities

- Job shadow an HVAC technician or cost estimator
- Participate in SkillsUSA

Aligned Industry-Based Certifications (IBC TBD)

- | | |
|---|---|
| • Construction Technology Certification Level I | • Employment Ready Certification - Light Commercial Air Conditioning |
| • Core | • HBI Pre-Apprenticeship Certificate Training (PACT), Core |
| • Employment Ready Certification - Air Conditioning | • HBI Pre-Apprenticeship Certificate Training (PACT), Heating, Ventilation and Air Conditioning |
| • Employment Ready Certification - Electrical | • HVAC Support Technician Certificate |
| • Employment Ready Certification - Gas Heat | • HVACR Level I |
| • Employment Ready Certification - Heat Pumps | • Sheet Metal Level I |



Example Postsecondary Opportunities

Apprenticeships

- Heating and Air Conditioning Installer

Associate Degrees

- Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology
- Construction Site Management
- Property Maintenance
- Sheet Metal Technology/Sheetworking

Bachelor's Degrees

- Construction Engineering
- Construction Management
- Building/Construction Site Management
- Heating, Air Conditioning, Ventilation and Refrigeration Maintenance Technology

Master's, Doctoral, and Professional Degrees

- Construction Engineering
- Construction Management



Example Aligned Occupations

Helpers—Installation, Maintenance, and Repair Workers

Median Wage: \$34,574
Annual Openings: 2,061
10-Year Growth: 22%

Heating, Air Conditioning, and Refrigeration Mechanics and Installers

Median Wage: \$50,195
Annual Openings: 3,519
10-Year Growth: 21%

Construction Managers

Median Wage: \$98,294
Annual Openings: 5,403
10-Year Growth: 24%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/20240



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/ac-hvac-extended.pdf>

Arts, Audio Visual Technology, and Communications Career Cluster

The Arts, Audio Visual Technology, and Communication (AAVTC) career cluster focuses on designing, producing, exhibiting, performing, writing, and publishing multimedia content requiring creative aptitude, fluency in computer and technology applications, and proficiency in oral and written communication. This career cluster includes occupations ranging from camera operator, audio and video technician, director, and producer to graphic designer and web and digital interface designer.

Statewide Program of Study: **Digital Communications (AV Production)**

The Digital Communications program of study focuses on occupational 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. The program of study includes operating machines and equipment such as microphones, sound speakers, video screens, projectors, video monitors, sound and mixing boards, and related electronic equipment to record sound and images.



Secondary Courses for High School Credit

9th Grade	• Principles of Arts, Audio/Video Technology, and Communications
10th Grade	• Audio/Video Production I (Dual Credit with HCC)
11th Grade	• Audio/Video Production II + Audion/Video Production II Lab (Dual Credit with HCC)
12th Grade	• Practicum in Audio/Video Production (Dual Credit with HCC)

Aligned Advanced Academic Courses

AP or IB	IB Fi Im SL IB Fi Im HL
Dual Credit	Dual credit offerings will vary by Local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none">Shadow a sound designer to learn how sound and foley are created for movies or podcastsIntern with a technical director at a sports team, recording studio, or radio stationShadow a technician on a live news broadcast, concert, or other event
Expanded Learning Opportunities	<ul style="list-style-type: none">Participate in SkillsUSA or TSAParticipate in Student Television NetworkCapture and edit film and audio for a podcast with a local community organization

Aligned Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro



Example Postsecondary Opportunities

Apprenticeships

- Light Technician

Associate Degrees

- Commercial and Advertising Art
- Animation, Interactive Technology, Video Graphics, and Special Effects

Bachelor's Degrees

- Cinematography and Film/Video Production
- Recording Arts Technology

Master's, Doctoral, and Professional Degrees

- Animation, Interactive Technology, Video Graphics, and Special Effects
- Communications Technology

Additional Stackable IBCs/License

- CompTIA Digital Media and Entertainment Professional Certification (DMEP)



Example Aligned Occupations

Camera Operators, Television, Video, and Film

Median Wage: \$48,422
Annual Openings: 155
10-Year Growth: 20%

Audio and Video Technicians

Median Wage: \$46,319
Annual Openings: 626
10-Year Growth: 30%

Producers and Directors

Median Wage: \$65,029
Annual Openings: 522
10-Year Growth: 12%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/aavtc-digital-communications-extended.pdf>



Arts, Audio Visual Technology, and Communications Career Cluster

Statewide Program of Study: *Digital Communications*

Course Information

9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Arts, Audio/Video Technology, and Communications* 13008200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Audio/Video Production I 13008500 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of AAVTC Recommended Corequisites: Audio/Video Production I Lab	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Audio/Video Production II 13008600 (1 credit)	Prerequisites: Audio/Video Production I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: Audio/Video Production II Lab	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Audio/Video Production 13008700 (2 credits)	Prerequisites: Audio/Video Production II and Audio/Video Production II Lab Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

Arts, Audio Visual Technology, and Communications Career Cluster



The Arts, Audio Visual Technology, and Communication (AAVTC) career cluster focuses on designing, producing, exhibiting, performing, writing, and publishing multimedia content requiring creative aptitude, fluency in computer and technology applications, and proficiency in oral and written communication. This career cluster includes occupations ranging from camera operator, audio and video technician, director, and producer to graphic designer and web and digital interface designer.

Statewide Program of Study: *Graphic Design and Interactive Media (Photography)*

The Graphic Design and Interactive Media program of study focuses on occupational and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. The program of study includes 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

- | | |
|------------|--|
| 9th Grade | <ul style="list-style-type: none">Principles of Arts, Audio/Video Technology, and Communications |
| 10th Grade | <ul style="list-style-type: none">Commercial Photography I |
| 11th Grade | <ul style="list-style-type: none">Commercial Photography II |
| 12th Grade | <ul style="list-style-type: none">Practicum in Commercial Photography |

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Shadow an art director at a branding firm or design agency
- Intern in the marketing and communications department of a technology company

Expanded Learning Opportunities

- Participate in SkillsUSA or TSA
- Participate in Student Television Network
- Join a related co-curricular or extracurricular club such as web development or computer coding

Aligned Industry-Based Certifications

- Adobe Certified Professional in Visual Design Using Adobe Photoshop



Example Postsecondary Opportunities

Associate Degrees

- Graphic Design
- Digital Arts

Bachelor's Degrees

- Web Page, Digital/Multimedia and Information Resources Design
- Design and Visual Communications

Master's, Doctoral, and Professional Degrees

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

Additional Stackable IBCs/License

- Certified Textile Designer (CTD)



Example Aligned Occupations

Software Developers

Median Wage: \$127,000
Annual Openings: 12,350
10-Year Growth: 36%

Graphic Designers

Median Wage: \$53,100
Annual Openings: 1,758
10-Year Growth: 10%

Art Directors

Median Wage: \$80,944
Annual Openings: 1,025
10-Year Growth: 18%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



For more information visit:
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/aavtc-graphic-design-and-interactive-media-extended.pdf>

Arts, Audio Visual Technology, and Communications Career Cluster

Statewide Program of Study: *Graphic Design and Interactive Media*

Course Information

9th Grade

Course

Principles of Arts, Audio + Video Technology, and Communications*
13008200 (1 credit)

Prerequisites | Corequisites

Prerequisites: None
Corequisites: None
Recommended Prerequisites: None
Recommended Corequisites: None

Career Clusters



10th Grade

Course

Commercial Photography I
13009100 (1 credit)

Prerequisites | Corequisites

Prerequisites: None
Corequisites: None
Recommended Prerequisites: None
Recommended Corequisites: Commercial Photography I Lab

Career Clusters



11th Grade

Course

Commercial Photography II
13009200 (1 credit)

Prerequisites | Corequisites

Prerequisites: None
Corequisites: None
Recommended Prerequisites: Commercial Photography I + Commercial Photography I Lab
Recommended Corequisites: Commercial Photography II Lab

Career Clusters



12th Grade

Course

Practicum in Commercial Photography
First Time Taken:
13009250 (2 credits)

Prerequisites | Corequisites

Prerequisites: Commercial Photography I and Commercial Photography I Lab along with teacher recommendation
Corequisites: None
Recommended Prerequisites: None
Recommended Corequisites: None

Career Clusters



Arts, Audio Visual Technology, and Communications Career Cluster



The Arts, Audio Visual Technology, and Communication (AAVTC) career cluster focuses on designing, producing, exhibiting, performing, writing, and publishing multimedia content requiring creative aptitude, fluency in computer and technology applications, and proficiency in oral and written communication. This career cluster includes occupations ranging from camera operator, audio and video technician, director, and producer to graphic designer and web and digital interface designer.

Statewide Program of Study: *Graphic Design and Interactive Media* (Video Game Design)

The Graphic Design and Interactive Media program of study focuses on occupational and educational opportunities associated with designing or creating graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. The program of study includes 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

9th Grade	• Principles of Arts, Audio/Video Technology, and Communications
10th Grade	• Video Game Programming
11th Grade	• Advanced Video Game Programming
12th Grade	• Practicum in Animation

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Shadow an art director at a branding firm or design agency
- Intern in the marketing and communications department of a technology company

Expanded Learning Opportunities

- Participate in SkillsUSA or TSA
- Participate in Student Television Network
- Join a related co-curricular or extracurricular club such as web development or computer coding



Example Postsecondary Opportunities

Associate Degrees

- Graphic Design
- Digital Arts

Bachelor's Degrees

- Web Page, Digital/Multimedia and Information Resources Design
- Design and Visual Communications

Master's, Doctoral, and Professional Degrees

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

Additional Stackable IBCs/License

- Certified Textile Designer (CTD)



Example Aligned Occupations

Software Developers

Median Wage: \$127,000
Annual Openings: 12,350
10-Year Growth: 36%

Graphic Designers

Median Wage: \$53,100
Annual Openings: 1,758
10-Year Growth: 10%

Art Directors

Median Wage: \$80,944
Annual Openings: 1,025
10-Year Growth: 18%

Aligned Industry-Based Certifications

- Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator





Arts, Audio Visual Technology, and Communications Career Cluster

Statewide Program of Study: *Graphic Design and Interactive Media*

Course Information

9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Arts, Audio + Video Technology, and Communications* 13008200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Video Game Programming N1300994 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Video Game Design Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Advanced Video Game Programming N1300995 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Video Game Design and Video Game Programming Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Animation First Time Taken: 13008450 (2 credits)	Prerequisites: Animation II + Animation II Lab Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

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. This career cluster includes occupations ranging from business owner and entrepreneur to accountant, retail manager, and market analyst.

Statewide Program of Study: **Accounting and Financial Services**

The Accounting and Financial Services program of study focuses on occupational and educational opportunities associated with examining, analyzing, and interpreting financial records. It includes exploration of financial services, preparing financial statements, auditing financial statements prepared by others, and interpreting accounting records. This program of study also introduces students to mathematical modeling tools.



Secondary Courses for High School Credit

9th Grade	• Principles of Business, Marketing, and Finance
10th Grade	• Accounting I
11th Grade	• Accounting II
12th Grade	• Financial Analysis • Career Preparation for Programs of Study

Aligned Advanced Academic Courses

AP or IB	IB Mathematics Analysis and Approaches SL IB Mathematics Analysis and Approaches HL
Dual Credit	Dual Credit offerings will vary by Local Educational Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

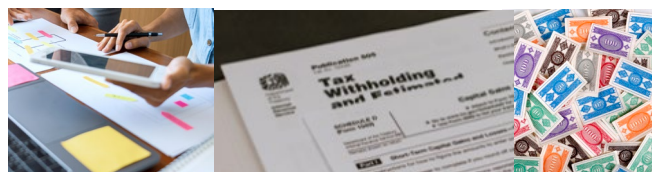
Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> • Intern with a certified public accountant (CPA) at a local business • Intern with a city or county auditor's office • Shadow a financial advisor as an intern at an investment company
Expanded Learning Opportunities	<ul style="list-style-type: none"> • Participate in BPA, DECA, FBLA, or Young Billionaires Club • Explore student membership in professional organizations such as AICPA, CIMA, or TXCPA



Aligned Industry-Based Certifications

- Accounting Foundations
- Intuit QuickBooks Certified User



Example Postsecondary Opportunities

Associate Degrees

- Accounting
- Bookkeeping

Bachelor's Degrees

- Accounting
- Banking and Financial Support Services

Master's, Doctoral, and Professional Degrees

- Business Administration and Management
- Finance

Additional Stackable IBCs/License

- Project Management Professional
- Property Tax Consultants Service Contract Providers



Example Aligned Occupations

Tax Preparers

Median Wage: \$56,956
Annual Openings: 898
10-Year Growth: 14%

Accountants and Auditors

Median Wage: \$78,022
Annual Openings: 12,989
10-Year Growth: 20%

Personal Financial Advisors

Median Wage: \$77,605
Annual Openings: 1,877
10-Year Growth: 21%

Data Source: Texas Wages, Texas Workforce Commission. Retrieved 3/8/2024..



For more information visit:







<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/bmf-accounting-and-financial-services-extended.pdf>



Business, Marketing, and Finance Career Cluster

Statewide Program of Study: *Accounting and Financial Services*

Course Information

9th Grade	Course	Prerequisites Corequisites	Career Clusters
	Principles of Business, Marketing, and Finance 13011200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	 
10th Grade	Course	Prerequisites Corequisites	Career Clusters
	Accounting I 13016600 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Business, Marketing, and Finance Recommended Corequisites: None	
11th Grade	Course	Prerequisites Corequisites	Career Clusters
	Accounting II 13016700 (1 credit)	Prerequisites: Accounting I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
12th Grade	Course	Prerequisites Corequisites	Career Clusters
	Financial Analysis* 13016800 (1 credit)	Prerequisites: Accounting I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
12th Grade	Course	Prerequisites Corequisites	Career Clusters
	Career Preparation for Programs of Study* 12701121 (2 credits)	Prerequisites: At least one Level 2 or higher CTE course Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

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. This career cluster includes occupations ranging from business owner and entrepreneur to accountant, retail manager, and market analyst.

Statewide Program of Study: **Marketing and Sales**

The Marketing and Sales program of study focuses on occupational and educational opportunities associated with collecting information to estimate potential sales of a product or service and create campaigns to market or distribute goods and services. It includes applying data related to customer demographics, preferences, needs, and buying habits.

Secondary Courses for High School Credit

- | | |
|-------------------|---|
| 9th Grade | • Principles of Business, Marketing, and Finance |
| 10th Grade | • Marketing |
| 11th Grade | • Retail Management |
| 12th Grade | • Practicum in Entrepreneurship (School Store)
• Career Preparation for Programs of Study |

Aligned Advanced Academic Courses

AP or IB	AP Statistics
Dual Credit	Dual credit offerings will vary by Local Education Agency

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

- | | |
|--|---|
| Work-Based Learning Activities | <ul style="list-style-type: none">• Intern at a marketing and advertising company• Job shadow a pharmaceutical sales representative• Intern at a local retail company |
| Expanded Learning Opportunities | <ul style="list-style-type: none">• Job shadow an account representative at a marketing firm• Participate in BPA, DECA, FBLA, Young Billionaires Club, or related UIL events |



Aligned Industry-Based Certifications

- Stukent Social Media Marketing Certification (**C/O 25 Seniors Only-Sunsetting**)
- Entrepreneurship and Small Business



Example Postsecondary Opportunities

Associate Degrees

- Marketing/Marketing Management
- Retail Management

Bachelor's Degrees

- Business Administration
- Marketing/Marketing Management
- Fashion Merchandising

Master's, Doctoral, and Professional Degrees

- Business Administration
- Applied Economics
- Business Analytics

Additional Stackable IBCs/License

- Salesforce
- Service Contract Providers



Example Aligned Occupations

Sales Representatives of Services

Median Wage: \$28,356
Annual Openings: 56,132
10-Year Growth: 15%

Market Research Analysts

Median Wage: \$60,926
Annual Openings: 5,688
10-Year Growth: 35%

Sales Managers

Median Wage: \$123,729
Annual Openings: 3,368
10-Year Growth: 21%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/bmf-marketing-and-sales-extended.pdf>





Business, Marketing, and Finance Career Cluster


Statewide Program of Study: *Marketing and Sales*

Course Information


9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Business, Marketing, and Finance 13011200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	 





















10th Grade

Course	Prerequisites Corequisites	Career Clusters
Marketing* 13011131 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Business, Marketing and Finance Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Retail Management* 13011133 (1 credit)	Prerequisites: At least one credit in a course from the Business, Marketing, and Finance career cluster Corequisites: None Recommended Prerequisites: Principles of Business, Marketing, and Finance Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Entrepreneurship 13011111 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Entrepreneurship I and Entrepreneurship II, or successful completion of at least two courses in a CTE program of study Recommended Corequisites: None	         
Career Preparation for Programs of Study* 12701121 (2 credits)	Prerequisites: At least one Level 2 or higher CTE course Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	         

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. This career cluster includes occupations ranging from business owner and entrepreneur to accountant, retail manager, and market analyst.

Statewide Program of Study: **Real Estate**

The Real Estate program of study focuses on occupational and educational opportunities associated with financing, selling, and contracting real estate. This program of study includes management, economics, marketing, and financial principles of real estate evaluation. It also addresses commercial real estate including lending, developing, brokering, and financing.

Secondary Courses for High School Credit

- 9th Grade** • Principles of Business, Marketing, and Finance
- 10th Grade** • Financial Mathematics
• Marketing
- 11th Grade** • Fundamentals of Real Estate
- 12th Grade** • Practicum in Entrepreneurship (**Real Estate**)
• Career Prep for Programs of Study

Aligned Advanced Academic Courses

Dual Credit Dual credit offerings will vary by Local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Intern with a local real estate company or commercial realtor
- Job shadow a property manager or local realtor
- Conduct informational interviews with employees at a real estate investment company

Expanded Learning Opportunities

- Participate in BPA, DECA, FBLA, Young Billionaires Club, or UIL-related events
- Explore student membership in related professional organizations



Aligned Industry-Based Certifications

- Personal Lines Property and Casualty Agent
- Real Estate Sales Agent License



Example Postsecondary Opportunities

Associate Degrees

- Business Administration and Management
- Real Estate

Bachelor's Degrees

- Business Administration and Management
- Real Estate

Master's, Doctoral, and Professional Degrees

- Business Administration and Management
- Parks, Recreation, and Leisure Facilities Management

Additional Stackable IBCs/License

- Real Estate Broker



Example Aligned Occupations

Real Estate Sales Agents

Median Wage: \$50,746
Annual Openings: 5,058
10-Year Growth: 15%

Property, Real Estate, and Community Association Managers

Median Wage: \$59,788
Annual Openings: 3,457
10-Year Growth: 15%

Title Examiners, Abstractors, and Searchers

Median Wage: \$58,593
Annual Openings: 819
10-Year Growth: 12%






























Business, Marketing, and Finance Career Cluster

Statewide Program of Study: *Real Estate*

Course Information

9th Grade	Course	Prerequisites Corequisites	Career Clusters
	Principles of Business, Marketing, and Finance 13011200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	 
10th Grade	Course	Prerequisites Corequisites	Career Clusters
	Financial Mathematics 13018000 (1 credit)	Prerequisites: Algebra I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
	Marketing* 13011131 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Business, Marketing and Finance Recommended Corequisites: None	
11th Grade	Course	Prerequisites Corequisites	Career Clusters
	Fundamentals of Real Estate* N1301120 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
12th Grade	Course	Prerequisites Corequisites	Career Clusters
	Practicum in Entrepreneurship 13011111 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Entrepreneurship I and Entrepreneurship II, or successful completion of at least two courses in a CTE program of study Recommended Corequisites: None	         
	Career Preparation for Programs of Study* 12701121 (2 credits)	Prerequisites: At least one Level 2 or higher CTE course Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	         



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. This career cluster includes a diverse spectrum of occupations, ranging from teaching assistant, classroom teacher, to school administrator.

Statewide Program of Study: Teaching and Training

The Teaching and Training program of study focuses on occupational and educational opportunities associated with careers related to teaching, instructing, and creating instructional and enrichment materials. The program of study includes recognizing a variety of student groups and their corresponding needs, identifying processes for developing curriculum and coordinating educational content, and coaching groups and individuals.



Secondary Courses for High School Credit

- | | |
|-------------------|--|
| 9th Grade | <ul style="list-style-type: none"> Principles of Education and Training Principles of Human Services (Offered in 8th grade as a high school credit) |
| 10th Grade | <ul style="list-style-type: none"> Child Development (Dual Credit) |
| 11th Grade | <ul style="list-style-type: none"> Instructional Practices (Dual Credit) |
| 12th Grade | <ul style="list-style-type: none"> Practicum in Education and Training |

Aligned Advanced Academic Courses

Dual Credit

Dual credit offerings will vary by local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Serve as a camp counselor to learn mentoring, facilitation, and lesson planning skills
- Volunteer in a tutoring center to learn lesson planning and skills assessment

Expanded Learning Opportunities

- Participate in FCCLA
- Participate in TAFE
- Participate in Future Coaches of Texas Association



Aligned Industry-Based Certifications

- Educational Aide I



Example Postsecondary Opportunities

Apprenticeships

- Teacher Apprentice

Associate Degrees

- Adult and Continuing Education and Teaching
- Educational/Instructional Technology

Bachelor's Degrees

- Elementary Education and Teaching
- Secondary Education and Teaching

Master's, Doctoral, and Professional Degrees

- Educational Leadership and Administration, General
- Curriculum and Instruction

Additional Stackable IBCs/License

- Generalist, Grades EC-4



Example Aligned Occupations

Teaching Assistants, Except Postsecondary

Median Wage: \$28,066
Annual Openings: 10,000
10-Year Growth: 15%

Secondary School Teachers, Except Special Education and CTE

Median Wage: \$61,035
Annual Openings: 8,288
10-Year Growth: 14%

Education Administrators, Kindergarten through Secondary

Median Wage: \$81,976
Annual Openings: 2,676
10-Year Growth: 14%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/et-teaching-and-training-extended.pdf>



Education and Training Career Cluster

Statewide Program of Study: Teaching and Training

Course Information

9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Education and Training 13014200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Principles of Human Services 13024200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Child Development 13024700 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Human Services or Principles of Education and Training Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Instructional Practices 13014400 (2 credits)	Prerequisites: One credit from the Education and Training career cluster Corequisites: None Recommended Prerequisites: Principles of Education and Training, Human Growth and Development, or Child Development Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Education and Training 13014500 (2 credits) 13014510 (2 credits)	Prerequisites: Instructional Practices Corequisites: None Recommended Prerequisites: Principles of Education and Training, Human Growth and Development, and Child Development Recommended Corequisites: None	



Energy Career Cluster

The Energy career cluster prepares individuals for careers in the designing, processing, planning, maintaining, generating, transmission, and distribution of traditional and alternative energy. This career cluster includes occupations ranging from petroleum engineers, rotary drill operators, chemical technicians and, power plant operators to solar photovoltaic installers and wind turbine service technicians.

Statewide Program of Study: Refining and Chemical Processes **11th / 12th Dual Credit** (Students Must Have Own Transportation to COM)

The Refining and Chemical Processes program of study focuses on occupational and educational opportunities associated with how to monitor, adjust, and operate equipment housed in petrochemical plants and refineries. This program of study includes exploration of computer technology and instrumentation used to operate a variety of systems and industrial processes.



Secondary Courses for High School Credit

11th Grade Dual Credit	<ul style="list-style-type: none">• Introduction to Process Technology (Fall)• Petrochemical Safety, Health, and Environment (Spring)
12th Grade Dual Credit	<ul style="list-style-type: none">• Practicum in Energy (Fall)• Advanced Instrument and Electrical (Spring)

Aligned Advanced Academic Courses

AP or IB	AP Chemistry IB Chemistry Standard Level
Dual Credit	Dual credit offerings will vary by local education agency.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none">• Shadow a chemical technician in a laboratory at a chemical manufacturing plant• Intern at a power plant to learn about industrial processes and plant operations
Expanded Learning Opportunities	<ul style="list-style-type: none">• Tour a refining and chemical plant• Participate in SkillsUSA

Aligned Industry-Based Certifications

- NCCER Core
- Dual Credit Earned



Example Postsecondary Opportunities

Associate Degrees

- Chemical Process Technology
- Instrumentation Technology/Technician
- Manufacturing Engineering Technology/Technician
- Industrial Technology/Technician



Bachelor's Degrees

- Chemical Engineering
- Engineering/Industrial Management
- Industrial Engineering
- Manufacturing Engineering

Master's, Doctoral, and Professional Degrees

- Mechanical Engineering
- Chemical Engineering
- Engineering/Industrial Management
- Industrial Engineering



Example Aligned Occupations

Chemical Technicians

Median Wage: \$58,129
Annual Openings: 892
10-Year Growth: 17%

Power Plant Operators

Median Wage: \$94,669
Annual Openings: 231
10-Year Growth: 3%

Petroleum Engineers

Median Wage: \$134,225
Annual Openings: 1,443
10-Year Growth: 27%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/e-refining-and-chemical-processes-extended.pdf>





Energy Career Cluster



Statewide Program of Study: Refining and Chemical Processes

Course Information

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Introduction to Process Technology 13040502 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommend Corequisites: None	
Petrochemical Safety, Health, and Environment 13040504 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommend Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Energy* N1303910 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: At least one of the following courses: Oil and Gas Production II/Lab, Occupational Safety and Environmental Technology I, Oil and Gas Production III, Occupational Safety and Environmental Technology II, Career Preparation, Oil and Gas Production IV, Introduction to Process Technology, Introduction to Instrumentation and Electrical, Petrochemical Safety, Health, and Environment, Advanced Instrument and Electrical, AC/DC Electronics, Introduction to Renewable Energy, Energy and Natural Resources Technology/Lab, Environmental Sustainability (PLTW), Solid State Electronics, Scientific Research and Design, or Digital Electronics Recommend Corequisites: None	
Advanced Instrument and Electrical N1303901 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Algebra I and Introduction to Instrumentation and Electrical Recommend Corequisites: None	

Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Statewide Program of Study: Engineering Foundations

The Engineering Foundations program of study focuses on occupational and educational opportunities associated with a wide range of skills applied in the Engineering industry. Students will design, test, and evaluate projects related to engines, machines, and structures. This program of study includes applying scientific, mathematical, and empirical evidence to solve problems through innovation, design, construction, operation, and maintenance of different engineering systems.



Secondary Courses for High School Credit

9th Grade	<ul style="list-style-type: none">Principles of Applied Engineering (Offered in 8th grade as a high school credit)Engineering Design Process
10th Grade	<ul style="list-style-type: none">Engineering Science (Science credit)
11th Grade	<ul style="list-style-type: none">Engineering Design and Presentation
12th Grade	<ul style="list-style-type: none">Advanced Engineering Design and Presentation

Aligned Advanced Academic Courses

AP or IB	AP Calculus AB AP Computer Science A AP Physics I	AP Physics 2 AP Statistics IB Physics SL	IB Physics HL IB Computer Science SL IB Computer Science HL
Dual Credit	Dual credit offerings will vary by Local Education Agency.		

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

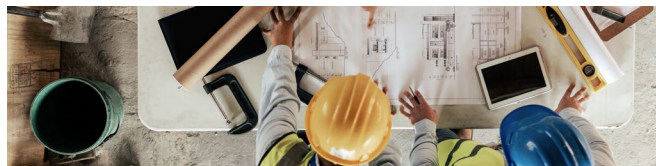
Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none">Intern at an engineering, robotics, or aerospace company.Visit an engineering firm and shadow multiple types of engineers.
Expanded Learning Opportunities	<ul style="list-style-type: none">Participate in SkillsUSA or TSAJoin a local engineering association and attend meetings.



Aligned Industry-Based Certifications

- Certified SOLIDWORKS Associate (CSWA) - Academic



Example Postsecondary Opportunities

Apprenticeships

- Industrial Engineering Technician Apprenticeship

Associate Degrees

- Manufacturing Engineering Technology/Technician
- Robotics Technology/Technician

Bachelor's Degrees

- Electrical and Electronics Engineering
- Engineering, General

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Engineering, General

Additional Stackable IBCs/Licensures

- Professional Engineer (PE License)
- Engineer in Training Certification (EIT)



Example Aligned Occupations

Civil Engineering Technologists and Technicians

Median Wage: \$61,138

Annual Openings: 765

10-Year Growth: 11%

Aerospace Engineers

Median Wage: \$115,694

Annual Openings: 483

10-Year Growth: 18%

Mechanical Engineers

Median Wage: \$99,937

Annual Openings: 1,755

10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:





<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/eng-engineering-foundations-extended.pdf>

Engineering Career Cluster



Statewide Program of Study: Engineering Foundations

Course Information



9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Applied Engineering 13036200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	  
Engineering Design Process 12756001 (1 credit)	Prerequisites: Algebra I Corequisites: None Recommended Prerequisites: Principles of Applied Engineering Recommended Corequisites: None	


10th Grade

Course	Prerequisites Corequisites	Career Clusters
Engineering Science 13037500 (1 credit)	Prerequisites: Algebra I, one credit in biology, and at least one credit in a course from the Engineering career cluster Corequisites: None Recommended Prerequisites: Geometry, Integrated Physics and Chemistry (IPC), one credit in chemistry, or one credit in physics Recommended Corequisites: None	 

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Engineering Design and Presentation 13036500 (1 credit)	Prerequisites: Algebra I and at least one credit in a course from the STEM career cluster Corequisites: None Recommended Prerequisites: Principles of Applied Engineering Recommended Corequisites: None	 

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Advanced Engineering Design and Presentation* 13036600 (2 credits)	Prerequisites: Algebra I, Geometry, and Engineering Design and Presentation Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Statewide Program of Study: Mechanical and Aerospace Engineering

The Mechanical and Aerospace Engineering program of study focuses on occupational and educational opportunities associated with the design, development, maintenance, and testing of engines, machines, and structures related to aircraft and spacecraft. Students will design, test, and evaluate projects related to aerodynamics, structural, and mechanical design. This program of study includes applying scientific, mathematical, and empirical evidence to solve problems related to navigation, mechanics, robotics, propulsion, and combustion.

Secondary Courses for High School Credit

- | | |
|------------|--|
| 9th Grade | <ul style="list-style-type: none"> Principles of Applied Engineering (Offered in 8th grade as a high school credit) Engineering Design Process |
| 10th Grade | <ul style="list-style-type: none"> Engineering Science (Science Credit) |
| 11th Grade | <ul style="list-style-type: none"> Aerospace Design I |
| 12th Grade | <ul style="list-style-type: none"> Practicum in Engineering |

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Intern at an aviation or aerospace company
- Shadow a mechanical engineer to understand design and testing processes
- Complete a project to test and evaluate a new product design for a local company

Expanded Learning Opportunities

- Tour an aerospace facility
- Participate in SkillsUSA or TSA

Aligned Industry-Based Certifications

- Autodesk Certified User Fusion 360



Example Postsecondary Opportunities

Apprenticeships

- Mechanical Engineering Technician Apprenticeship

Associate Degrees

- Mechanical Engineering
- Aeronautics/Aviation/Aerospace Science and Technology, General

Bachelor's Degrees

- Aeronautical/Aerospace Engineering Technology/Technician
- Aeronautics/Aviation/Aerospace Science and Technology, General

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Aerospace, Aeronautical, and Astronautical/Space Engineering, General

Additional Stackable IBCs/License

- Professional Engineer (PE License)
- Aerospace Engineering Certification

Example Aligned Occupations

Aerospace Engineering and Operations Technologists and Technicians

Median Wage: \$75,660
Annual Openings: 85
10-Year Growth: 21%

Mechanical Engineers

Median Wage: \$103,189
Annual Openings: 1,455
10-Year Growth: 18%

Aerospace Engineers

Median Wage: \$127,870
Annual Openings: 429
10-Year Growth: 18%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.







For more information visit:
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/eng-mechanical-and-aerospace-engineering-extended.pdf>

Engineering Career Cluster


Statewide Program of Study: Mechanical and Aerospace Engineering

Course Information



9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Applied Engineering 13036200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	  
Engineering Design Process 12756001 (1 credit)	Prerequisites: Algebra I Corequisites: None Recommended Prerequisites: Principles of Applied Engineering Recommended Corequisites: None	





10th Grade

Course	Prerequisites Corequisites	Career Clusters
Engineering Science 13037500 (1 credit)	Prerequisites: Algebra I, one credit in biology, and at least one credit in a course from the Engineering career cluster Corequisites: None Recommended Prerequisites: Geometry, Integrated Physics and Chemistry (IPC), one credit in chemistry, or one credit in physics Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Aerospace Design I 12756040 (1 credit)	Prerequisites: Algebra I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: Geometry	 

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Engineering* First Time Taken: 12756080 (2 credits)	Prerequisites: Algebra I and Geometry and a minimum of two credits with at least one course in a Level 2 or higher course from the Engineering career cluster Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	   

Engineering Career Cluster

The Engineering career cluster focuses on planning, designing, testing, building, and maintaining of machines, structures, materials, systems, and processes using empirical evidence and science, technology, and math principles. This career cluster includes occupations ranging from mechanical engineer and drafter to electrical engineer and to mapping technician.

Statewide Program of Study: Engineering Foundations (Robotics)

The Engineering Foundations program of study focuses on occupational and educational opportunities associated with a wide range of skills applied in the Engineering industry. Students will design, test, and evaluate projects related to engines, machines, and structures. This program of study includes applying scientific, mathematical, and empirical evidence to solve problems through innovation, design, construction, operation, and maintenance of different engineering systems.



Secondary Courses for High School Credit

9th Grade

- Principles of Applied Engineering (Offered in 8th grade as a high school credit)
- Engineering Design Process

10th Grade

- Robotics I

11th Grade

- Robotics II (Math credit)

12th Grade

- Practicum in Engineering

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

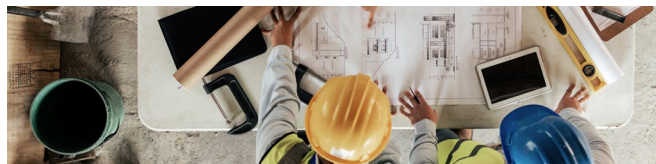
- Intern at an engineering, robotics, or aerospace company.
- Visit an engineering firm and shadow multiple types of engineers.

Expanded Learning Opportunities

- Participate in SkillsUSA or TSA
- Join a local engineering association and attend meetings.

Aligned Industry-Based Certifications

- Autodesk Certified User Fusion 360



Example Postsecondary Opportunities

Apprenticeships

- Industrial Engineering Technician Apprenticeship

Associate Degrees

- Manufacturing Engineering Technology/Technician
- Robotics Technology/Technician

Bachelor's Degrees

- Electrical and Electronics Engineering
- Engineering, General

Master's, Doctoral, and Professional Degrees

- Electrical and Electronics Engineering
- Engineering, General

Additional Stackable IBCs/Licensures

- Professional Engineer (PE License)
- Engineer in Training Certification (EIT)



Example Aligned Occupations

Civil Engineering Technologists and Technicians

Median Wage: \$60,297

Annual Openings: 899

10-Year Growth: 11%

Civil Engineers

Median Wage: \$82,483

Annual Openings: 2,223

10-Year Growth: 18%

Mechanical Engineers

Median Wage: \$103,189

Annual Openings: 1,455

10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:





<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/eng-engineering-foundations-extended.pdf>

Engineering Career Cluster



Statewide Program of Study: Engineering Foundations

Course Information


9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Applied Engineering 13036200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	  
Engineering Design Process 12756001 (1 credit)	Prerequisites: Algebra I Corequisites: None Recommended Prerequisites: Principles of Applied Engineering Recommended Corequisites: None	





10th Grade

Course	Prerequisites Corequisites	Career Clusters
Robotics I 13037000 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Applied Engineering Recommended Corequisites: None	 

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Robotics II 13037050 (1 credit)	Prerequisites: Robotics I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Engineering First Time Taken: 12756080 (2 credits) Second Time Taken: 12756090 (2 credits)	Prerequisites: Algebra I and Geometry and a minimum of two credits with at least one course in a Level 2 or higher course from the Engineering career cluster Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	   



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. This career cluster includes occupations ranging from medical assistant, registered nurse, and physical therapist to forensic science technician and athletic trainer.

Statewide Program of Study: **Diagnostic and Therapeutic Services (PCT/EKG, EMT, Imaging, Pharmacy, & Dental)**

The Diagnostic and Therapeutic Services program of study focuses on occupational and educational opportunities associated with diagnosing and treating acute, episodic, or chronic illness independently or as part of a healthcare team. This program of study includes exploration of patient treatment and rehabilitative programs that help build or restore daily living skills to persons with disabilities or developmental delays.



Secondary Courses for High School Credit

- | | |
|-------------------|---|
| 9th Grade | <ul style="list-style-type: none"> Principles of Health Science Introduction to Imaging Technology (Dual Credit with Galveston College) |
| 10th Grade | <ul style="list-style-type: none"> Medical Terminology Imaging Technology I (Dual Credit with Galveston College) |
| 11th Grade | <ul style="list-style-type: none"> Health Science Theory Imaging Technology II (Dual Credit with Galveston College) Medical Microbiology (Science Credit) Pharmacology |
| 12th Grade | <ul style="list-style-type: none"> Practicum in Health Science <ul style="list-style-type: none"> - Dental Assistant - EMT (Dual Credit with COM) - LMRT (Dual Credit with Galveston College) - PCT/EKG - Pharmacy Technician Anatomy and Physiology (Science Credit) |

Aligned Advanced Academic Courses

AP or IB	AP Biology IB Biology SL IB Biology HL	AP Chemistry IB Chemistry SL IB Chemistry HL
Dual Credit	Dual credit offerings will vary based on Local Education Agency.	

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Intern with a medical assistant at a community clinic, hospital, assisted living, or long-term care facility Participate in job shadowing experiences such as Emergency Medical Services (EMS) ride along or hospital/clinical job
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in Health Occupation Students of America (HOSA) or SkillsUSA Participate in Advanced Medical Ambulance Bus (AMBUS) event or Community Emergency Response Team (CERT) event



Aligned Industry-Based Certifications

- | | |
|--|--|
| <ul style="list-style-type: none"> Certified EKG Technician Emergency Medical Technician – Basic Limited Medical Radiologic | <ul style="list-style-type: none"> Technologist (LMRT) Patient Care Technician Pharmacy Technician Registered Dental Assistant (RDA) |
|--|--|

Successful completion of the Diagnostic and Therapeutic Services program of study will fulfill requirements of the Public Services endorsement.



Example Postsecondary Opportunities

Apprenticeships

- Medical Assistant

Associate Degrees

- Emergency Medical Technology
- Radiologic Technology/Science

Bachelor's Degrees

- Emergency Medical Technology
- Medical Insurance Coding

Master's, Doctoral, and Professional Degrees

- Medicine
- Occupational Therapy

Additional Stackable IBCs/License

- Registered Diagnostic Medical Sonographer



Example Aligned Occupations

Medical Assistants

Median Wage: \$36,834
Annual Openings: 11,638
10-Year Growth: 29%

Dental Hygienists

Median Wage: \$79,663
Annual Openings: 1,352
10-Year Growth: 32%

Physician Assistants

Median Wage: \$127,332
Annual Openings: 974
10-Year Growth: 41%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/hs-diagnostic-and-therapeutic-services-extended.pdf>



Health Science Career Cluster

Statewide Program of Study: *Diagnostic and Therapeutic Services*

Course Information

9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Health Science* 13020200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Introduction to Imaging Technology N1302102 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Medical Terminology* 13020300 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Imaging Technology I N1302123 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Introduction to Imaging Technology Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Medical Microbiology 13020700 (1 credit)	Prerequisites: One credit in biology, one credit in chemistry, and at least one credit in a course from the Health Science career cluster Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Pharmacology* 13020950 (1 credit)	Prerequisites: One credit in biology, one credit in chemistry, and at least one credit in a Level 2 or higher course from the Health Science career cluster Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Health Science Theory 13020400 (1 credit)	Prerequisites: One credit in biology and at least one credit in a course from the Health Science career cluster Corequisites: None Recommended Prerequisites: Medical Terminology Recommended Corequisites: Health Science Clinical	
Imaging Technology II N1302131 (2 credits)	Prerequisites: Imaging Technology I Corequisites: None Recommended Prerequisites: Introduction to Imaging Technology Recommended Corequisites: None	



Health Science Career Cluster

Statewide Program of Study: *Diagnostic and Therapeutic Services*

Course Information

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Health Science 13020500 (2 credits) Dental EMT LMRT PCT/EKG Pharmacy Technician	Prerequisites: Health Science Theory and biology Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Anatomy and Physiology	Prerequisites: One credit in biology and one credit in chemistry, Integrated Physics and Chemistry (IPC), or physics Corequisites: None Recommended Prerequisites: A course from the Health Science career cluster Recommended Corequisites: None	

For more information about Career and Technical Education in Dickinson ISD, contact your counselor or visit our webpage at <https://www.dickinsonisd.org/page/ct.home>. You may also email at CTE@dickinsonisd.org.



Hospitality and Tourism Career Cluster

The Hospitality and Tourism career cluster focuses on the management, marketing, and operations of restaurants, lodging, attractions, recreation events, and travel-related services. This career cluster includes occupations ranging from reservation and transportation ticket agent to event planner and general manager.

Statewide Program of Study: Culinary Arts

The Culinary Arts program of study focuses on occupational and educational opportunities associated with the planning, directing, or coordinating activities of a food and beverage organization or department. This program of study includes opportunities involved in directing and participating in the preparation of food.



Secondary Courses for High School Credit

9th Grade	<ul style="list-style-type: none"> Introduction to Culinary Arts
10th Grade	<ul style="list-style-type: none"> Culinary Arts
11th Grade	<ul style="list-style-type: none"> Advanced Culinary Arts
12th Grade	<ul style="list-style-type: none"> Food Science (Science credit) Practicum in Culinary Arts

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Shadow a director of a non-profit that produces and delivers food for communities in need Intern at a catering company and learn about food production for large-scale events Work part-time in a restaurant as a line cook or chef
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in FCCLA Participate in SkillsUSA Participate in Texas Restaurant and Foodservice Management Organization

Aligned Industry-Based Certifications

- Food Protection Manager Certification
- ServSafe Manager



Example Postsecondary Opportunities

Associate Degrees

- Culinary Arts
- Baking and Pastry Arts

Bachelor's Degrees

- Hotel/Motel Administration/Management
- Culinary Science

Master's, Doctoral, and Professional Degrees

- Organizational Leadership
- Foodservice Systems Administration/Management

Additional Stackable IBCs/License

- Food Manager License



Example Aligned Occupations

Food Service Managers

Median Wage: \$61,748
Annual Openings: 2,941
10-Year Growth: 15%

Chefs and Head Cooks

Median Wage: \$48,557
Annual Openings: 2,699
10-Year Growth: 37%

General and Operations Managers

Median Wage: \$96,046
Annual Openings: 44,419
10-Year Growth: 23%





Hospitality and Tourism Career Cluster

Statewide Program of Study: Culinary Arts

Course Information

9th Grade

Course	Prerequisites Corequisites	Career Clusters
Introduction to Culinary Arts 13022550 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Hospitality and Tourism Recommended Corequisites: None	

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Culinary Arts 13022600 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Hospitality and Tourism and Introduction to Culinary Arts Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Advanced Culinary Arts 13022650 (2 credits)	Prerequisites: Culinary Arts Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Food Science 13023000 (1 credit)	Prerequisites: One credit in biology, one credit in chemistry, and at least one credit in a Level 2 or higher course from the Hospitality and Tourism or Agriculture, Food, and Natural Resources career clusters Corequisites: None Recommended Prerequisites: Principles of Hospitality and Tourism Recommended Corequisites: None	
Practicum in Culinary Arts 13022700 (2 credits)	Prerequisites: Culinary Arts Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	



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. This career cluster includes occupations ranging from community health workers to cosmetologists and nutritionists.

Regional Program of Study: Cosmetology and Personal Care Services

Approved in ESC Regions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, & 20

**The list of approved ESC regions is updated every school year. Be sure to check the CTE regional program of study website for updates.*

The Cosmetology and Personal Care Services regional program of study focuses on occupational and educational opportunities associated with providing beauty and personal care services. This program of study includes managing personal care facilities and coordinating or supervising personal service workers.

Secondary Courses for High School Credit



10th Grade	<ul style="list-style-type: none"> Introduction to Cosmetology Principles of Cosmetology Design and Color Theory (Barbering)
11th Grade	<ul style="list-style-type: none"> Cosmetology I + Cosmetology I Lab Barbering I
12th Grade	<ul style="list-style-type: none"> Cosmetology II + Cosmetology II Lab Barbering II

Aligned Industry-Based Certifications

Dual Credit	Dual credit offerings will vary by Local Education Agency.
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Students should be advised to consider these courses opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Work part-time in a salon, spa, or barbershop Participate in an apprenticeship at a salon to become an apprentice stylist
Expanded Learning Opportunities	<ul style="list-style-type: none"> Tour a salon, spa, or barbershop Participate in SkillsUSA



Aligned Industry-Based Certifications

- Barber Operator License
- Cosmetology Operator



Example Postsecondary Opportunities

Apprenticeships

- Apprentice Stylist

Associate Degrees

- Cosmetology Operator
- Esthetics and Skin Care

Additional Stackable IBCs/License

- Class A Barber
- Eyelash Extension Specialist
- Hair Weaving Specialist



Example Aligned Occupations

Hairdressers, Hairstylists, and Cosmetologists

Median Wage: \$27,286
Annual Openings: 8,014
10-Year Growth: 25%

Skincare Specialists

Median Wage: \$35,112
Annual Openings: 778
10-Year Growth: 38%

First-Line Supervisors of Personal Service Workers

Median Wage: \$36,795
Annual Openings: 2,253
10-Year Growth: 29%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:
<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/hs-cosmetology-and-personal-care-services-extendedpptx.pdf>



Human Services Career Cluster

Regional Program of Study: Cosmetology and Personal Care Services

Course Information

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Introduction to Cosmetology 13025100 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Principles of Cosmetology Design and Color Theory 13025050 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Human Services Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Cosmetology I + Cosmetology I Lab 13025210 (3 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Introduction to Cosmetology Recommended Corequisites: None	
Barbering I N1302534 (3 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Cosmetology II + Cosmetology II Lab 13025310 (3 credits)	Prerequisites: Cosmetology I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Barbering II N1302535 (3 credits)	Prerequisites: Barbering I Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	



Information Technology Career Cluster

The Information Technology (IT) career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from Software Developer and Programmer to Cybersecurity Specialists and Network Analysts.

Statewide Program of Study: Cybersecurity (Dual Credit - SHSU)

The Cybersecurity program of study focuses on occupational and educational opportunities associated with planning, implementing, upgrading, or monitoring security measures for the protection of computer networks and information. This program of study includes responding to computer security breaches and viruses and administering network security measures.

Secondary Courses for High School Credit

9th Grade • Foundations of Cybersecurity (SHSU DUAL CREDIT)

10th Grade • Computer Maintenance (SHSU DUAL CREDIT)

11th Grade • Networking (SHSU DUAL CREDIT)

12th Grade • Practicum in Information Technology (SHSU DUAL CREDIT)

Aligned Advanced Academic Courses

AP or IB	AP Computer Science Principles AP Computer Science A
Dual Credit	Dual credit offerings will vary by Local Education Agency.

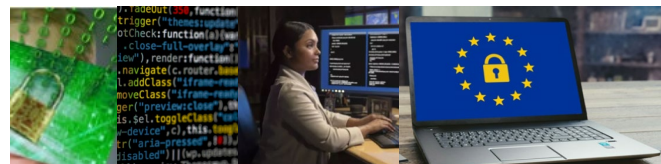
Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> Intern at a local bank, hospital, or government office to develop skills in implementing security measures Interview with an information security analyst to learn how they plan for, monitor, and upgrade security measures at their organization
Expanded Learning Opportunities	<ul style="list-style-type: none"> Participate in a Hackathon Participate in TSA or SkillsUSA

Aligned Industry-Based Certifications

- CompTIA A+ Certification
- CompTIA Network
- CompTIA Security+



Examples Postsecondary Opportunities

Associate Degrees

- Computer and Information Systems Security
- Computer Programming

Bachelor's Degrees

- Computer Science
- Computer Software Engineering

Master's, Doctoral, and Professional Degrees

- Computer and Information Systems Security/Auditing/Information Assurance
- Computer Software Engineering

Additional Stackable IBCs/License

- Certified Ethical Hacker (CEH)



Example Aligned Occupations

Computer User Support Specialists

Median Wage: \$51,411
Annual Openings: 5,757
10-Year Growth: 21%

Software Developers

Median Wage: \$111,705
Annual Openings: 15,324
10-Year Growth: 36%

Information Security Analysts

Median Wage: \$110,268
Annual Openings: 1,719
10-Year Growth: 49%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/it-cybersecurity-extendedpptx.pdf>



Information Technology Career Cluster

Statewide Program of Study: Cybersecurity

Course Information

9th Grade

Course	Prerequisites Corequisites	Career Clusters
Foundations of Cybersecurity 03580850 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Computer Maintenance* 13027300 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Information Technology Recommended Corequisites: Computer Maintenance Lab	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Networking 13027400 (1 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Information Technology, Computer Maintenance, and Computer Maintenance Lab Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Practicum in Information Technology 13028000 (2 credits)	Prerequisites: A minimum of two high school information technology (IT) courses Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	



Information Technology Career Cluster

The Information Technology (IT) career cluster focuses on the design, development, support, and management of hardware, software, multimedia, and systems integration services. This career cluster includes occupations ranging from Software Developer and Programmer to Cybersecurity Specialists and Network Analysts.

Statewide Program of Study: Programming and Software Development

The Programming and Software Development program of study focuses on occupational and educational opportunities associated with researching, designing, developing, testing, and 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 includes creating, modifying, and testing the codes, forms, and script that allow computer applications to run.



Secondary Courses for High School Credit

9th Grade	• Fundamentals of Computer Science
10th Grade	• Computer Science I (LOTE Credit)
11th Grade	• Computer Science II (LOTE Credit)
12th Grade	• Practicum in Engineering

Aligned Advanced Academic Courses

AP or IB	AP Calculus AB AP Statistics IB Mathematics and Interpretation SL
Dual Credit	Dual credit offerings will vary by Local Education Agency.

Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities	<ul style="list-style-type: none"> • Intern at a local IT company to develop skills in programming and coding • Shadow a software developer to learn how they create and improve software to support efficient processes at their company
Expanded Learning Opportunities	<ul style="list-style-type: none"> • Program and create a game • Participate in SkillsUSA or TSA



Aligned Industry-Based Certifications

- CodeHS Python Level 1 Certification



Example Postsecondary Opportunities

Apprenticeships

- Computer Programmer Apprenticeship

Associate Degrees

- Computer Programming
- Web Page, Digital/Multimedia and Information Resources Design

Bachelor's Degrees

- Data Science
- Computer Engineering

Master's, Doctoral, and Professional Degrees

- Management Science
- Computer Software Engineering

Additional Stackable IBCs/License

- AWS Certified Developer Associate



Example Aligned Occupations

Computer User Support Specialists

Median Wage: \$51,411
Annual Openings: 5,757
10-Year Growth: 21%

Software Developers

Median Wage: \$111,705
Annual Openings: 15,324
10-Year Growth: 36%

Computer Programmers

Median Wage: \$87,997
Annual Openings: 1,176
10-Year Growth: 4%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/it-programming-and-software-development-extendedpptx.pdf>



Information Technology Career Cluster

Statewide Program of Study: Programming and Software Development

Course Information

9th Grade

Course

Fundamentals of Computer Science*
03580140 (1 credit)

Prerequisites | Corequisites

Prerequisites: None
Corequisites: None
Recommended Prerequisites: None
Recommended Corequisites: None

Career Clusters



10th Grade

Course

Computer Science I*
03580200 (1 credit)

Prerequisites | Corequisites

Prerequisites: Algebra I
Corequisites: Algebra I
Recommended Prerequisites: None
Recommended Corequisites: None

Career Clusters



11th Grade

Course

Computer Science II
03580300 (1 credit)

Prerequisites | Corequisites

Prerequisites: Algebra I and Computer Science I or AP Computer Science Principles
Corequisites: None
Recommended Prerequisites: None
Recommended Corequisites: None

Career Clusters



12th Grade

Course

Practicum in Engineering*
First Time Taken:
12756080 (2 credits)

Prerequisites | Corequisites

Prerequisites: Algebra I and Geometry and a minimum of two credits with at least one course in a Level 2 or higher course from the Engineering career cluster
Corequisites: None
Recommended Prerequisites: None
Recommended Corequisites: None

Career Clusters





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. This career cluster includes occupations ranging from all aspects of the military, police officer and firefighter to political scientist and lawyer.

Statewide Program of Study: Fire Science

The Fire Science program of study focuses on occupational and educational opportunities associated with fire prevention, protection, and firefighting. This program of study includes firefighter safety, building codes, and the necessary physical skills to perform rescues. Students will learn about preparedness, basic fire suppression techniques, basic arson investigation, hazardous material management, and educating the public about fire safety.



Secondary Courses for High School Credit

- | | |
|------------|---|
| 9th Grade | • Principles of Law, Public Safety, Corrections, and Security |
| 10th Grade | • Disaster Response |
| 11th Grade | • Firefighter I (Dual Credit with COM) |
| 12th Grade | • Firefighter II (Dual Credit with COM) |

Aligned Advanced Academic Courses

Dual Credit	Dual credit offerings will vary by Local Education Agency.
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Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Shadow a fire chief to learn about fire department operations and skills needed to be a firefighter
- Intern with a fire inspection company to learn about building safety, fire prevention, and fire protection

Expanded Learning Opportunities

- Tour a local fire department
- Participate in SkillsUSA or TSA, or TPSA

TPSA

Aligned Industry-Based Certifications

- Basic Structure Fire Protection



Example Postsecondary Opportunities

Apprenticeships

- Fire Apprentice

Associate Degrees

- Emergency Medical Technology
- Fire Protection Technology

Bachelor's Degrees

- Fire Science
- Emergency Health Services

Additional Stackable IBCs/License

- Hazardous Materials Awareness
- Fire Plan Examiner



Example Aligned Occupations

Emergency Medical Technicians

Median Wage: \$35,849
Annual Openings: 1,177
10-Year Growth: 19%

Firefighters

Median Wage: \$59,879
Annual Openings: 2,235
10-Year Growth: 14%

Fire Inspectors and Investigators

Median Wage: \$74,957
Annual Openings: 92
10-Year Growth: 14%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/lps-fire-science-extendedpptx.pdf>




Law and Public Service Career Cluster


Statewide Program of Study: Fire Science

Course Information


9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Law, Public Safety, Corrections, and Security 13029200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	


10th Grade

Course	Prerequisites Corequisites	Career Clusters
Disaster Response N1303011 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Firefighter I 13029900 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Firefighter II 13030000 (3 credits)	Prerequisites: Firefighter I Corequisites: None Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	



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. This career cluster includes occupations ranging from all aspects of the military, police officer and firefighter to political scientist and lawyer.

Statewide Program of Study: Junior Reserve Officers' Training Corps (JROTC)

The JROTC program of study emphasizes leadership development, civic responsibility, and personal growth through a structured military framework. Students explore the history, organization, and purpose of military service at local, state, and federal levels, while gaining a foundational understanding of the U.S. Constitution and the role it plays in shaping civic life. The courses fosters discipline, teamwork, and decision-making, encouraging students to become engaged citizens and future leaders in their communities.



Secondary Courses for High School Credit

9th Grade	JROTC I Air Force – AFJROTC (PE Substitution)
10th Grade	JROTC II Air Force – AFJROTC
11th Grade	JROTC III Air Force – AFJROTC
12th Grade	JROTC IV Air Force – AFJROTC

Aligned Advanced Academic Courses

AP or IB

- AP U.S. Government and Politics
- AP U.S. History
- IB Geography
- IB Global Politics SL
- IB History

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Leadership internships
- Drill and Ceremony

Expanded Learning Opportunities

- Leadership academies and camps
- School events and competition
- Service-learning projects
- Job shadowing with military personnel
- Mentorship and peer leadership programs



Example Postsecondary Opportunities

United States Armed Forces Enlistment

- U.S. Air Force
- U.S. Army
- U.S. Coast Guard
- U.S. Navy
- U.S. Space Force



Military Academies

- U.S. Military Academy – West Point
- U.S. Naval Academy – Annapolis
- U.S. Air Force Academy – Colorado Springs
- U.S. Coast Guard Academy – New London
- U.S. Merchant Marine Academy – Kings Point

University – ROTC Programs

- Basic Course – Freshman / Sophomore
- Advanced Course – Junior/ Senior



Example Aligned Occupations

Military Police Investigator

Median Wage: \$55,598
Annual Openings: 325
10-Year Growth: 5%

Aviator

Median Wage: \$233,909
Annual Openings: 1,268
10-Year Growth: 6%

Military Construction Mechanic

Median Wage: \$47,385
Annual Openings: 4,301
10-Year Growth: 6%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources>




Law and Public Service Career Cluster


Statewide Program of Study: Junior Reserve Officer Training Corps

Course Information


9th Grade

Course	Prerequisites Corequisites	Career Clusters
JROTC I 03160100 (1 credit)	Prerequisites: None Corequisites: None	


10th Grade

Course	Prerequisites Corequisites	Career Clusters
JROTC II 03160200 (1 credit)	Prerequisites: JROTC I Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
JROTC III 03160300 (1 credit)	Prerequisites: JROTC I and JROTC II Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
JROTC IV 03160400 (1 credit)	Prerequisites: JROTC I, JROTC II and JROTC III Corequisites: None	



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. This career cluster includes occupations ranging from all aspects of the military, police officer and firefighter to political scientist and lawyer.

Statewide Program of Study: Law Enforcement

The Law Enforcement program of study focuses on occupational and educational opportunities associated with the development and enforcement of laws by various branches of law enforcement. This program of study includes the history, organization, and functions of local, state, and federal law enforcement. Students will understand the role of constitutional law at local, state, and federal levels; the U.S. legal system; criminal law; and law enforcement terminology and the classification and elements of crime.



Secondary Courses for High School Credit

- | | |
|-------------------|--|
| 9th Grade | <ul style="list-style-type: none">Principles of Law, Public Safety, Corrections, and Security |
| 10th Grade | <ul style="list-style-type: none">Law Enforcement I |
| 11th Grade | <ul style="list-style-type: none">Law Enforcement II |
| 12th Grade | <ul style="list-style-type: none">Counseling and Mental HealthForensic Science (Science Credit)Practicum in Law, Public Safety, Corrections, and Security |

Aligned Advanced Academic Courses

Dual Credit	Dual credit offerings will vary by Local Education Agency.
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Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Shadow a detective to learn about investigations and the role of detectives in law enforcement
- Intern in dispatch at a local law enforcement agency to learn about first responder roles and processes

Expanded Learning Opportunities

- Visit a police department
- Participate in TSA or SkillsUSA, or TPSA

TPSA

Aligned Industry-Based Certifications

- IAED Emergency Telecommunicator



Example Postsecondary Opportunities

Apprenticeships

- Security Specialist

Associate Degrees

- Criminal Justice
- Law Enforcement

Bachelor's Degrees

- Forensic Science
- Criminal Justice

Master's, Doctoral, and Professional Degrees

- Criminal Justice
- Criminology and Criminal Justice

Additional Stackable IBCs/Licensures

- Jailer – Basic County Corrections
- Basic Telecommunicator



Example Aligned Occupations

Police and Sheriff's Patrol Officers

Median Wage: \$64,373
Annual Openings: 5,424
10-Year Growth: 13%

Detectives and Criminal Investigators

Median Wage: \$82,090
Annual Openings: 1,536
10-Year Growth: 8%

First-Line Supervisors of Police and Detectives

Median Wage: \$97,571
Annual Openings: 5,461
10-Year Growth: 12%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/lps-law-enforcement-extendedpptx.pdf>



Law and Public Service Career Cluster

Statewide Program of Study: Law Enforcement

Course Information

9th Grade

Course	Prerequisites Corequisites	Career Clusters
Principles of Law, Public Safety, Corrections, and Security 13029200 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	

10th Grade

Course	Prerequisites Corequisites	Career Clusters
Law Enforcement I 13029300 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Law, Public Safety, Corrections, and Security Recommended Corequisites: None	

11th Grade

Course	Prerequisites Corequisites	Career Clusters
Law Enforcement II 13029400 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Law Enforcement I Recommended Corequisites: None	

12th Grade

Course	Prerequisites Corequisites	Career Clusters
Counseling and Mental Health 13024600 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: Principles of Human Services Recommended Corequisites: None	
Forensic Science 13029500 (1 credit)	Prerequisites: One credit in biology, one credit in chemistry, Integrated Physics and Chemistry (IPC), or physics Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
Practicum in Law, Public Safety, Corrections, and Security* First Time Taken: 13030100 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	



Transportation, Distribution, and Logistics Career Cluster

The Transportation, Distribution, and Logistics career cluster focuses on planning, management, and movement of people, materials, and goods by road, pipeline, air, rail, and water. It also includes transportation infrastructure planning and management, logistics services, and mobile equipment and facility maintenance. This career cluster includes occupations ranging from automotive mechanic, avionics technician, and automotive entrepreneur to pilots and logistics planning professionals.

Statewide Program of Study: Automotive and Collision Repair

The Automotive and Collision Repair program of study focuses on the occupational and educational opportunities associated with servicing, repairing, and refinishing various types of vehicles. This program of study includes diagnosing and servicing vehicles and learning about processes, technologies, and materials used in reconstructing vehicles.

Secondary Courses for High School Credit

- | | |
|------------|--|
| 9th Grade | • Automotive Basics |
| 10th Grade | • Automotive Technology I: Maintenance and Light |
| 11th Grade | • Automotive Technology II: Automotive Service |
| 12th Grade | • Practicum in Transportation Systems (12 th Grade) |

Aligned Advanced Academic Courses

Dual Credit	Dual credit offerings will vary by Local Education Agency.
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Students should be advised to consider these course opportunities to enrich their preparation. AP or IB courses not listed under the Secondary Courses for High School Credit section of this framework document do not count towards Concentrator/Completer status for this program of study.

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities

- Shadow an automotive technician at a car dealership
- Intern at a rental car company and assist technicians with vehicle maintenance
- Work at a local automotive repair shop and hold both customer service duties and automatic repair duties

Expanded Learning Opportunities

- Join a related automotive association and attend events
- Participate in SkillsUSA



Aligned Industry-Based Certifications

- | | |
|--|--|
| <ul style="list-style-type: none"> • 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) | <ul style="list-style-type: none"> • 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) |
|--|--|



Example Postsecondary Opportunities

Apprenticeships

- Automotive Technician Apprenticeship

Associate Degrees

- Automobile/Automotive Mechanics Technology
- Autobody/Collision and Repair Technology

Bachelor's Degrees

- Autobody/Collision and Repair Technology
- Heavy Equipment Maintenance Technology

Additional Stackable IBCs/License

- Automobile and Light Truck Certification (A1 – A9)



Example Aligned Occupations

Automotive Service Technicians and Mechanics

Median Wage: \$44,809
Annual Openings: 6,285
10-Year Growth: 10%

Bus and Truck Mechanics and Diesel Engine Specialists

Median Wage: \$50,967
Annual Openings: 3,096
10-Year Growth: 19%

First-Line Supervisors of Mechanics, Installers, and Repairers

Median Wage: \$66,535
Annual Openings: 5,019
10-Year Growth: 19%

Data Source: TexasWages, Texas Workforce Commission. Retrieved 3/8/2024.



For more information visit:

<https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/tcl-automotive-and-collision-repair-extendedpptx.pdf>



Transportation, Distribution, and Logistics Career Cluster

Statewide Program of Study: Automotive and Collision Repair

Course Information

9th Grade	Course	Prerequisites Corequisites	Career Clusters
	Automotive Basics 13039550 (1 credit)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
10th Grade	Course	Prerequisites Corequisites	Career Clusters
	Automotive Technology I: Maintenance and Light Repair 13039600 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: Automotive Basics Recommended Corequisites: None	
11th Grade	Course	Prerequisites Corequisites	Career Clusters
	Automotive Technology II: Automotive Service 13039700 (2 credits)	Prerequisites: Automotive Technology I: Maintenance and Light Repair Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	
12th Grade	Course	Prerequisites Corequisites	Career Clusters
	Practicum in Transportation Systems 13040450 (2 credits)	Prerequisites: None Corequisites: None Recommended Prerequisites: None Recommended Corequisites: None	