Hallsville Independent School District

For the Consideration of the Board of Trustees

Date of Board Meeting: February 18, 2025

Agenda Item#:

Topic: TXC&CP Course Catalog (informational only)

Background and Rationale:

The Texas College and Career Prep shared services team created a TXC&CP Course Catalog for their department, much like the one Hallsville High School presented a few months ago. This is an informational item only as all of the courses also appear in the TVAH Student Course Catalog.

This specialized course catalog gives students a clear understanding of the career clusters, programs of study, prerequisite requirements, course alignment, industry based certifications and postsecondary opportunities in each specific area of interest.
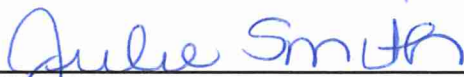
Relationship to Strategic Plan: Communication

Personnel Affected: N/A

Budget Implications: N/A

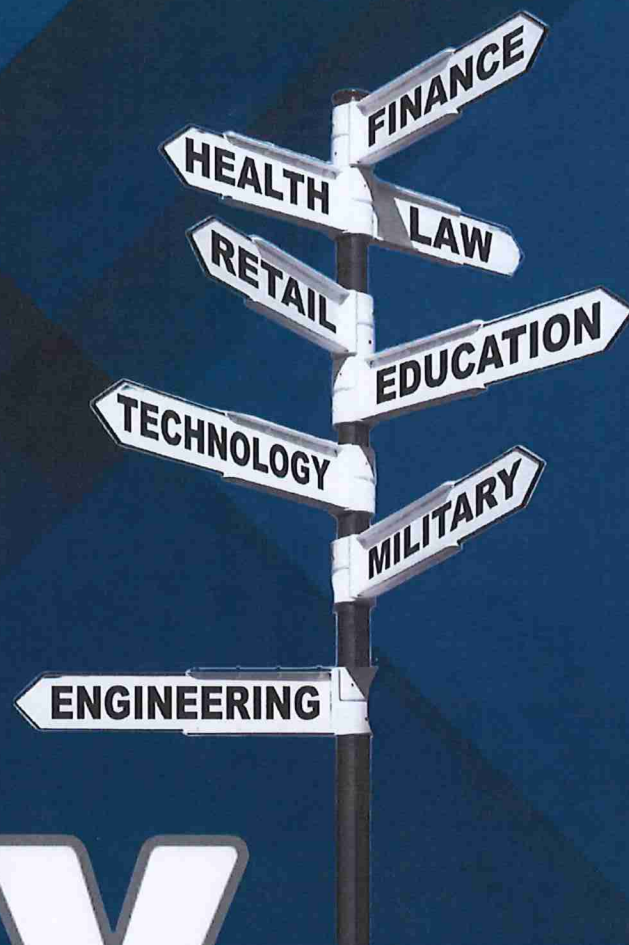**Recommendation:**

No recommendation. Informational only.

Signature
Julie Smith

Superintendent's Signature

Hello Texas Career and College Prep Scholars and Learning Coaches!
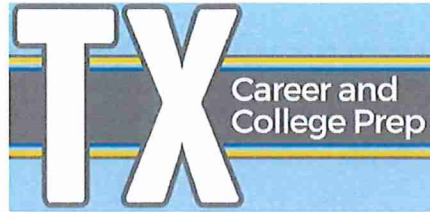
We're thrilled to welcome you! The Texas Career and College Prep (TxC&CP) team partners with teachers and administrators statewide to help students prepare for their next steps in career, college, or military pathways.

Through Project-Based Learning, collaboration tools, workplace readiness training, CTSOs, Industry-Based Certifications (IBCs), dual credit programs, and work-based learning opportunities, TxC&CP creates an empowering environment. Students can connect across the state, gaining diverse perspectives and experiences. Our expertly aligned course pathways provide a rigorous, personalized learning experience that sets students apart and equips them for success in higher education, careers, or military service.

Students in grades 7–12 enrolled in any Career and Technical Education course at K12 Texas Virtual Schools are automatically included in TxC&CP and its wraparound services. To opt out, simply complete the survey linked in our welcome emails or during orientation. A team member will follow up to confirm.

Learn more about our program, services, and events at txcareerandcollegeprep.org. We're excited to have you as part of the TxC&CP family!

Sincerely,

The TxC&CP Team

Arts, Audio Visual Technology, and Communication 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*

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

Level 1	• Principles of Arts, Audio/Video Technology, and Communications • Video Game Design • Digital Media • Web Communications
Level 2	• Graphic Design and Illustration I • Animation I • Entrepreneurship I
Level 3	• 3-D Modeling and Animation
Level 4	• Practicum in Entrepreneurship

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	• 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 • Join a related co-curricular or extracurricular club such as web development or computer coding

Aligned Industry-Based Certifications

- Adobe Certified Professional in Digital Video Using Adobe Premiere Pro
- Adobe Certified Professional in Graphic Design and Illustration Using Adobe Illustrator
- Adobe Certified Professional in Print and Digital Media Publication Using Adobe InDesign
- Adobe Certified Professional in Visual Design Using Adobe Photoshop
- Adobe Certified Professional in Visual Effects and Motion Graphics Using Adobe After Effects

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

Graphic Designers
Median Wage: $50,973
Annual Openings: 1,766
10-Year Growth: 10%

Art Directors
Median Wage: $81,926
Annual Openings: 619
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/programs-of-study-additional-resources

Successful completion of the Graphic Design and Interactive Media program of study will fulfill requirements of the Business and Industry endorsement.

TEA Texas Education Agency

Graphic Design and Interactive Media

Arts, Audio Visual Technology, and Communication Career Cluster

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

Course Information

Level 1

Course	Prerequisites | Corequisites	Career Clusters
Principles of Arts, Audio + Video Technology, and Communications* 13008200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None The goal of this course is that the student understands arts, audio/video technology, and communications systems. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.	
Video Game Design 13009970 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of AAVTC* Video Game Design will allow students to explore one of the largest industries in the global marketplace and the new emerging careers it provides in the field of technology. Students will learn gaming, computerized gaming, evolution of gaming, artistic aspects of perspective, design, animation, technical concepts of collision theory, and programming logic. Students will participate in a simulation of a real video game design team while developing technical proficiency in constructing an original game design	
Digital Media 13027800 (1 credit)	**Prerequisites:** None In Digital Media, students will analyze and assess current and emerging technologies, while designing and creating multimedia projects that address customer needs and resolve a problem. Students will implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. The knowledge and skills acquired and practiced will enable students to successfully perform and interact in a technology-driven society. Students will enhance reading, writing, computing, communication, and critical thinking and apply them to the IT environment.	
Web Communications* 03580810 (0.5 credit)	**Prerequisites:** None **Recommended Prerequisites:** None In Web Communications, students will acquire knowledge of web communications and technological operations and concepts. This is an exploratory course in web communications. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.	

Level 2

Course	Prerequisites | Corequisites	Career Clusters
Graphic Design and Illustration I* 13008800 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of AAVTC* Within this context, in addition to developing knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the industry with a focus on fundamental elements and principles of visual art and design.	
Animation I 13008300 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of AAVTC* In addition to developing technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the history and techniques of the animation industry.	

* Indicates course is included in more than one program of study.

For additional information on the **Arts, Audio Visual Technology, and Communication** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Course Information

Level 2

Course	Prerequisites | Corequisites	Career Clusters
Entrepreneurship I* 13011101 (1credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Business, Marketing, and Finance* Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services.	

Level 3

Course	Prerequisites | Corequisites	Career Clusters
3-D Modeling and Animation 03580510 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Art I* 3-D Modeling and Animation consists of computer images created in a virtual three-dimensional (3-D) environment. 3-D Modeling and Animation has applications in many careers, including criminal justice, crime scene, and legal applications; construction and architecture; engineering and design; and the movie and game industries. Students in this course will produce various 3-D models of real-world objects. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.	

Level 4

Course	Prerequisites | Corequisites	Career Clusters
Practicum in Entrepreneurship* First Time Taken: 13011111 (2 credits)	**Prerequisites:** None **Recommended Prerequisites:** *Entrepreneurship I and II or successful completion of at least two courses in a CTE program of study* The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study.	

* Indicates course is included in more than one program of study.

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Agriculture, Food, and Natural Resources Career Cluster

The Agriculture, Food, and Natural Resources (AFNR) career cluster focuses on the essential elements of life, food, water, land, and air. This career cluster includes 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

Level 1	•	Principles of Agriculture, Food, and Natural Resources
Level 2	•	Entrepreneurship I
Level 4	•	Practicum in Entrepreneurship

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

Aligned Advanced Academic Courses

AP AP Biology

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	• 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

• Elanco Fundamentals of Animal Science Certification
• Elanco Veterinary Medical Applications Certification
• Licensed Veterinary Technician

Example Aligned Occupations

Veterinary Assistants and Laboratory Animal Caretakers

Median Wage: $29,906
Annual Openings: 1,348
10-Year Growth: 24%

Veterinary Technologists and Technicians

Median Wage: $33,679
Annual Openings: 1,217
10-Year Growth: 24%

Veterinarian

Median Wage: $103,160
Annual Openings: 347
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/programs-of-study-additional-resources

Animal Science

Successful completion of the Animal Science program of study will fulfill requirements of a Business and Industry endorsement.

Agriculture, Food, and Natural Resources Career Cluster

Statewide Program of Study: *Animal Science*

Course Information

	Course	Course Description	Career Clusters
Level 1	**Principles of Agriculture, Food, and Natural Resources*** 13000200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None Principles of Agriculture, Food, and Natural Resources will allow students to develop knowledge and skills regarding career and educational opportunities, personal development, globalization, industry standards, details, practices, and expectations.	

	Course	Course Description	Career Clusters
Level 2	**Entrepreneurship I*** 13011101 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Business, Marketing and Finance* Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services.	

	Course	Course Description	Career Clusters
Level 4	**Practicum in Entrepreneurship*** First Time Taken: 13011111 (2 credits)	**Prerequisites: None** **Recommended Prerequisites:** *Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a CTE program of study* The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study.	

* Indicates course is included in more than one program of study.

Animal Science

For additional information on the **Agriculture, Food, and Natural Resources** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

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

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

Level 2
- Accounting I
- Entrepreneurship I

Level 4
- Practicum in Business Management
- Practicum in Entrepreneurship

Aligned Advanced Academic Courses

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
- 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
- Participate in BPA, DECA, or FBLA

Aligned Industry-Based Certifications
- 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
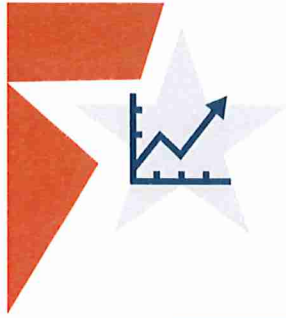10-Year Growth: 20%

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

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

Accounting and Financial Services

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

TEA Texas Education Agency

Business, Marketing, and Finance Career Cluster

Statewide Program of Study: *Accounting and Financial Services*

Course Information

	Course	Prerequisites | Corequisites	Career Clusters
Level 1	**Principles of Business, Marketing, and Finance*** 13011200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None In Principles of Business, Marketing, and Finance, students gain knowledge and skills in economies and private enterprise systems, the impact of global business, the marketing of goods and services, advertising, and product pricing. Students analyze the sales process and financial management principles. This course allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings in business, marketing, and finance.	
	Business Information Management I* 13011400 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Touch System Data Entry* In Business Information Management I, students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce and postsecondary education. Students apply technical skills to address business applications of emerging technologies, create word-processing documents, develop a spreadsheet, formulate a database, and make an electronic presentation using appropriate software.	
	Money Matters 13016200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Business, Marketing, and Finance* In Money Matters, students will investigate money management from a personal financial perceptive. Students will apply critical-thinking skills to analyze financial options based on current and projected economic factors. Students will gain knowledge and skills necessary to establish short-term and long-term financial goals. Students will examine various methods of achieving short-term and long-term financial goals through various methods such as investing, tax planning, asset allocating, risk management, retirement planning, and estate planning.	

	Course	Prerequisites | Corequisites	Career Clusters
Level 2	**Accounting I** 13016600 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Business, Marketing, and Finance* In Accounting I, students will investigate the field of accounting, including how it is impacted by industry standards as well as economic, financial, technological, international, social, legal, and ethical factors. Students will reflect on this knowledge as they engage in the process of recording, classifying, summarizing, analyzing, and communicating accounting information. Students will formulate and interpret financial information for use in management decision making. Accounting includes such activities as bookkeeping, systems design, analysis, and interpretation of accounting information.	
	Entrepreneurship I* 13011101 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Business, Marketing, and Finance* Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services.	

* Indicates course is included in more than one program of study.

For additional information on the **Business, Marketing, and Finance** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Accounting and Financial Services

Course Information

Course	Prerequisites | Corequisites	Career Clusters
Level 4 **Practicum in Business Management*** First Time Taken: 13012200 (2 credits) Second Time Taken: 13012210 (2 credits)	**Prerequisites:** None **Recommended Prerequisites:** *Touch System Data Entry and Business Management* Practicum in Business Management is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. Students apply technical skills to address business applications of emerging technologies. Students develop a foundation in the economic, financial, technological, international, social, and ethical aspects of business to become competent consumers, employees, and entrepreneurs. Students enhance reading, writing, computing, communication, and reasoning skills and apply them to the business environment. Students incorporate a broad base of knowledge that includes the legal, managerial, marketing, financial, ethical, and international dimensions of business to make appropriate business decisions.	
Practicum in Entrepreneurship* First Time Taken: 13011111 (2 credits)	**Prerequisites:** None **Recommended Prerequisites:** *Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a CTE program of study* The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study.	

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Business, Marketing, and Finance Career Cluster

The Business, Marketing, and Finance career cluster focuses on careers in planning, organizing, directing, and evaluating business functions essential to efficient and productive business operations. This career cluster includes occupations ranging from business owner and entrepreneur, to accountant, retail manager, and market analyst.

Statewide Program of Study: *Entrepreneurship*

The Entrepreneurship program of study focuses on occupational and educational opportunities associated with planning, launching, directing, and coordinating public or private sector ventures. This program of study includes formulating policies, launching businesses or organizations, managing daily operations, analyzing management structures, and planning for the use of materials and human resources.

Secondary Courses for High School Credit

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

Level 2
- Entrepreneurship I

Level 4
- Practicum in Entrepreneurship
- Practicum in Business Management
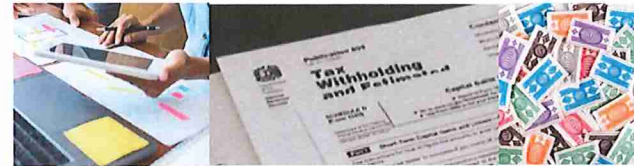
Example Postsecondary Opportunities

Associate Degrees
- Operations Management and Supervision
- Organizational Leadership

Bachelor's Degrees
- Business Administration and Management
- Public Administration

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

Additional Stackable IBCs/License
- Salesforce
- Service Contract Providers

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.

Example Aligned Occupations

General and Operations Managers

Median Wage: $83,220
Annual Openings: 25,450
10-Year Growth: 23%

Management Analysts

Median Wage: $93,983
Annual Openings: 6,030
10-Year Growth: 25%

Chief Executives

Median Wage: $163,567
Annual Openings: 648
10-Year Growth: 3%

Work-Based Learning and Expanded Learning Opportunities

Work-Based Learning Activities
- Intern at a local start-up or a business incubator
- Participate in the development and launch of a school-based enterprise

Expanded Learning Opportunities
- Job shadow an entrepreneur
- Participate in BPA, DECA, FBLA

Aligned Industry-Based Certifications

- Entrepreneurship and Small Business
- Facebook Digital Marketing Associate Certification

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

Successful completion of the Entrepreneurship program of study will fulfill requirements of the Business and Industry endorsement.

Entrepreneurship

Business, Marketing, and Finance Career Cluster

Statewide Program of Study: *Entrepreneurship*

Course Information

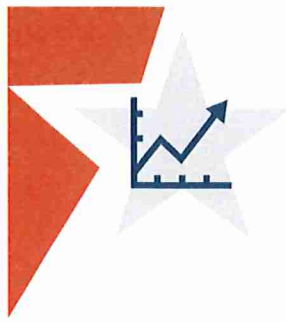| Course | Prerequisites | Corequisites | Career Clusters |
|---|---|---|
| **Principles of Business, Marketing, and Finance***
13011200 (1 credit) | **Prerequisites:** None
Recommended Prerequisites: None
In Principles of Business, Marketing, and Finance, students gain knowledge and skills in economies and private enterprise systems, the impact of global business, the marketing of goods and services, advertising, and product pricing. Students analyze the sales process and financial management principles. This course allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings in business, marketing, and finance. | |
| **Business Information Management I***
13011400 (1 credit) | **Prerequisites:** None
Recommended Prerequisites: *Touch System Data Entry*
In Business Information Management I, students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and make a successful transition to the workforce and postsecondary education. Students apply technical skills to address business applications of emerging technologies, create word-processing documents, develop a spreadsheet, formulate a database, and make an electronic presentation using appropriate software. | |

Course	Prerequisites	Corequisites	Career Clusters
Entrepreneurship I* 13011101 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Business, Marketing and Finance* Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services.	

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TEA Texas Education Agency

Course Information

Course	Prerequisites | Corequisites	Career Clusters
Level 4		
Practicum in Entrepreneurship* First Time Taken: 13011111 (2 credits)	**Prerequisites:** None **Recommended Prerequisites:** *Entrepreneurship I and II or successful completion of at least two courses in a CTE program of study* The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study	
Practicum in Business Management* First Time Taken: 13012200 (2 credits) Second Time Taken: 13012210 (2 credits)	**Prerequisites:** None **Recommended Prerequisites:** *Touch System Data Entry and Business Management* Practicum in Business Management is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. Students apply technical skills to address business applications of emerging technologies. Students develop a foundation in the economic, financial, technological, international, social, and ethical aspects of business to become competent consumers, employees, and entrepreneurs. Students enhance reading, writing, computing, communication, and reasoning skills and apply them to the business environment. Students incorporate a broad base of knowledge that includes the legal, managerial, marketing, financial, ethical, and international dimensions of business to make appropriate business decisions.	

* Indicates course is included in more than one program of study.

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

Level 1	• Principles of Education and Training
	• Principles of Human Services
Level 2	• Child Development
Level 3	• Instructional Practices

Aligned Advanced Academic Courses

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	• 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

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.

Teaching and Training

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

For more information visit:
https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources

Education and Training Career Cluster
Statewide Program of Study: Teaching and Training

Course Information

	Course	Prerequisites | Corequisites	Career Clusters
Level 1	**Principles of Education and Training*** 13014200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None Principles of Education and Training is designed to introduce learners to the various careers available within the Education and Training Career Cluster. Students use self-knowledge as well as educational and career information to analyze various careers within the Education and Training Career Cluster. Students will develop a graduation plan that leads to a specific career choice in the student's interest area.	
	Principles of Human Services* 13024200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None Principles of Human Services is a laboratory course that will enable students to investigate careers in the Human Services Career Cluster, including counseling and mental health, early childhood development, family and community, personal care, and consumer services. Each student is expected to complete the knowledge and skills essential for success in high-skill, high-wage, or high-demand human services careers.	

	Course	Prerequisites | Corequisites	Career Clusters
Level 2	**Child Development*** 13024700 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Human Services or Principles of Education and Training* Child Development is a technical laboratory course that addresses knowledge and skills related to child growth and development from prenatal through school-age children, equipping students with child development skills. Students use these skills to promote the well-being and healthy development of children and investigate careers related to the care and education of children.	

	Course	Prerequisites | Corequisites
Level 3	**Instructional Practices** 13014400 (2 credits)	**Prerequisites:** *One credit from Education and Training career cluster* **Recommended Prerequisites:** *Principles of Education and Training, Human Growth and Development, or Child Development* Instructional Practices is a field-based (practicum) internship that provides students with background knowledge of child and adolescent development as well as principles of effective teaching and training practices. Students work under the joint direction and supervision of both a teacher with knowledge of early childhood, middle childhood, and adolescence education and exemplary educators or trainers in direct instructional roles with elementary-, middle school-, and high school-aged students. Students learn to plan and direct individualized instruction and group activities, prepare instructional materials, develop materials for educational environments, assist with record keeping, and complete other responsibilities of teachers, trainers, paraprofessionals, or other educational personnel.

* Indicates course is included in more than one program of study.

For additional information on the **Education and Training** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Teaching and Training

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*

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

Level 1	• Principles of Health Science
Level 2	• Medical Terminology
Level 3	• Anatomy and Physiology • Health Science Theory • Health Science Theory + Health Science Clinical
Level 4	• Pharmacology

Aligned Advanced Academic Courses

AP	AP Biology	AP Chemistry

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	• 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	• Participate in Health Occupation Students of America (HOSA) or SkillsUSA

Aligned Industry-Based Certifications

- Certified Clinical Medical Assistant
- Certified EKG Technician
- Certified Nurse Aide (CNA)
- Medical Assistant
- Nationally Registered Certified EKG Technician
- Pharmacy Technician
- Phlebotomy Technician

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.

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

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For more information visit:
https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources

Diagnostic and Therapeutic Services

Health Science Career Cluster

Statewide Program of Study: Diagnostic and Therapeutic Services

Course Information

Level 1

Course	Prerequisites	Corequisites	Career Clusters
Principles of Health Science* 13020200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None The Principles of Health Science course is designed to provide an overview of the therapeutic, diagnostic, health informatics, support services, and biotechnology research and development systems of the health care industry.	

Level 2

Course	Prerequisites	Corequisites	Career Clusters
Medical Terminology* 13020300 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None The Medical Terminology course is designed to introduce students to the structure of medical terms, including prefixes, suffixes, word roots, singular and plural forms, and medical abbreviations. The course allows students to achieve comprehension of medical vocabulary appropriate to medical procedures, human anatomy and physiology, and pathophysiology.	

Level 3

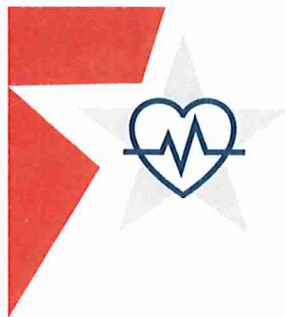| Course | Prerequisites | Corequisites | Career Clusters |
|---|---|---|
| **Anatomy and Physiology***
 13020600 (1 credit) | **Prerequisites:** *One credit in Biology and one credit in Chemistry, Integrated Physics and Chemistry, or Physics*
 Recommended Prerequisites: *A course from the Health Science career cluster*
 The Anatomy and Physiology course is designed for students to conduct laboratory and field investigations, use scientific methods during investigations, and make informed decisions using critical thinking and scientific problem solving. Students in Anatomy and Physiology will study a variety of topics, including the structure and function of the human body and the interaction of body systems for maintaining homeostasis. *Note: This course satisfies a science credit requirement for students on the Foundation High School Program.* | |
| **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*
 Recommended Prerequisites: None
 The Pharmacology course is designed to study how natural and synthetic chemical agents such as drugs affect biological systems. Knowledge of the properties of therapeutic agents is vital in providing quality health care. It is an ever-changing, growing body of information that continually demands greater amounts of time and education from health care workers. | |

Continued on next page

* Indicates course is included in more than one program of study.

TEA Texas Education Agency

Diagnostic and Therapeutic Services

Health Science Career Cluster
Statewide Program of Study: Diagnostic and Therapeutic Services

Course Information

Level 3

Course	Prerequisites | Corequisites	Career Clusters
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* **Recommended Prerequisites:** None The Health Science Theory course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experiences for continued knowledge and skill development.	
Health Science Theory + Health Science Clinical* 13020410 (2 credits)	**Prerequisites:** *One credit in Biology and at least one credit in a course from the Health Science career cluster* **Recommended Prerequisites:** None The Health Science Clinical course is designed to provide for the development of advanced knowledge and skills related to a wide variety of health careers. Students will employ hands-on experiences for continued knowledge and skill development. Districts are encouraged to offer this course in a consecutive block with Health Science Theory to allow students sufficient time to master the content of both courses.	

Level 4

Course	Prerequisites | Corequisites	Career Clusters
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* **Recommended Prerequisites:** None The Pharmacology course is designed to study how natural and synthetic chemical agents such as drugs affect biological systems. Knowledge of the properties of therapeutic agents is vital in providing quality health care. It is an ever-changing, growing body of information that continually demands greater amounts of time and education from health care workers.	

* Indicates course is included in more than one program of study.

For additional information on the **Health Science** career cluster,
contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

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Human Services Career Cluster

The Human Services career cluster focuses on preparing individuals for employment in career pathways that relate to families and human needs, such as counseling and mental health services, family and community services, personal care services, and consumer services. This career cluster includes occupations ranging from community health workers to cosmetologists and nutritionists.

Statewide Program of Study: *Family and Community Services*

The Family and Community Services program of study focuses on occupational and educational opportunities associated with social services, including child and human development and consumer sciences. This program of study includes managing social and community services, managing family and consumer sciences, and understanding career paths in social work or therapy for children, families, or school communities.

Secondary Courses for High School Credit

Level 1	• Principles of Human Services • Professional Communications
Level 2	• Child Development • Lifetime Nutrition and Wellness • Entrepreneurship I
Level 3	• Counseling and Mental Health
Level 4	• Practicum in Entrepreneurship

Example Postsecondary Opportunities

Apprenticeships
• Community Health Worker Apprentice

Associate Degrees
• Social Work
• Human Development and Family Studies

Bachelor's Degrees
• Social Work
• Human Development and Family Studies

Master's, Doctoral, and Professional Degrees
• Mental Health Counseling
• Marriage and Family Therapy

Additional Stackable IBCs/License
• Certified Diabetes Educator

Example Aligned Occupations

Community Health Workers

Median Wage: $39,520
Annual Openings: 501
10-Year Growth: 25%

Social and Human Service Assistants

Median Wage: $38,442
Annual Openings: 3,298
10-Year Growth: 21%

Child, Family, and School Social Workers

Median Wage: $49,398
Annual Openings: 2,342
10-Year Growth: 14%

Aligned Advanced Academic Courses

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	• Participate in a community health worker apprenticeship at a community health center • Shadow a social worker in a community non-profit organization to learn about providing social and community services
Expanded Learning Opportunities	• Participate in FCCLA

Aligned Industry-Based Certifications

• Community Health Worker

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

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

For more information visit:
https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources

Family and Community Services

Human Services Career Cluster
Statewide Program of Study: *Family and Community Services*

Course Information

Level 1

Course	Prerequisites	Corequisites	Career Clusters
Principles of Human Services* 13024200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None Principles of Human Services is a laboratory course that will enable students to investigate careers in the Human Services Career Cluster, including counseling and mental health, early childhood development, family and community, personal care, and consumer services. Each student is expected to complete the knowledge and skills essential for success in high-skill, high-wage, or high-demand human services careers.	
Professional Communications 13009900 (0.5 credit)	**Prerequisites:** None **Recommended Prerequisites:** None Professional Communications blends written, oral, and graphic communication in a career- based environment. Careers in the global economy require individuals to be creative and have a strong background in computer and technology applications, a strong and solid academic foundation, and a proficiency in professional oral and written communication. Within this context, students will be expected to develop and expand the ability to write, read, edit, speak, listen, apply software applications, manipulate computer graphics, and conduct internet research.	

Level 2

Course	Prerequisites	Corequisites	Career Clusters
Child Development* 13024700 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Education and Training or Principles of Human Services* Child Development is a technical laboratory course that addresses knowledge and skills related to child growth and development from prenatal through school-age children, equipping students with child development skills. Students use these skills to promote the well-being and healthy development of children and investigate careers related to the care and education of children.	
Lifetime Nutrition and Wellness* 13024500 (0.5 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Human Services, Principles of Hospitality and Tourism, or Principles of Health Science* Lifetime Nutrition and Wellness is a laboratory course that allows students to use principles of lifetime wellness and nutrition to help them make informed choices that promote wellness as well as pursue careers related to hospitality and tourism, education and training, human services, and health sciences.	

* Indicates course is included in more than one program of study.

For additional information on the **Human Services** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

TEA Texas Education Agency

Human Services Career Cluster

Statewide Program of Study: *Family and Community Services*

Course Information

Level 2

Entrepreneurship I*
13011101 (1 credit)

Prerequisites: None
Recommended Prerequisites: *Principles of Business, Marketing and Finance*
Students will learn the principles necessary to begin and operate a business. The primary focus of the course is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services.

Level 3

| Course | Prerequisites | Corequisites | Career Clusters |

Counseling and Mental Health*
13024600 (1 credit)

Prerequisites: None
Recommended Prerequisites: Principles of Human Services
In Counseling and Mental Health, students model the knowledge and skills necessary to pursue a counseling and mental health career through simulated environments. Students are expected to apply knowledge of ethical and legal responsibilities, limitations on their actions and responsibilities, and the implications of their actions. Students understand how professional integrity in counseling and mental health care is dependent on acceptance of ethical and legal responsibilities.

Level 4

| Course | Prerequisites | Corequisites | Career Clusters |

Practicum in Entrepreneurship*
First Time Taken:
13011111 (2 credits)

Prerequisites: None
Recommended Prerequisites: Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a CTE program of study
The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study.

* Indicates course is included in more than one program of study.

For additional information on the **Human Services** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

TEA
Texas Education Agency

Family and Community Services

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*

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

Level 1	• Principles of Information Technology • Foundations of Cybersecurity
Level 2	• Computer Science I • AP Computer Science Principles
Level 3	• AP Computer Science A
Level 4	• Practicum in Information Technology
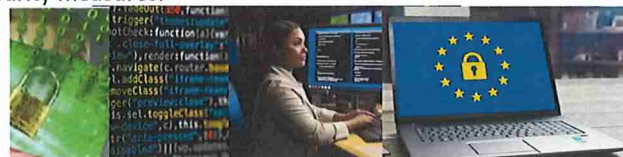
Examples Postsecondary Opportunities

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)

Aligned Advanced Academic Courses

AP	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	• 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	• Participate in a Hackathon • Participate in BPA

Aligned Industry-Based Certifications

• CompTIA Network+
• Cybersecurity Fundamentals

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/programs-of-study-additional-resources

Cybersecurity

Information Technology Career Cluster
Statewide Program of Study: Cybersecurity

Course Information

Level 1

Course	Prerequisites | Corequisites	Career Clusters
Principles of Information Technology* 13027200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None In Principles of Information Technology, students will develop computer literacy skills to adapt to emerging technologies used in the global marketplace. Students will implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. Students will enhance reading, writing, computing, communication, and reasoning skills and apply them to the information technology environment.	

Level 2

Course	Prerequisites | Corequisites	Career Clusters
Computer Science I* 03580200 (1 credit)	**Prerequisites:** *Algebra I* **Recommended Prerequisites:** None Computer Science I will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of the principles of computer science through the study of technology operations, systems, and concepts. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.	
AP Computer Science Principles* A3580300 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Algebra I* Content requirements for Advanced Placement (AP) Computer Science Principles are prescribed in the College Board Publication Advanced Placement® Curriculum Framework: AP Computer Science Principles, published by The College Board	

* Indicates course is included in more than one program of study.

For additional information on the **Information Technology** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Cybersecurity

Information Technology Career Cluster
Statewide Program of Study: Cybersecurity

Course Information

Level 3

AP Computer Science A*
A3580110 (1 math credit)
A3580120 (1 LOTE credit)

Prerequisites: None
Recommended Prerequisites: *Algebra I or a student should be comfortable with functions and the concepts found in the uses of functional notation such as*
f(x) = x + 2 and f(x) = g(h(x))
Content requirements for Advanced Placement (AP) Computer Science A are prescribed in the College Board Publication Advanced Placement Course Description: Computer Science A, published by The College Board.

Course	Prerequisites	Corequisites	Career Clusters

Level 4

Practicum in Information Technology*
First Time Taken:
13028000 (2 credits)
Second Time Taken:
13028010 (2 credits)

Prerequisites: *A minimum of two high school information technology (IT) courses*
Recommended Prerequisites: None
In the Practicum in Information Technology, students will gain advanced knowledge and skills in the application, design, production, implementation, maintenance, evaluation, and assessment of products, services, and systems. Knowledge and skills in the proper use of analytical skills and application of IT concepts and standards are essential to prepare students for success in a technology-driven society. Critical thinking, IT experience, and product development may be conducted in a classroom setting with an industry mentor, as an unpaid or paid internship, as part of a capstone project, or as career preparation.

* Indicates course is included in more than one program of study.

For additional information on the **Information Technology** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Cybersecurity

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

Level 1	• Principles of Information Technology
Level 2	• Computer Science I • AP Computer Science Principles • Entrepreneurship I
Level 3	• Computer Science II • AP Computer Science A
Level 4	• Practicum in Information Technology • Practicum in Entrepreneurship • Practicum in Entrepreneurship + Extended Practicum in Entrepreneurship

Aligned Advanced Academic Courses

AP	AP Calculus AB 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	• 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	• Program and create a game • Participate in SkillsUSA

Aligned Industry-Based Certifications

- Information Technology Specialist: Java
- Information Technology Specialist: JavaScript

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%

For more information visit:
https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources

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

Programming and Software Development

Information Technology Career Cluster

Statewide Program of Study: Programming and Software Development

Course Information

Level 1

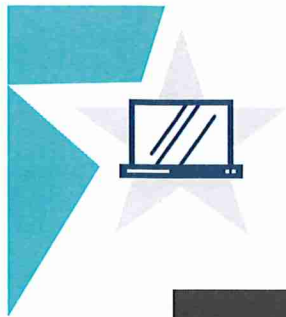| Course	Prerequisites | Corequisites	Career Clusters
Principles of Information Technology* 13027200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None In Principles of Information Technology, students will develop computer literacy skills to adapt to emerging technologies used in the global marketplace. Students will implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. Students will enhance reading, writing, computing, communication, and reasoning skills and apply them to the information technology environment.	

Level 2

Course	Prerequisites | Corequisites	Career Clusters
Computer Science I* 03580200 (1 credit)	**Prerequisites:** Algebra I **Recommended Prerequisites:** None Computer Science I will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of the principles of computer science through the study of technology operations, systems, and concepts. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts	
AP Computer Science Principles* A3580300 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Algebra I* Content requirements for Advanced Placement (AP) Computer Science Principles are prescribed in the College Board Publication Advanced Placement® Curriculum Framework: AP Computer Science Principles, published by The College Board	
Entrepreneurship I* 13011101 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Business, Marketing and Finance* The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study	

* Indicates course is included in more than one program of study.

For additional information on the **Information Technology** career cluster,
contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

TEA Texas Education Agency

Programming and Software Development

Information Technology Career Cluster

Statewide Program of Study: Programming and Software Development

Course Information

	Course	Prerequisites	Corequisites	Career Clusters
Level 3	**AP Computer Science A*** A3580110 (1 math credit) A3580120 (1 LOTE credit)	**Prerequisites:** None **Recommended Prerequisites:** *Algebra I or a student should be comfortable with functions and the concepts found in the uses of functional notation such as* $f(x) = x + 2$ and $f(x) = g(h(x))$ Content requirements for Advanced Placement (AP) Computer Science A are prescribed in the College Board Publication Advanced Placement Course Description: Computer Science A, published by The College Board.	
	Computer Science II 03580300 (1 credit)	**Prerequisites:** *Algebra I and either Computer Science I or Fundamentals of Computer Science* **Recommended Prerequisites:** None Computer Science II will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of computer science through the study of technology operations, systems, and concepts. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts. Computer Science III TSDS PEIMS Code: 03580350 (TACS3)	

	Course	Prerequisites	Corequisites	Career Clusters
Level 4	**Practicum in Information Technology*** First Time Taken: 13028000 (2 credits)	**Prerequisites:** *A minimum of two high school information technology (IT) courses* **Recommended Prerequisites:** None In the Practicum in Information Technology, students will gain advanced knowledge and skills in the application, design, production, implementation, maintenance, evaluation, and assessment of products, services, and systems. Knowledge and skills in the proper use of analytical skills and application of IT concepts and standards are essential to prepare students for success in a technology-driven society. Critical thinking, IT experience, and product development may be conducted in a classroom setting with an industry mentor, as an unpaid or paid internship, as part of a capstone project, or as career preparation.	
	Practicum in Entrepreneurship* First Time Taken: 13011111 (2 credits)	**Prerequisites:** None **Recommended Prerequisites:** *Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a CTE program of study* The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study.	

* *Indicates course is included in more than one program of study.*

For additional information on the **Information Technology** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

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: *Web Development*

The Web Development program of study focuses on occupational and educational opportunities associated with designing, creating, and modifying websites. It includes integration of websites with other computer applications and conversion of written, graphic, audio, and video components to compatible web formats using software designed to facilitate the creation of web and multimedia content.

Secondary Courses for High School Credit

Level 1
- Principles of Information Technology
- Digital Media
- Web Communications

Level 2
- Computer Science I
- Entrepreneurship I

Level 3
- Web Design

Level 4
- Practicum in Information Technology
- Practicum in Entrepreneurship
- Practicum in Entrepreneurship + Extended Practicum in Entrepreneurship

Aligned Advanced Academic Courses

AP	AP Computer Science A AP Computer Science Principles
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	• Intern at a nonprofit or small business to support developing or updating their website and digital media • Shadow a web designer to learn about how they developed their digital design skills and what factors they consider when developing a website
Expanded Learning Opportunities	• Create a website • Participate in SkillsUSA or TSA

Aligned Industry-Based Certifications

- Information Technology Specialist: HTML and CSS
- Information Technology Specialist: JavaScript

Example Postsecondary Opportunities

Associate Degrees
- Web Page, Digital/Multimedia and Information Resources Design
- Web/Multimedia Management

Bachelor's Degrees
- Computer and Information Sciences
- Information Technology

Master's, Doctoral, and Professional Degrees
- Computer and Information Sciences
- Computer Software Engineering

Additional Stackable IBCs/License
- HTML Developer

Example Aligned Occupations

Web Developers
Median Wage: $77,712
Annual Openings: 1,170
10-Year Growth: 24%

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

Computer and Information Systems Managers
Median Wage: $155,593
Annual Openings: 3,064
10-Year Growth: 26%

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

Web Development

Information Technology Career Cluster
Statewide Program of Study: Web Development

Course Information

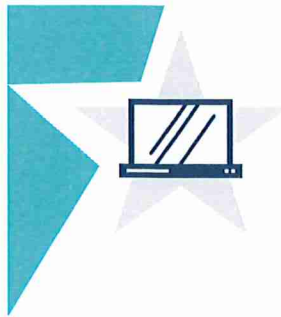|	Course	Prerequisites | Corequisites	Career Clusters
Level 1	**Principles of Information Technology*** 13027200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None In Principles of Information Technology, students will develop computer literacy skills to adapt to emerging technologies used in the global marketplace. Students will implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. Students will enhance reading, writing, computing, communication, and reasoning skills and apply them to the information technology environment.	
	Digital Media 13027800 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None In Digital Media, students will analyze and assess current and emerging technologies, while designing and creating multimedia projects that address customer needs and resolve a problem. Students will implement personal and interpersonal skills to prepare for a rapidly evolving workplace environment. The knowledge and skills acquired and practiced will enable students to successfully perform and interact in a technology-driven society. Students will enhance reading, writing, computing, communication, and critical thinking and apply them to the IT environment.	
	Web Communications 03580810 (0.5 credit)	**Prerequisites:** None **Recommended Prerequisites:** None In Web Communications, students will acquire knowledge of web communications and technological operations and concepts. This is an exploratory course in web communications. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.	

	Course	Prerequisites | Corequisites	Career Clusters
Level 2	**Computer Science I*** 03580200 (1 credit)	**Prerequisites:** Algebra I **Recommended Prerequisites:** None Computer Science I will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media. Students will collaborate with one another, their instructor, and various electronic communities to solve the problems presented throughout the course. Through data analysis, students will identify task requirements, plan search strategies, and use computer science concepts to access, analyze, and evaluate information needed to solve problems. By using computer science knowledge and skills that support the work of individuals and groups in solving problems, students will select the technology appropriate for the task, synthesize knowledge, create solutions, and evaluate the results. Students will learn digital citizenship by researching current laws and regulations and by practicing integrity and respect. Students will gain an understanding of the principles of computer science through the study of technology operations, systems, and concepts. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.	
	Entrepreneurship I* 13011101 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Business, Marketing, and Finance* The purpose of the course is to prepare students with the knowledge and skills needed to become a successful entrepreneur within an innovative marketplace. The goal and outcome of the course is for students to have their business launched by the end of the course or have the tools necessary to launch and operate their business. Students are encouraged to work in close cooperation with local industry leaders, community members, and educators to develop ideas and objectives, complete a business model canvas, pitch to potential investors, register with governmental agencies, develop their brand identity, and participate in local chamber of commerce meetings and events. The recommended participants are students in the CTE Entrepreneurship program of study, students in grades 11-12, and those interested in starting a business.	

Indicates course is included in more than one program of study.

For additional information on the **Information Technology** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Web Development

Information Technology Career Cluster
Statewide Program of Study: Web Development

Course Information

Level 3

Course	Prerequisites | Corequisites	Career Clusters
Web Design 03580820 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None In Web Design students will acquire knowledge of web design and technological operations and concepts that support creativity, innovation, collaboration, information fluency, critical thinking and decision making. The six strands include creativity and innovation; communication and collaboration; research and information fluency; critical thinking; problem solving, and decision making; digital citizenship; and technology operations and concepts.	

Level 4

Course	Prerequisites | Corequisites	Career Clusters
Practicum in Information Technology* First Time Taken: 13028000 (2 credits) Second Time Taken: 13028010 (2 credits)	**Prerequisites:** *A minimum of two high school information technology (IT) courses* **Recommended Prerequisites:** None In the Practicum in Information Technology, students will gain advanced knowledge and skills in the application, design, production, implementation, maintenance, evaluation, and assessment of products, services, and systems. Knowledge and skills in the proper use of analytical skills and application of IT concepts and standards are essential to prepare students for success in a technology-driven society. Critical thinking, IT experience, and product development may be conducted in a classroom setting with an industry mentor, as an unpaid or paid internship, as part of a capstone project, or as career preparation.	
Practicum in Entrepreneurship* First Time Taken: 13011111 (2 credits)	**Prerequisites:** None **Recommended Prerequisites:** *Entrepreneurship I and Entrepreneurship II or successful completion of at least two courses in a CTE program of study* The Practicum in Entrepreneurship provides students the opportunity to apply classroom learnings and experiences to real-world business problems and opportunities, while expanding their skill sets and professional relationships as a real or simulated business owner versus the experience one would have as an employee. Students will prepare for an entrepreneurial career in their area of interest in their career cluster and build on and apply the knowledge and skills gained from courses taken in an array of career areas. Practicum experiences occur in a paid or unpaid arrangement and a variety of locations appropriate to the nature and level of the student's need for work-based learning experience. Students implement personal and interpersonal skills to strengthen individual performance in the workplace and in society and to make a successful transition to the workforce or postsecondary education. It is recommended that students are paired with local business owners or employers in their specific industry program of study.	

* Indicates course is included in more than one program of study.

Web Development

For additional information on the **Information Technology** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

TEA Texas Education Agency

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 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

Level 1	• Principles of Law, Public Safety, Corrections, and Security
Level 2	• Law Enforcement I
Level 3	• Counseling and Mental Health
Level 4	• Forensic Science

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

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** | • 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 TXPSTA or SkillsUSA |

Aligned Industry-Based Certifications

• Non-Commissioned Security Officer Level II License

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/programs-of-study-additional-resources

Successful completion of the Law and Public Service program of study will fulfill requirements of the Public Services endorsement.

Law Enforcement

Law and Public Service Career Cluster
Statewide Program of Study: Law Enforcement

Course Information

Course	Prerequisites	Corequisites	Career Clusters
Principles of Law, Public Safety, Corrections, and Security* 13029200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None Principles of Law, Public Safety, Corrections, and Security introduces students to professions in law enforcement, protective services, corrections, firefighting, and emergency management services. Students will examine the roles and responsibilities of police, courts, corrections, private security, and protective agencies of fire and emergency services. The course provides students with an overview of the skills necessary for careers in law enforcement, fire service, protective services, and corrections.	

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

Course	Prerequisites	Corequisites	Career Clusters
Counseling and Mental Health* 13024600 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Human Services* In Counseling and Mental Health, students model the knowledge and skills necessary to pursue a counseling and mental health career through simulated environments. Students are expected to apply knowledge of ethical and legal responsibilities, limitations on their actions and responsibilities, and the implications of their actions. Students understand how professional integrity in counseling and mental health care is dependent on acceptance of ethical and legal responsibilities.	

Course	Prerequisites	Corequisites	Career Clusters
Forensic Science* 13029500 (1 credit)	**Prerequisites:** *One credit in Biology, one credit in Chemistry, Integrated Chemistry and Physics (IPC), or Physics* **Recommended Prerequisites:** None Forensic Science is a course that introduces students to the application of science to connect a violation of law to a specific criminal, criminal act, or behavior and victim. Students will learn terminology and procedures related to the search and examination of physical evidence in criminal cases as they are performed in a typical crime laboratory. Using scientific methods, students will collect and analyze evidence such as fingerprints, bodily fluids, hairs, fibers, paint, glass, and cartridge cases. Students will also learn the history and the legal aspects as they relate to each discipline of forensic science and understand that scientific methods of investigation can be experimental, descriptive, or comparative. *Note: This course satisfies a science credit requirement for students on the Foundation High School Program.*	

* Indicates course is included in more than one program of study.

For additional information on the **Law and Public Service** career cluster,
contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

Law Enforcement

TEA
Texas Education Agency

Manufacturing Career Cluster

Revised–December 2024

The Manufacturing career cluster focuses on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance, and process engineering. This career cluster includes occupations ranging from welder and machinist to industrial engineering technician and semi-conductor processing technician.

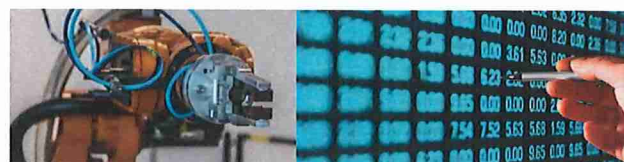## Statewide Program of Study: Robotics and Automation Technology

The Robotics and Automation Technology program of study focuses on occupational and educational opportunities associated with the assembly, operation, maintenance, and repair of electromechanical equipment or devices. This program of study includes exploration of a variety of mechanical fields, including robotics, refinery and pipeline systems, deep ocean exploration, and hazardous waste removal.

Secondary Courses for High School Credit

Level 1 • Principles of Applied Engineering

Level 2 • Robotics I

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
• Intern with a robotics technician working at a manufacturing plant
• Shadow a PLC programmer

Expanded Learning Opportunities
• Tour a manufacturing facility
• Participate in SkillsUSA
• Build a robot and participate in a robotics competition

Aligned Industry-Based Certifications

• FANUC Robot Operator I

Example Postsecondary Opportunities

Associate Degrees
• Instrumentation Technology
• Industrial Technology
• Robotics Technology
• Automation Engineer Technology

Bachelor's Degrees
• Mechanical Engineering
• Electrical Electronics Engineering
• Electrical, Electronic, and Communications Engineering Technology
• Electromechanical Engineering Technology

Master's, Doctoral, and Professional Degrees
• Mechanical Engineering
• Engineering/Industrial Management
• Industrial Engineering
• Electrical and Electronics Engineering

Example Aligned Occupations

Computer Numerically Controlled Tool Operators
Median Wage: $46,353
Annual Openings: 1,146
10-Year Growth: 10%

Semiconductor Processing Technicians
Median Wage: $36,902
Annual Openings: 621
10-Year Growth: 9%

Industrial Engineers
Median Wage: $100,000
Annual Openings: 1,898
10-Year Growth: 26%

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

Successful completion of the Robotics and Automation Technology program of study will fulfill requirements the STEM endorsement if the math and science requirements are met or of the Business and Industry endorsement.

For more information visit:
https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/programs-of-study-additional-resources

Robotics and Automation Technology

Course Information

	Course	Prerequisites | Corequisites	Career Clusters
Level 1	**Principles of Applied Engineering*** 13036200 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** None Principles of Applied Engineering provides an overview of the various fields of science, technology, engineering, and mathematics and their interrelationships. Students will develop engineering communication skills, which include computer graphics, modeling, and presentations, by using a variety of computer hardware and software applications to complete assignments and projects. Upon completing this course, students will understand the various fields of engineering and will be able to make informed career decisions. Further, students will have worked on a design team to develop a product or system. Students will use multiple software applications to prepare and present course assignments.	

	Course	Prerequisites | Corequisites	Career Clusters
Level 2	**Robotics I** 13037000 (1 credit)	**Prerequisites:** None **Recommended Prerequisites:** *Principles of Applied Engineering* In Robotics I, students will transfer academic skills to component designs in a project-based environment through implementation of the design process. Students will build prototypes or use simulation software to test their designs. Additionally, students will explore career opportunities, employer expectations, and educational needs in the robotic and automation industry.	

* Indicates course is included in more than one program of study.

For additional information on the **Manufacturing** career cluster, contact cte@tea.texas.gov or visit https://tea.texas.gov/cte

TEA Texas Education Agency

Robotics and Automation Technology