

CAREER AND TECHNICAL EDUCATION



Program Guide

***A note on coherent sequences of courses in a Program of Study**

A student in grades 9-12 who is enrolled in a CTE Program of Study must have a 4-year plan to take 2 or more CTE courses for 3 or more credits within that career pathway.

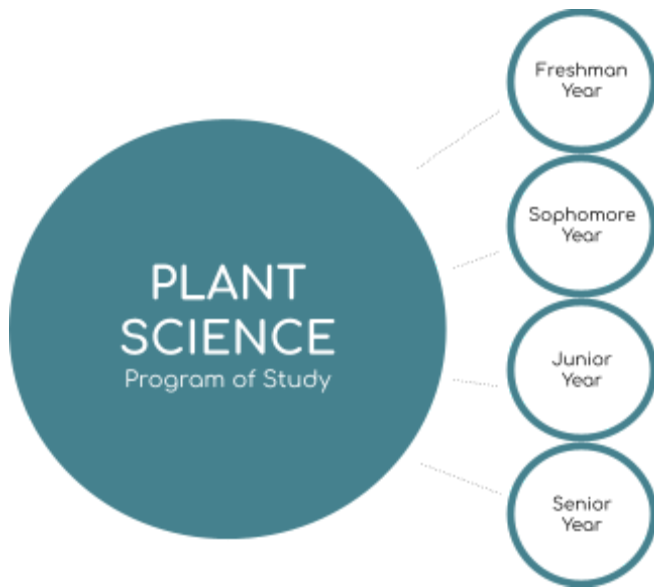
All information on this program guide is taken from the TEA website at <https://tea.texas.gov/academics/college-career-and-military-prep/career-and-technical-education/approved-cte-programs-study>

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Agriculture, Food, and Natural Resources



RECOMMENDED COURSE SEQUENCE

Freshman Year	Principles of Agriculture, Food, and Natural Resources
Sophomore Year	Landscape Design Turf Grass Management Horticulture Science
Junior Year	Floral Design Greenhouse Operations and Management
Senior Year	Advanced Plant and Soil Science Practicum in Agriculture, Food, and Natural Resources

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

WORKFORCE INFORMATION

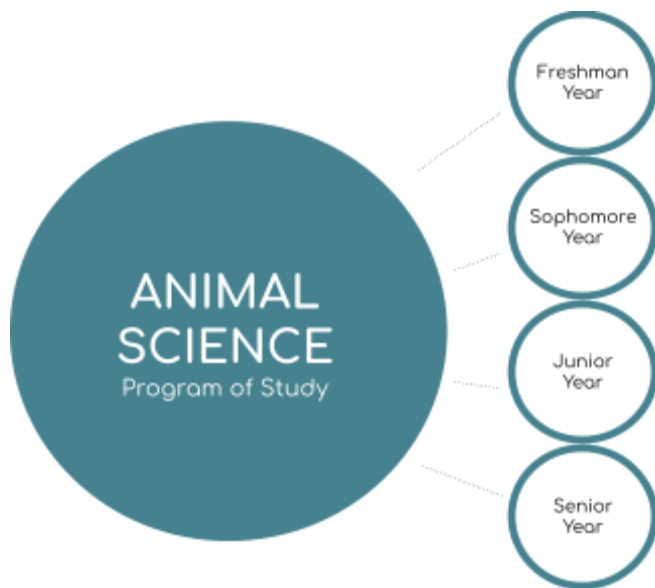
OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Plant Scientists	\$54,662	116	21%
Landscape Supervisors	\$44,408	807	19%
Turfgrass/Agricultural Managers	\$67,950	3700	6%

POSTSECONDARY OPTIONS

CERTIFICATIONS WHS OFFERS	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Texas State Floral Level 1	Certified Floral Designer	Agronomy and Crop Science	
Texas State Floral Level 2	Accredited Member of AIFD	Agricultural Business and Management, General	
	Pesticide Applicator	Applied Horticulture/Horticulture Operations, General	
	Landscape Industry Certified Technician	Turf and Turfgrass Management	Farm/Farm and Ranch Management

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	FFA, Agri-Science Fair, SAE
Work Based Learning Activities	Practicum in Agriculture, Food, and Natural Resources



RECOMMENDED COURSE SEQUENCE

Principles of Agriculture, Food, and Natural Resources

Small Animal Management
Equine Science
Wildlife Management

Livestock Production/Lab
Veterinary Medical Applications/Lab

Advanced Animal Science - 4th year Science Practicum in Agriculture, Food, and Natural Resources

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

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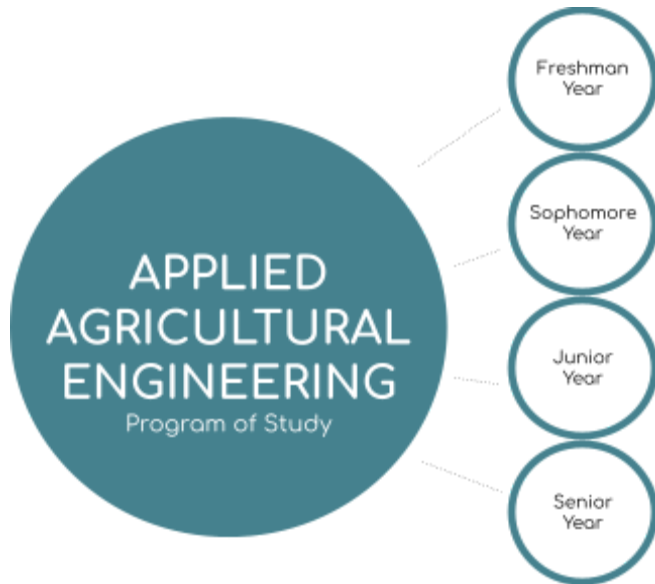
OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Animal Breeder	\$39,135	28	9%
Animal Scientist	\$57,533	22	12%
Veterinarians	\$93,496	294	24%
Biologist	\$67,309	45	32%

POSTSECONDARY OPTIONS

CERTIFICATIONS WHS OFFERS	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Licensed Vet Tech	Pet Groomer	Animal Sciences	Genetics
	Veterinary Technician	Agriculture	Veterinary Medicine
	Licensed Breeder	Biology	Biological and Physical Sciences
		Zoology/Animal Biology	Biological and Biomedical Sciences

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	Texas FFA
Work Based Learning Activities	Agri-Science Fair, SAE, Practicums



RECOMMENDED COURSE SEQUENCE

Principles of Agriculture, Food, and Natural Resources

Agricultural Mechanics and Metal Technologies/Lab

Agricultural Equipment Design and Fabrication/Lab

Practicum in Agriculture, Food, and Natural Resources

The Applied Agricultural Engineering program of study explores the occupations and educational opportunities associated with applying knowledge of engineering technology and biological science to agricultural problems concerned with power and machinery, electrification, structures, soil and water conservation, and processing agricultural products. This program of study may also include exploration into diagnosing, repairing, or overhauling farm machinery and vehicles, such as tractors, harvesters, dairy equipment, and irrigation systems.

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Outdoor Power Equipment and Other Small Engine Mechanics	\$32,406	366	16%
Welders	\$41,350	6,171	9%
Farm Equipment Mechanics and Service Technicians	\$39,915	304	17%
Agricultural Engineers	\$64,792	9	13%

POSTSECONDARY OPTIONS

CERTIFICATIONS WHS OFFERS	CERTIFICATE/LICENSE	BACHELOR'S DEGREE	MASTER'S/DOCTORAL PROFESSIONAL DEGREE
OSHA 30 Hour General Industry	Certified Professional Agronomist	Agricultural Engineering	Agricultural Engineering
	Certified Reliability Engineer	Agricultural Mechanization, General	Agricultural Mechanization, General
	Certified Irrigation Designer		

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	Texas FFA
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COURSE DESCRIPTIONS

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

Principles of Agriculture, Food, And Natural Resources

(1 credit)

Principles of Agriculture, Food, and Natural Resources will allow students to develop knowledge and skills regarding career and educational opportunities, personal development, globalization, industry standards, details, practices, and expectations. To prepare for careers in agriculture, food, and natural resources, students must attain academic skills and knowledge in agriculture. To prepare for success, students need opportunities to learn, experience, apply, and transfer their knowledge and skills in a variety of settings.

Landscape Design and Management

(.5 credit)

Landscape Design and Management is designed to develop an understanding of landscape design and management techniques and practices. To prepare for careers in horticultural systems, students must attain academic skills and knowledge, acquire technical knowledge and skills related to horticultural systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills and technologies in a variety of settings.

Prerequisite: Principles of Agriculture, Food, And Natural Resources

Turf Grass Management

(.5 credit)

Turf Grass Management is designed to develop an understanding of turf grass management techniques and practices. To prepare for careers in horticultural systems, students must attain academic skills and knowledge, acquire technical knowledge and skills related to horticultural systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills and technologies in a variety of settings.

Prerequisite: Principles of Agriculture, Food, And Natural Resources

Horticulture Science

(1 credit)

Horticultural Science is designed to develop an understanding of common horticultural management practices as they relate to food and ornamental plant production. To prepare for careers in horticultural systems, students must attain academic skills and knowledge, acquire technical knowledge and skills related to horticulture and the workplace, and develop knowledge and skills regarding career

opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills in a variety of settings.

Prerequisite: Principles of Agriculture, Food, And Natural Resources

Floral Design

(1 credit)

Floral Design is designed to develop students' ability to identify and demonstrate the principles and techniques related to floral design as well as develop an understanding of the management of floral enterprises. Through the analysis of artistic floral styles and historical periods, students will develop a respect for the traditions and contributions of diverse cultures. Students will respond to and analyze floral designs, thus contributing to the development of lifelong skills of making informed judgments and evaluations

Prerequisite: Principles of Agriculture, Food, And Natural Resources

(Floral Design includes a fee of \$20.00 for materials and supplies.)

Greenhouse Operations and Management

(1 credit)

Greenhouse Operation and Production is designed to develop an understanding of greenhouse production techniques and practices. To prepare for careers in horticultural systems, students must attain academic skills and knowledge, acquire technical knowledge and skills related to horticultural systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills and technologies in a variety of settings.

Prerequisite: Principles of Agriculture, Food, And Natural Resources

Advance Plant and Soil Science - 4th year Science Credit

(1 credit)

Advanced Plant and Soil Science provides a way of learning about the natural world. Students should know how plant and soil science has influenced a vast body of knowledge, that there are still applications to be discovered, and that plant and soil science is the basis for many other fields of science. To prepare for careers in plant and soil science, students must attain academic skills and knowledge, acquire technical knowledge and skills related to plant and soil science and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills and technologies in a variety of settings.

Prerequisite: Principles of Agriculture, Food, And Natural Resources

Small Animal Management

(1 credit)

In Small Animal Management, students will acquire knowledge and skills related to small animals and the small animal management industry. Small Animal Management may address topics related to small mammals such as dogs and cats, amphibians, reptiles, and birds. To prepare for careers in the field of animal science, students must enhance academic knowledge and skills, acquire knowledge and skills

related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills in a variety of settings. WHS students enrolled in the Small Animal Management class work closely with our partnership with FCI in our service dog training program.

Prerequisite: Principles of Agriculture

Equine Science

(.5 credit)

In Equine Science, students will acquire knowledge and skills related to equine animal systems and the equine industry. Equine Science may address topics related to horses, donkeys, and mules. To prepare for careers in the field of animal science, students must enhance academic knowledge and skills, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

Prerequisite: Principles of Agriculture

Wildlife, Fisheries, and Ecology Management

(1 credit)

Wildlife, Fisheries, and Ecology Management examines the management of game and non-game wildlife species, fish, and aquacrops and their ecological needs as related to current agricultural practices. To prepare for careers in natural resource systems, students must attain academic skills and knowledge, acquire technical knowledge and skills related to natural resources, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

Prerequisite: Principles of Agriculture

Livestock Production

(1 credit)

In Livestock Production, students will acquire knowledge and skills related to livestock and the livestock production industry. Livestock Production may address topics related to beef cattle, dairy cattle, swine, sheep, goats, and poultry. To prepare for careers in the field of animal science, students must attain academic skills and knowledge, acquire knowledge and skills related to animal systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

Prerequisite: Principles of Agriculture

Veterinary Medical Applications

(1 credit)

Veterinary Medical Applications covers topics relating to veterinary practices, including practices for large and small animal species. To prepare for careers in the field of animal science, students must attain

academic skills and knowledge, acquire technical knowledge and skills related to animal systems and the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer knowledge and skills and technologies in a variety of settings.

Prerequisite: Principles of Agriculture, Small Animal Management, Equine Science and/or Wildlife

Advanced Animal Science - 4th year Science Credit

(1 credit)

Advanced Animal Science examines the interrelatedness of human, scientific, and technological dimensions of livestock production. Instruction is designed to allow for the application of scientific and technological aspects of animal science through field and laboratory experiences. To prepare for careers in the field of animal science, students must attain academic skills and knowledge, acquire knowledge and skills related to animal systems, and develop knowledge and skills regarding career opportunities, entry requirements, and industry standards. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills in a variety of settings.

Prerequisite: Principles of Agriculture, Livestock Production

Practicum in Agriculture, Food and Natural Resources

(2 credits)

Practicum in Agriculture, Food, and Natural Resources is designed to give students supervised practical application of knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experiences such as employment, independent study, internships, assistantships, mentorships, or laboratories. To prepare for careers in agriculture, food and natural resources, students must attain academic skills and knowledge, acquire technical knowledge and skills related to the workplace, and develop knowledge and skills regarding career opportunities, entry requirements, and industry expectations. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their knowledge and skills and technologies in a variety of settings.

Prerequisite: A coherent sequence of 2 or more classes in the Plant Science or Animal Science Program of Study

Agricultural Mechanics and Metal Technologies/Lab

(1 credit)

Agricultural Mechanics and Metal Technologies is designed to develop an understanding of agricultural mechanics as it relates to safety and skills in tool operation, electrical wiring, plumbing, carpentry, fencing, concrete, and metalworking techniques. To prepare for careers in agricultural power, structural, and technical systems, students must attain academic skills and knowledge; acquire technical knowledge and skills related to power, structural, and technical agricultural systems and the industry; and develop knowledge and skills regarding career opportunities, entry requirements, industry certifications, and industry expectations.

Prerequisite: Intro to Welding

Agricultural Equipment Design and Fabrication/Lab

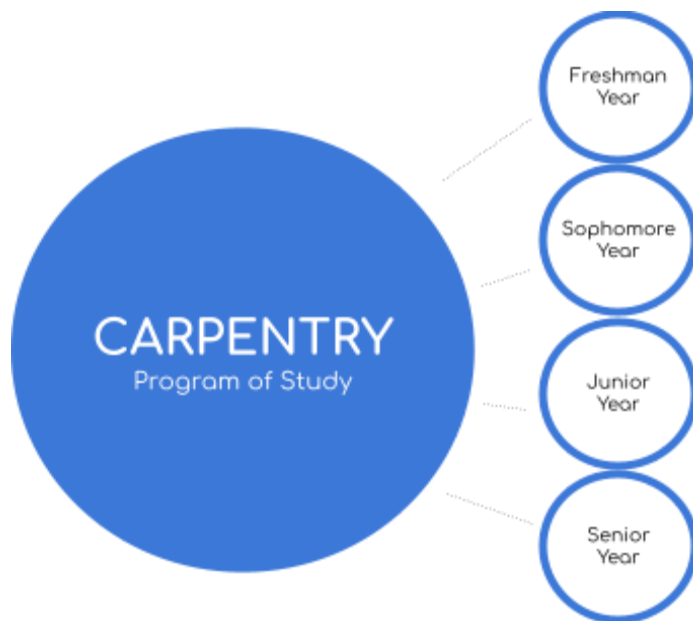
(2 credits)

In Agricultural Equipment Design and Fabrication, students will acquire knowledge and skills related to the design and fabrication of agricultural equipment.

Prerequisite: Welding I



Architecture and Construction



RECOMMENDED COURSE SEQUENCE

Principles of Architecture

Agricultural Structures Design and Fabrication

Construction Technology I

Construction Technology II
Practicum of Construction Technology

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

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Carpenter	\$44,824	80,000	8%
Architect	\$79,000	11,000	8%
Construction Managers	\$93,000	46,000	10%
Inspectors	\$59,700	7700	7%
WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES			
Exploration Activities	FFA		

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
OSHA 10 Certificate - Life	Certified Lead Carpenter	Construction Science	Construction Management
	Certified Installer		
	Certified Door Consultant		
	Fluid Power Connector & Conductor		

COURSE DESCRIPTIONS

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

Principles of Construction

(1 credit)

Principles of Construction is intended to provide an introduction and lay a solid foundation for those students entering the construction or craft skilled areas. The course provides a strong knowledge of construction safety, construction mathematics, and common hand and power tools. For safety and liability considerations, limiting course enrollment to 15 students is recommended. This course also provides communication and occupation skills to assist the student in obtaining and maintaining employment

Agricultural Structures Design and Fabrication

(1 credit)

In Agricultural Structures Design and Fabrication, students will explore career opportunities, entry requirements, and industry expectations. To prepare for careers in mechanized agriculture and technical systems, students must attain knowledge and skills related to agricultural structures design and fabrication. To prepare for success, students need opportunities to learn, reinforce, apply, and transfer their academic knowledge and technical skills in a variety of settings. Students will be introduced to skilled trades such as carpentry, plumbing, electrical, welding, concrete, and various other trades related to the construction industry.

Construction Technology I

(2 credits)

In Construction Technology I, students will gain knowledge and skills needed to enter the workforce as carpenters or building maintenance supervisors or to prepare for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in safety, tool usage, building materials, codes, and framing.

Recommended Prerequisite: For safety and liability considerations, limiting course enrollment to 15 students is recommended.

Construction Technology II

(2 credits)

In Construction Technology II, students will gain advanced knowledge and skills needed to enter the workforce as carpenters, building maintenance technicians, or supervisors or to prepare for a postsecondary degree in construction management, architecture, or engineering. Students will build on the knowledge base from Construction Technology I and are introduced to exterior and interior finish out skills.

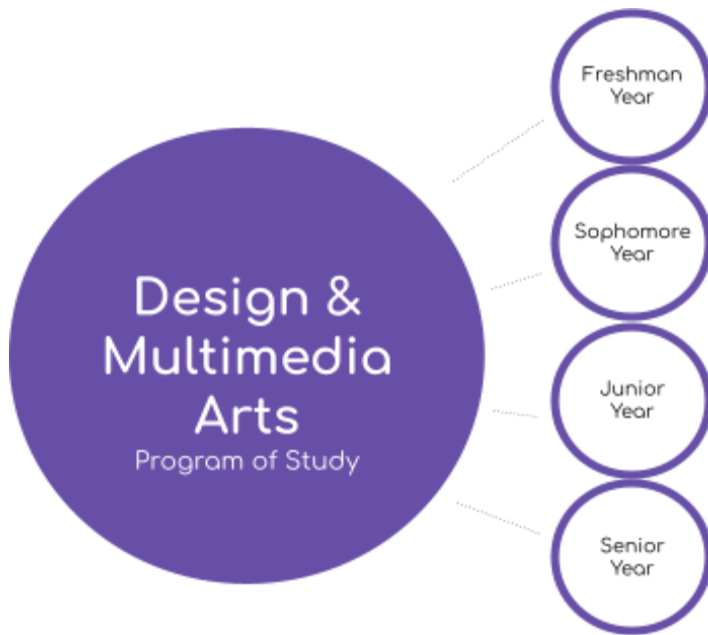
Recommended Prerequisite: For safety and liability considerations, limiting course enrollment to 15 students is recommended.

In Practicum in Construction Technology, students will be challenged with the application of knowledge and skills gained in previous construction-related coursework. In many cases students will be allowed to work at a job (paid or unpaid) outside of school or be involved in local projects the school has approved for this class.

Recommended Prerequisite: A coherent sequence of two or more classes in the Carpentry Program of Study



**Arts, A/V
Technology
and
Communications**



RECOMMENDED COURSE SEQUENCE

Principles of Arts, A/V Technology, and Communications
Video Game Design

Commercial Photography I
Graphic Design and Illustration I
Animation I

Commercial Photography II (Yearbook)
Graphic Design and Illustration II (Yearbook)

Practicum in Commercial Photography (Yearbook)
Practicum in Graphic Design and Illustration (Yearbook)

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

POSTSECONDARY OPTIONS

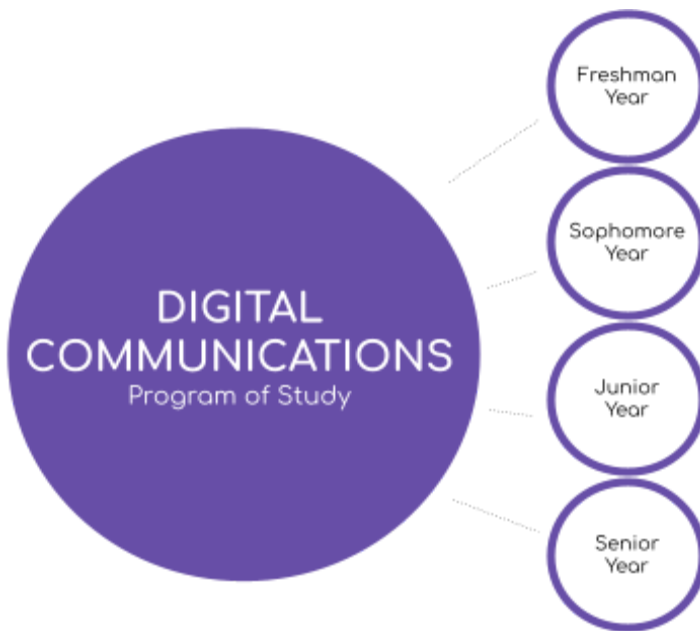
WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
	Certified Digital Designer	Animation, Interactive Technology, Video Graphics Special Effects	
Adobe Certified Associate (ACA)	WOW Certified Web Designer Apprentice	Graphic Design	
	Adobe Suite Certifications	Game and Interactive Media Design	Intermedia/ Multimedia

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Graphic Designers	\$44,824	1,433	15%
Multimedia Artists & Animators	\$67,392	186	21%

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	Join UIL Journalism and/or WHS Yearbook
Work Based Learning Activities	Intern with a multimedia or graphic design studio Work with the WHS Yearbook team



RECOMMENDED COURSE SEQUENCE

Principles of Arts, A/V Technology, and Communications

Audio/Video Production I
Digital Audio Technology I

Audio/Video Production II
Audio/Video Production II Lab

Practicum in Audio/Video Production

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

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Sound Engineer Techs	\$39,562	79	27%
Camera Operator	\$50,024	129	9%
Audio Video Equipment Tech	\$40,581	757	29%
Film and Video Editors	\$47,382	118	23%

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
FAA Remote Pilot License	Certified Video Engineer	Recording Arts Tech	Communications Technology/Tech
	Commercial Audio Tech	Cinematography and Film/Video Production	
Adobe Certified Associate (Premiere)	Certified AM Directional Specialist	Radio and Television Tech	Radio and Television
	Certified Broadcast Radio Engineer	Music Tech	Communication/ Journalism

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	WHS Live Broadcast for Announcements and special events
Work Based Learning Activities	Intern with a multimedia, broadcasting studio, or Wimberley Valley Radio

COURSE DESCRIPTIONS

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

Principles of Arts, A/V Technology, & Communications

(1 credit)

Students learn and complete real-world projects such as understanding camera fundamentals and composition for photography, preparing advertising and marketing materials, designing clothing, or creating and preparing audio and digital files for various types of output. Students will also be introduced to the different software programs within the Adobe Creative Suite, including Illustrator for graphic design and illustration, Photoshop for commercial photography and printing, Flash to explore animation, InDesign for Desktop Publishing, and Premier Pro to cover audio/video production.

Commercial Photography I

(1 credit)

Students will develop photography skills that span all aspects of the industry from setting up a shot to delivering products in a competitive market. Within this context, students will learn the basics of digital photography including camera parts and functions, proper handling of a camera, relating the elements and principles of art to photography, and taking quality photographs. Additionally, students will learn to edit and retouch images in Photoshop, research professional photographers and photography genres, and explore potential careers in photography.

Prerequisite: Principles of Arts, A/V Technology, & Communications

Graphic Design and Illustration I

(1 credit)

This is an introductory course that explores the various elements and principles of design and how they fit together. An emphasis is placed on terminology, design techniques, color, and software training using Adobe Photoshop, Illustrator, and InDesign. Typography and layout are additional concentrations included in the class. This course is about the organization of visual information.

Prerequisite: Principles of Arts, A/V Technology, & Communications

Animation

(1 credit)

Animation I is an introduction to traditional animation. Skills learned in Animation will prepare students for a possible future in the television/movie industry in the areas of animation, character and story development, special effects, and motion graphics. Students will digitally create both 2D animations.

Recommended Prerequisite: Principles of Arts, A/V Technology, & Communications

Video Game Design

(1 credit)

Video Game Design provides students with the opportunity to design, program, and create fully functional video games. The course will introduce basic programming and design skills that are essential to developing a video game. Topics covered are math, physics, level design, and computer programming. This course will instruct students on how to use problem solving in real world situations. Students will also learn the basics of programming structure and the software development life cycle.

Recommended Prerequisite: Principles of Arts, A/V Technology, & Communications

Commercial Photography II (Yearbook)

(1 credit)

Commercial Photography Technology II students will work with the *Graphic Design and Illustration II (yearbook)* students to take and edit photos for the Yearbook. Additionally, students will focus on the entrepreneur and creating an individualized business plan for beginning a photography business which includes the creation of a business website, obtaining an Adobe Certified Associate (ACA) certification in Adobe Photoshop, and producing a professional career portfolio.

Prerequisite: Commercial Photography I

Graphic Design and Illustration II (Yearbook)

(1 credit)

Graphic Design II students will work with the *Commercial Photography II (yearbook)* students to manipulate digital images and create and edit different page layouts. Students will also create different graphics, designs, posters, and banners as individual projects. Additionally, students can earn up to three Adobe Certified Associate (ACA) certifications in Adobe Photoshop, Illustrator and InDesign by end-of-course examinations in order to build their professional portfolios.

Prerequisite: Graphic Design and Illustration I

Audio/Video Production I

(1 credit)

This course will explore the Audio and Video production industry and its post secondary educational and career opportunities. Students will gain job-specific training for entry level employment in audio, video, television, and motion picture careers. Professional grade equipment and software will be used in the creation of student lead productions. Students will be involved in every aspect of several class and small group audio, video, and film style production projects.

Prerequisite: Principles of Arts, A/V Technology, & Communications

Audio/Video Production II

(1 credit)

Students will work on several audio/video productions created for television, cable television, education, radio, entertainment, business and/or industry. Students may concentrate on specific areas of interest such as videography, video editing, film editing, audio recording, audio mixing, sound reinforcement, sound design, dialog editing, lighting, directing, producing, still or animated computer graphics, special effects,

voice talent, on-camera talent, production management and camera operation. Additional time beyond regular school hours is required for productions.

Prerequisite: Audio/Video Production I

Audio/Video Production II Lab

Building upon concepts taught in A/V Production, in addition to developing advanced knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced understanding of the industry with a focus on pre-production, production, and post-production products. Through diverse forms of storytelling and production, students will exercise and develop creativity, intellectual curiosity, **Prerequisite: Audio/Video Production I**

Practicum in Commercial Photography (Yearbook II)

(2 credits)

Students will be expected to develop a hands-on understanding of the industry with a focus on skill proficiency. Instruction may be delivered through lab-based classroom experiences taking quality photos for the yearbook and the website or career preparation opportunities in the community.

Prerequisite: A coherent sequence of two or more classes in the Design and Multimedia Arts Program of Study

Practicum in Audio/Video Technology

(2 credits)

Students in this class will develop advanced knowledge and skills in their chosen field of study related to audio and video production. Students will develop their portfolio of work that will assist them in gaining entry level employment, earning admittance into college film/video, television/radio broadcasting, and audio production programs, as well as securing post-secondary scholarships. Additional time beyond regular school hours is required for productions.

Prerequisite: A coherent sequence of two or more classes in the Digital Communication Program of Study

Practicum in Graphic Design and Illustration (Yearbook II)

(2 credits)

Students will be expected to develop a hands-on understanding of the industry with a focus on skill proficiency. Instruction may be delivered through lab-based classroom experiences creating graphics, logos, media, and the yearbook or career preparation opportunities in the community. **Prerequisite: A coherent sequence of two or more classes in the Design and Multimedia Arts Program of Study**



Business, Marketing, and Finance



RECOMMENDED COURSE SEQUENCE

Freshman Year	Principles of Business, Marketing, and Finance
Sophomore Year	Banking and Financial Services/Virtual Business
Junior Year	Money Matters
Senior Year	Practicum in Business Management

The Accounting and Financial Services program of study teaches CTE concentrators how to examine, analyze, and interpret financial records. Through this program of study, students will learn the skills necessary to perform financial services, prepare financial statements, interpret accounting records, give advice, or audit and evaluate statements prepared by other students.

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Quickbooks Certified User	Certified Management Accountant	Real Estate (Associate's Degree) Accounting	Financial Accounting
	Certified Internal Auditor	Financial, General	Business Administration
	Certified Income Specialist	Financial Planning & Services	Financial Planning
	Certified Public Accountant	Certified Income Specialist	

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Accountants & Auditors	\$71,469	14,436	22%
Loan Officers	\$68,598	2,419	19%
Personal Financial Advisors	\$86,965	1,861	52%
Administrative Service Managers	\$96,138	2,277	21%
	WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES		
Exploration Activities	National Technical Honor Society		
Work Based Learning Activities	Intern with local accounting firm; Practicum in Business Management		



RECOMMENDED COURSE SEQUENCE

Principles of Business, Marketing, and Finance

Banking and Financial Services/Virtual Business

Advertising/Social Media Marketing

Practicum in Marketing

WORKFORCE INFORMATION

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

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Marketing Specialists	\$70,346	4,664	40%
Insurance Sales Agents	\$43,181	5,886	30%
Management Analysts	\$87,651	4,706	32%
Wholesale & Retail Buyers	\$51,106	1,299	19%

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	ASSOCIATE'S OR BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Google AdWords and Google Analytics	Certified Project Manager	Marketing/ Management, General	Marketing
	DMA Certified Marketing Professional	Management, Business Administration	Business Administration
	Certified Salesperson	Applied Economics	Applied Economics
	Real Estate Appraiser	Business, Marketing Research	Advertising

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	National Technical Honor Society
Work Based Learning Activities	Shadow a real estate agent or business owner Practicum in Marketing and Sales

COURSE DESCRIPTIONS

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.

Principles of Business, Marketing, and Finance

(1 credit)

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.

Banking and Financial Services Virtual Business

(.5 credit)

(.5 credit)

In Banking and Financial Services, students will develop knowledge and skills in the economic, financial, technological, and ethical aspects of banking to become competent employees and entrepreneurs. Students will incorporate a broad base of knowledge that includes the operations, sales, and management of banking institutions to gain an understanding of how banks function within society.

Virtual Business is designed for students to start a virtual business by creating a web presence, conducting online and off-line marketing, examining contracts appropriate for an online business, and demonstrating project-management skills. Students will also maintain business records and understand legal issues associated with a virtual business.

Recommended Prerequisite: Principles of Business, Marketing, and Finance

Money Matters

(1 credit)

Money Matters will promote financial responsibility among teens by building their basic money management skills. Students will investigate money management from a personal financial perspective. Students will apply critical-thinking skills to analyze financial options based on current and projected economic factors. Students examine various methods of achieving short-term and long-term financial goals through methods such as investing, tax planning, asset allocation, retirement planning, and estate planning.

Strongly recommended for all students.

Recommended Prerequisite: Principles of Business, Marketing, and Finance

Advertising
Social Media Marketing

(.5 credit)
(.5 credit)

Advertising is designed as a comprehensive introduction to the principles and practices of advertising. Students will gain knowledge of techniques used in current advertising, including print, broadcast and digital media. The course provides an overview of how communication tools can be used to reach target audiences.

Social Media Marketing is designed to look at the rise of social media and how marketers are integrating social media tools in their overall marketing strategy. Students will understand techniques for gaining customer and consumer buy-in to achieve marketing goals and properly select social media platforms to engage consumers.

Recommended Prerequisite: Principles of Business, Marketing, and Finance

Practicum in Marketing

(2 credits)

Practicum in Marketing will integrate skills from academic subjects, information technology, interpersonal communication, and management training to make responsible decisions in the workplace. This is a fourth year capstone course.

Prerequisite: A coherent sequence of two or more classes in the Marketing and Sales Program of Study

Practicum in Business Management

(2 credits)

Practicum in Business Management is designed to give students supervised practical application of previously studied knowledge and skills. Practicum experiences occur in a variety of locations appropriate to the nature and level of experience. This is a fourth year capstone course in Business Management and Administration.

Prerequisite: A coherent sequence of two or more classes in the Accounting and Financial Services Program of Study



Education and Training



RECOMMENDED COURSE SEQUENCE

- Principles of Human Services
- Child Development
- Practicum in Education and Training

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

WORKFORCE INFORMATION

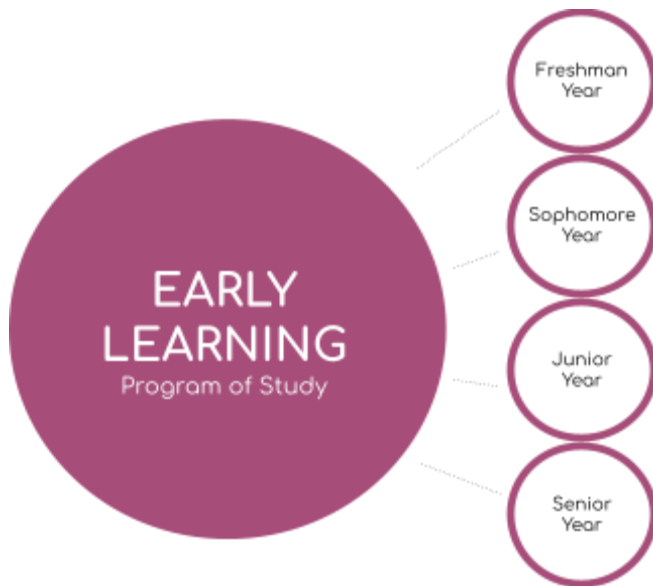
OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Adult Basic & Secondary Education	\$48,069	862	17%
Middle School Teachers	\$54,510	6,407	15%
Career and Technical Education Teachers	\$56,360	719	9%
Special Education Teachers	\$56,720	980	18%

POSTSECONDARY OPTIONS

CERTIFICATIONS WHS OFFERS	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
	Texas Educator Certification Program	Teacher Education	Instruction and Learning
	Educational Instructional Technology	Education, General	Educational Leadership and Administration
	Counselor, Professional	Special Education	
	Athletic Trainer	Health and Physical Education/ Fitness	Social and Philosophical Foundations of Education

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	Texas Associate of Future Educators
Work Based Learning Activities	Practicum at Jacobs Well Elementary or Scudder Primary



RECOMMENDED COURSE SEQUENCE

- Principles of Human Services
- Child Development
- Counseling and Mental Health
- Practicum in Education and Training

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

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Kindergarten Teachers	\$53,320	1,848	17%
Preschool Teachers	\$27,851	4,330	17%
Special Education Teachers, Preschool	\$55,670	148	27%
Education Administrator	\$79,830	2,407	16%

POSTSECONDARY OPTIONS

CERTIFICATIONS WHS OFFERS	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Childcare Training	Child Development Associate	Early Childhood Education and Teaching	
	Texas Educator Certification Program	Multicultural Early Childhood Development	
	County Librarian	Kindergarten/ Preschool Education and Training	Educational, Instructional, and Curriculum and Instruction
	Professional Counselor	Psychology/ Sociology	Educational Leadership and Administration

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	Texas Association of Future Educators
Work Based Learning Activities	Practicum as an intern at Jacobs Well Elementary or Scudder Primary

COURSE DESCRIPTIONS

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.

Principles of Human Services

(1 credit)

Introductory course to enable students to investigate careers in the human services cluster, including counseling and mental health, early childhood development, family and community, and personal care services.

Child Development

(1 credit)

This course is recommended for those interested in professions involving children. The process of human development from conception through adolescence is studied. Emphasis is placed on development which enables one to reach physical, mental, emotional and social maturity. The influence of the family and society on child development, prenatal care and development, Promoting healthy dietary practices in children, leadership and teamwork in preparation for adult roles, career options, preparation requirements, and management practices, application of school-based learning in family, community, and employment settings

Recommended Prerequisite: Principles of Human Service

Counseling and Mental Health

(1 credit)

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.

Recommended Prerequisite: Principles of Human Service

Practicum in Education and Training

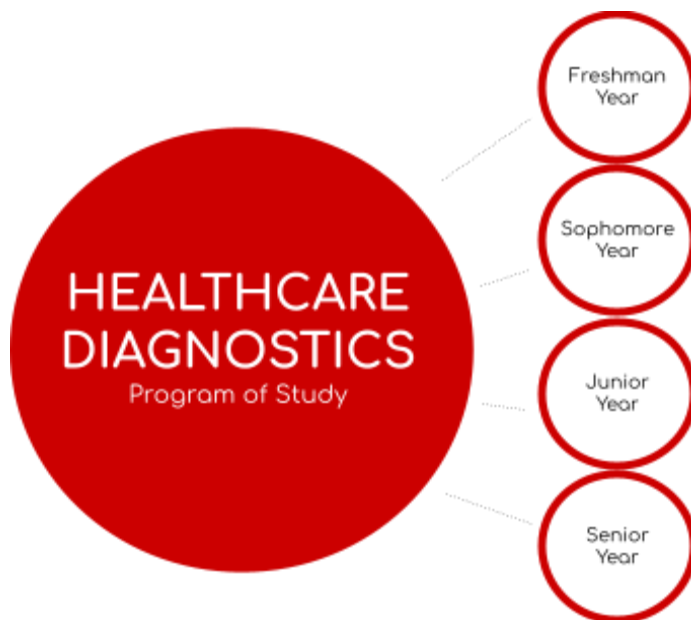
(2 credits)

Practicum in Education and Training is a field-based internship that provides students background knowledge of child and adolescent development principles as well as principles of effective teaching and training practices. Students in the course work under the joint direction and supervision of both a teacher with knowledge of early childhood, middle childhood, and adolescence education and exemplary educators in direct instructional roles with elementary-, middle school-, and high school-aged students.

Prerequisite: A coherent sequence of two or more classes in the Education and Training Pathway.



Health Science



RECOMMENDED COURSE SEQUENCE

Freshman Year	Principles of Health Science
Sophomore Year	Medical Terminology
Junior Year	Medical Microbiology, Health Science Theory
Senior Year	Anatomy and Physiology Pharmacy Tech/Pharmacology, Practicum in Health Science, Patient Care Technician, Pathophysiology

The Healthcare Diagnostics program of study introduces students to occupations and educational opportunities related to performing complex medical laboratory tests for the diagnosis, treatment, and prevention of disease. This program of study may also include exploration into the opportunities associated with blood laboratories as well as radiologic technology, and ultrasonic technology.

WORKFORCE INFORMATION

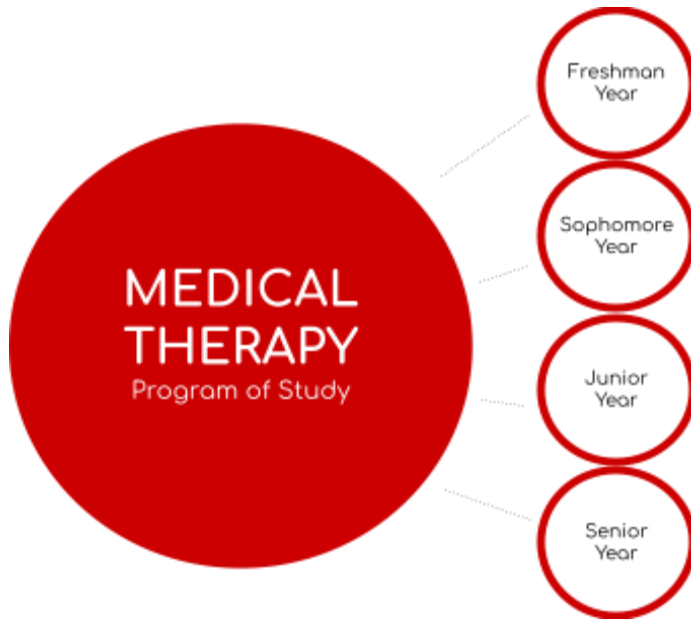
OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Diagnostic Medical Sonographers	\$69,909	495	35%
Phlebotomist	\$30,597	1442	36%
Nuclear Medicine Tech	\$75,962	91	13%
Radiologic Tech	\$55,494	1196	19%

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Patient Care Technician	Medical Sonographer	Nuclear Medical Technology	Radiologist
	Radiologic Technologist	Medical Radiologic Technology	Radiologic Technology/ Science - Radiographer

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	HOSA
Work Based Learning Activities	Clinical Rotations at a hospital, clinic, or nursing homes



RECOMMENDED COURSE SEQUENCE

Principles of Health Science

Medical Terminology

Health Science Theory

Practicum in Health Science

The Medical Therapist program of study focuses on the study of biology and medicine in order to introduce students to the knowledge and skills necessary to be successful in the healthcare field in occupations such as Respiratory, Occupational, Physical, or Speech Therapist. Students may also practice patient care and communication.

WORKFORCE INFORMATION

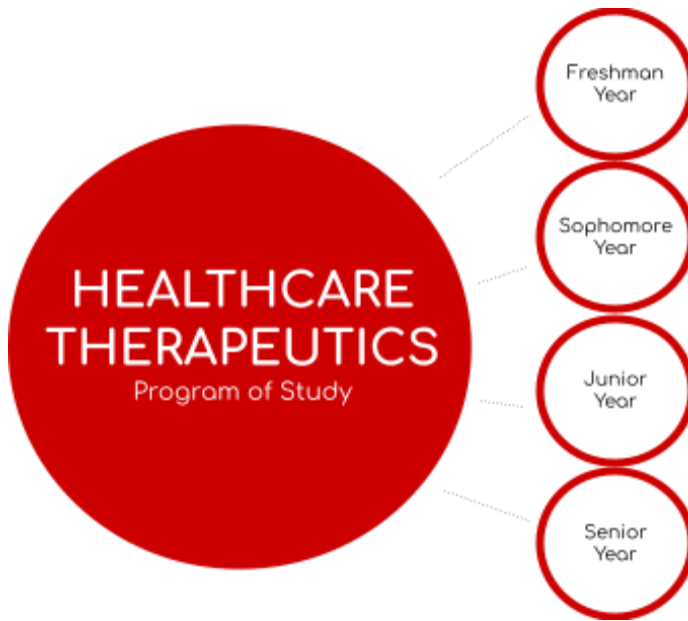
OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Speech Language Pathologist	\$73,070	1,068	25%
Radiation Therapist	\$70,658	101	23%
Physical Therapy Assistant	\$70,200	1,268	44%
Occupational Therapist	\$92,227	84	34%

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	ASSOCIATE'S/ BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Patient Care Technician	Certified Respiratory Therapist	Occupational Therapy/Respiratory Therapists	
	Certified Physical Therapy Assistant	Radiation Therapists	Speech Language Pathology
		Respiratory Therapists	Physical Therapists
		Physical Therapy Assistant	

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	HOSA
Work Based Learning Activities	Volunteer at a local hospital, wellness center, assisted living center, or nursing home. Lab internship; clinical rotations



RECOMMENDED COURSE SEQUENCE

Freshman Year	Principles of Health Science
Sophomore Year	Health Science Theory Medical Terminology
Junior Year	Medical Microbiology Anatomy and Physiology
Senior Year	Patient Care Tech Pharmacy Tech/Pharmacology Practicum in Health Science

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

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Medical Assistant	\$29,598	8,862	30%
Dental Hygienist	\$73,507	1,353	38%
Physician and Surgeon	\$213,071	1,151	30%
Dental Assistant	\$34,840	4,422	31%

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Patient Care Technician	Surgical Technologist	Family and General Practitioners	
	Dental Assistant	Dental Hygienist	Dentist
	Medical Assistant	Family and General Practitioners	
	Pharmacy Aides		Pharmacist

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	HOSA
Work Based Learning Activities	Volunteer at a local hospital, wellness center, assisted living center, or nursing home. Practicum in Health Science.

COURSE DESCRIPTIONS

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

Principles of Health Science

(1 credit)

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 healthcare industry.

Health Science Theory

(1 credit)

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.

Prerequisite: Principles of Health Science, Biology

Medical Terminology

(1 credit)

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.

Prerequisite: Principles of Health Science

Medical Microbiology

(1 credit)

The Medical Microbiology course is designed to explore the microbial world, studying topics such as pathogenic and non-pathogenic microorganisms, laboratory procedures, identifying microorganisms, drug resistant organisms, and emerging diseases. Students must meet the 40% laboratory and fieldwork requirement. This course satisfies a high school science graduation requirement.

Prerequisite: Biology and Chemistry

Anatomy and Physiology

(1 credit)

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.

Prerequisite: Biology and a second science

Patient Care Technician

(1 credit)

Hands-on training course for Patient Care Technician.

Prerequisite: Principles of Health Science

Pharmacy Tech/Pharmacology

(1 credit)

This course is designed to introduce students to the structure of medical pharmacology. Pharmacy Tech Certification earned.

Prerequisite: Principles of Health Science

Practicum in Health Science

(2 credits)

The Practicum in Health Science course is designed to give students practical application of previously studied knowledge and skills. Practicum experiences can occur in a variety of locations appropriate to the nature and level of experience.

Prerequisite: Health Science Theory and Biology



Human Services

RECOMMENDED COURSE SEQUENCE



Principles of Human Services

Child Development/Lifetime Nutrition & Wellness/Interpersonal Studies/Counseling and Mental Health

Child Development/Lifetime Nutrition & Wellness/Interpersonal Studies/Counseling and Mental Health

Practicum in Human Services

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

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Child, Family, and Social School Workers	\$41,350	2,221	17%
Social and Community Service Managers	\$65,146	608	33%
Marriage and Family Therapists	\$42,266	217	35%
Mental Health and Substance Abuse and Behavioral Disorder Counselors	\$42,120	576	39%

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Food Handler License	Human Development/ Family Studies	Human Development and Family Studies	
	Community Health Services/ Counseling	Human Services/ Sciences	Marriage and Family Therapy/ Counseling
	Distance Credentialed Counselor	Family and Consumer Sciences	Human Services/ Sciences
	Educator Certification in Family/ Consumer Sciences	Community Health Services	Family Studies

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	Health and Wellness Center
Work Based Learning	Health and Wellness Center; Work with professional counselors

COURSE DESCRIPTIONS

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.

Principles of Human Services

(1 credit)

Laboratory course to enable students to investigate careers in the human services cluster, counseling and mental health, early childhood development, family and community, and personal care services.

Child Development

(1 credit)

This course is recommended for those interested in professions involving children. The process of human development from conception through adolescence is studied. Emphasis is placed on development which enables one to reach physical, mental, emotional and social maturity. The influence of the family and society on child development, prenatal care and development, Promoting healthy dietary practices in children, leadership and teamwork in preparation for adult roles, career options, preparation requirements, and management practices, application of school-based learning in family, community, and employment settings

Recommended Prerequisite: Principles of Human Services

Lifetime Nutrition and Wellness

(.5 credit)

Lifetime Nutrition and Wellness is a laboratory course which allows students to use the 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.

Recommended Prerequisite: Principles of Human Services

Interpersonal Studies

(.5 credit)

Interpersonal Studies examines how the relationships between individuals and among family members significantly affect the quality of life. Students use knowledge and skills in family studies and human development to enhance personal development, foster quality relationships, promote wellness of family members, manage multiple adult roles, and pursue careers related to counseling and mental health services.

Recommended Prerequisite: Principles of Human Services

Counseling and Mental Health

(1 credit)

In Counseling and Mental Health, students model the knowledge and skills necessary to pursue a counseling and mental health career through simulated environments. Students will 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. **Recommended Prerequisite: Principles of Human Services**

Practicum in Human Services

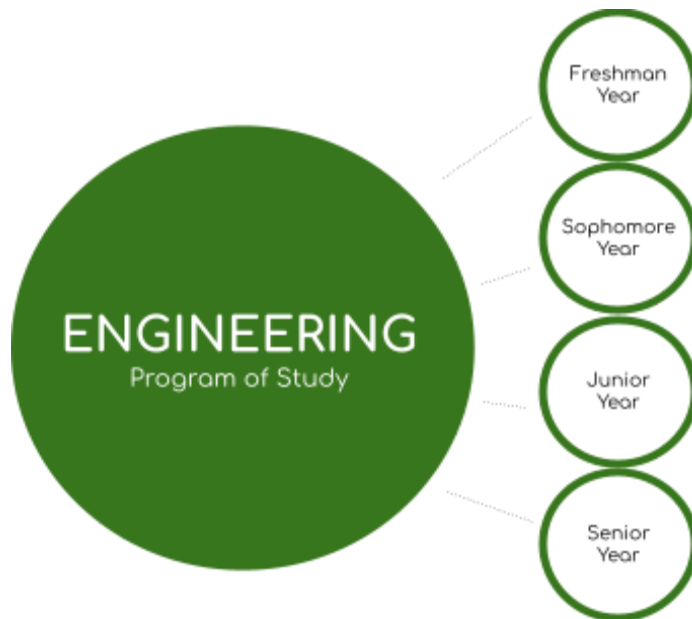
(2 credits)

Practicum in Human Services provides background knowledge and occupation-specific training that focuses on the development of consumer services, early childhood development and services, counseling and mental health services, and family and community-services careers. This is a fourth year capstone course in Family and Community Services.

Prerequisite: A coherent sequence of two or more classes in the Family and Community Services Program of Study



STEM



RECOMMENDED COURSE SEQUENCE

Principles of Applied Engineering

Engineering Design and Presentation I
Robotics I
Computer Science 1

Engineering Design and Problem Solving
OnRamps UT Computer Science

Practicum in Science, Technology, Engineering or Mathematics

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

WORKFORCE INFORMATION

OCCUPATIONS	MEDIAN WAGE	ANNUAL OPENINGS	% GROWTH
Aerospace Engineers	\$110,843	481	9%
Industrial Engineer	\$97,074	1,263	10%
Mechanical Engineer	\$112,819	474	9%
Electrical Engineer	\$98,405	1,137	10%

POSTSECONDARY OPTIONS

WHS CERTIFICATIONS OFFERED	CERTIFICATE/ LICENSE	BACHELOR'S DEGREE	MASTER'S/ DOCTORAL PROFESSIONAL DEGREE
Autodesk Certified User: Inventor	Engineer, Professional	Electrical, Mechanical, Civil, and Electronics Engineer	
Autodesk Certified User: AutoCAD	Fluid Power Systems Designer	CAD/CADD Drafting and or Design Technology	Mechanical Engineering
OSHA 10-Hour	Certified Biomedical Auditor	Bioengineering and Biomedical Engineering	
	Certified Cost Estimator	Construction Engineering Technology/Technician	

WORK BASED LEARNING AND EXPANDED LEARNING OPPORTUNITIES

Exploration Activities	UIL BEST Robotics , UIL FIRST Robotics
Work Based Learning Activities	Practicum in Engineering

COURSE DESCRIPTIONS

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

Principles of Applied Engineering

(1 credit)

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.

Engineering Design and Presentation I

(1 credit)

The primary focus will be an introduction to the principles of drafting to include terminology and fundamentals, including size and shape descriptions, projection methods, geometric construction, sections, auxiliary views, and reproduction processes. This course instructs students in modern graphics and modeling fundamentals for engineering design. Students will be introduced to freehand sketching, multi-view orthographic projection, shape modeling and its applications in computer-aided drafting and design (CAD). Studies will include graphic geometry and projection techniques, visualization methods, pictorial drawings, geometric modeling techniques for CAD, drafting practices, and manufacturing processes and materials documentation. An electronic portfolio is required to receive credit from ACC after successfully completing the class.

Recommended Prerequisite: Principles of Applied Engineering

Engineering Design and Problem Solving

(1 credit)

The Engineering Design and Problem-Solving course is the creative process of solving problems by identifying needs and then devising solutions. The solution may be a product, technique, structure, or process depending on the problem. Science aims to understand the natural world, while engineering seeks to shape this world to meet human needs and wants. Engineering design takes into consideration limiting factors or "design under constraint." Various engineering disciplines address a broad spectrum of design problems using specific concepts from the sciences and mathematics to derive a solution. The design process and problem solving are inherent to all engineering disciplines.

Recommended Prerequisite: Engineering Design and Presentation I | Principles of Applied Engineering

Robotics I

(1 credit)

Students who are members of the Wimberley Robotics team. This class comes with after school and weekend commitments. Wimberley Robotics competes in UIL BEST Robotics competition and UIL FIRST Robotics Competition.

Computer Science I

(1 credit)

Computer Science 1 will foster students' creativity and innovation by presenting opportunities to design, implement, and present meaningful programs through a variety of media.

On Ramps UT Computer Science

(1 credit)

Thriving in our Digital World, is a new Dual Enrollment course that teaches Computer Science Principles, a set of core ideas that shapes the landscape of computer science and its impact on our society. In addition to learning about the magic and beauty of computing, students will acquire essential Texas College and Career Readiness Skills, such as critical thinking, problem solving and communication. Students will experience a high quality curriculum designed by the faculty at the University of Texas at Austin. Students can earn three hours of UT credit, with feedback and assessment provided by UT course staff.