

# Tornillo High School

## CAREER AND TECHNICAL EDUCATION

Course Catalog & Programs of Study 2021-2022

Tornillo Independent School District

# Contents

Career and Technical Education .....	4
Tornillo Independent School District .....	5
Tornillo ISD Programs of Study.....	6
Classes by Program of Study .....	9
Architecture & Construction.....	9
Heating, Ventilation and Air Conditioning Cluster (WTC R-HVAC Tech AOS).....	9
Arts, A/V Technology & Communications.....	11
Digital Communications Cluster .....	11
Arts, A/V Technology & Communications.....	12
Design and Multimedia Arts Cluster .....	12
Business, Marketing and Finance .....	13
Business, Marketing and Finance .....	14
Education & Training .....	15
Teaching Cluster .....	15
Health Science .....	16
Healthcare Therapeutic Cluster (WTC Medical / Clinical Assistant) .....	16
Information Technology.....	18
Networking Cluster .....	18
Law, Public Safety, Corrections and Security .....	19
Law Enforcement Cluster .....	19
Manufacturing .....	21
Welding Cluster (WTC Advanced Welding Certification) .....	21
Science, Technology, Engineering, & Mathematics .....	23
Cybersecurity Cluster .....	23
Transportation, Distribution & Logistics.....	25
Diesel Technician Pathway (WTC Diesel Technician AOS) .....	25



## **TISD Mission Statement**

The mission of the district is to educate and inspire students in a safe and supportive environment which will result in closing the achievement gap by preparing all students for college readiness and success in a global society.

## **TISD Vision Statement**

Believe we can succeed, with pride we achieve.



# **STUDENT OUTCOME GOALS**

## **GOAL 1**

Students performing at the Meets Grade Level Standard on STAAR Reading grade 3rd - 8th, EOC English I & English II will increase from 28% in 2019 to 46% by 2024.

## **GOAL 2**

Students performing at the Meets Grade Level Standard on STAAR Math grades 3rd - 8th, and EOC Algebra I will increase from 35% in 2019 to 50% by 2024.

## **GOAL 3**

Students graduating college, career, and military ready will increase from 78% in 2019 to 90% by 2024.



# Career and Technical Education



## What We Do

Through the Career and Technical Education Department, students receive hands on experience with various options available to them out in the real world. With these experiences in hand, as they reach the end of their high school career and they step out into the great unknown, they will have a better understanding of which direction they should go. Whether it is heading off to college, starting a career, or the joining the military, students will have a more concise path to follow into their future.

## CTE Mission Statement

To prepare and empower students for their transition from high school to college, career, military, and beyond.

## CTE Vision Statement

We will continue to evolve and add new programs to provide relevant career and technical opportunities here, locally, in Tornillo!

## Endorsements

Students are able to earn one or more endorsements as part of their graduation requirements. Endorsements consist of a related series of courses that are grouped together by interest or skill set. They provide students with in-depth knowledge of a subject area. Students must select an endorsement as they enter the ninth grade. Districts are not required to offer all endorsements, yet TISD offers all 5 endorsements possible. The endorsements offered by TISD are:

- Science, Technology, Engineering and Math (STEM)
- Business and Industry
- Public Services
- Arts and Humanities
- Multi-Disciplinary Studies



# Tornillo Independent School District

## Notification of Nondiscrimination in Career and Technical Education Programs at Tornillo ISD for 2021-2022 School Year

*The Tornillo Independent School District does not discriminate on the basis of race, color, religion, sex, national origin, age, handicap, military status, genetic information, or any other basis prohibited by law in its employment practices or in providing education services, activities and programs, including career and technical education (vocational programs). For additional information regarding Tornillo Independent School District's policy of nondiscrimination contact the Human Resources Division: (915) 765-3000, 19200 Cobb Ave., PO Box 170, Tornillo, TX. 79863.*

*El Distrito Escolar Independiente de Tornillo no discrimina por motivos de raza, color, religión, sexo, nacionalidad, edad, discapacidad, estado militar, información genética o cualquier otra base prohibida por la ley en sus prácticas laborales o en la provisión de educación. servicios, actividades y programas, incluida la educación técnica y profesional (programas vocacionales). Para obtener información adicional sobre la política de no discriminación del Distrito Escolar Independiente de Tornillo, comuníquese con la División de Recursos Humanos: (915) 765-3000, 19200 Cobb Ave., PO Box 170, Tornillo, TX. 79863.*



# Tornillo ISD Career Clusters

CTE Programs of Study are grouped by Career Clusters which are organized by occupations and industries under each of the five endorsements offered in Tornillo. Each POS offers a world of rigorous and relevant courses that allow students to explore a range of options for their future. The list below gives a general description of each Career Cluster that is offered in TISD.



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



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



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



**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.



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



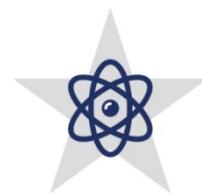
**The Information Technology (IT) Career Cluster** focuses on building linkages in IT occupations for entry level, technical, and professional careers related to the design, development, support, and management of hardware, software, multimedia, and systems integration services.



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



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



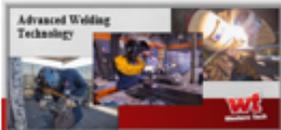
**The Science, Technology, Engineering, and Mathematics (STEM) Career Cluster** focuses on planning, managing, and providing, scientific research and professional and technical services, including laboratory and testing services, and research and development services.



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



## College and Career Pathways to Opportunity



- Arts A/V Technology & Communications CTE Program of Study
- Audio/Video Production in Digital Communications
- Business & Industry Endorsement
- Adobe Premier Pro Industry-Based Certification
- CTSO: Future Business Leaders of America, National Technical Honor Society

- Arts A/V Technology & Communications CTE Program of Study
- Graphics Design & Illustration in Design & Multimedia Arts
- Business & Industry Endorsement
- Adobe Illustrator Industry-Based Certification
- CTSO: Future Business Leaders of America, National Technical Honor Society

- Science, Technology, Engineering and Math CTE Program of Study
- Cybersecurity / Networking
- STEM or B&I Endorsement
- Java / Comp-TIA Industry-Based Certification
- CTSO: Technology Student Association (TSA): NTHS

- Education and Training CTE Program of Study
- Teaching and Training or Early Learning
- Public Service Endorsement
- Instructional Aide or Child Development Associate Industry-Based Cert.
- CTSO: Texas Association of Future Educators (TAFE): NTHS

- Business, Marketing and Finance CTE Program of Study
- Business Management or Accounting & Financial Services
- Business & Industry Endorsement
- Microsoft Office Specialist (Word & Excel) and/or Intuit QuickBooks I-BC
- CTSO: FBLA; NTHS

- Law and Public Service CTE Cluster
- Law Enforcement Program of Study
- Public Service Endorsement
- Non-Commissioned Security Officer Level II
- CTSO: FBLA; NTHS

- Transportation and Logistics CTE Program of Study
- Diesel Technology
- Business & Industry Endorsement
- Associate of Occupational Studies degree
- Several required Industry-Based Certifications
- *Total tuition parent / student savings: 19 months at \$40,579.41*

- Architecture and Construction CTE Program of Study
- Heating, Ventilation, Air Conditioning and Refrigeration (HVAC-R)
- Business & Industry Endorsement
- Associate of Occupational Studies degree
- All required Industry-Based Certifications
- *Total tuition parent / student savings: 18 months at \$37,146.66*

- Health Science CTE Program of Study
- Healthcare Therapeutic POS cluster
- Public Service or STEM Endorsement
- Medical/Clinical Assistant Certificate
- *Total tuition parent / student savings: 8 months at \$17,328.80*

- Manufacturing CTE Program of Study
- Advanced Welding Technology
- Business & Industry Endorsement
- Advanced Welding Certifications
- *Total tuition parent / student savings: 13 months at \$23,784*

- Terrell Early College High School
- 14 Dual Credit courses on campus
- Up to 60 college credits through EPCC
- Associates Degree
- *Total tuition parent / student savings: 24 months at \$8,160 + books and fees*

# Programs of Study by Career Cluster

## Architecture & Construction

### Heating, Ventilation and Air Conditioning POS (WTC R-HVAC Tech AOS)

The HVAC and Sheet Metal program of study explores the occupations and educational opportunities associated with installing, serving, or repairing heating and air conditioning systems and also the fabrication, assembly, installation, and repair of sheet metal products and equipment, such as ducts, control boxes, drainpipes, and furnace casings. This program of study may also include exploration into preparing cost estimates for certain construction projects involving heating and air conditioning and sheet metal.

#### 1<sup>st</sup> Year

##### Principles of Construction

Grade Placement: 10–12

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.

##### Building Maintenance Technology I

Grade Placement: 10–12

Recommended Prerequisite: Principles of Architecture or Principles of Construction

Building Maintenance Technology I, students will gain knowledge and skills needed to enter the field of building maintenance as a building maintenance technician or supervisor or secure a foundation for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in plumbing; electrical; and heating, ventilation, and air conditioning (HVAC) systems. Additionally, students will learn methods for repair and installation of drywall, roof, and insulation systems.

##### Electrical Technology I

Grade Placement: 10–12

Electrical Technology I, students will gain knowledge and skills needed to enter the workforce as an electrician or building maintenance supervisor, prepare for a postsecondary degree in a specified field of construction or construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, and the reading of electrical drawings, schematics, and specifications.

#### 2<sup>nd</sup> Year

##### (HVAC) Technology I

Grade Placement: 10–12

In Heating, Ventilation, and Air Conditioning and Refrigeration Technology I, students will gain knowledge and skills needed to enter the industry as technicians in the HVAC and refrigeration industry or building maintenance industry, prepare for a postsecondary degree in a specified field of construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, principles of HVAC theory, use of tools, codes, and installation of HVAC and refrigeration equipment.

##### Plumbing Technology I

Grade Placement: 10–12

In Plumbing Technology, I, students will gain knowledge and skills needed to enter the industry as a plumbing apprentice, building maintenance technician, or supervisor or prepare for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in industry workplace basics and employer/customer expectations, including how to use a plumbing code book; how to identify and use power and hand tools; how to be safe on the jobsite and when using hand and power tools; how to apply basic plumbing mathematics and plumbing drawing; and how to identify, fit, and use plastic, copper, cast iron, carbon steel, and corrugated stainless steel pipe. In addition, students will be introduced to gas, drainage, and water supply systems and continue their knowledge of workplace basics and green technologies.

### **Electrical Technology II**

Grade Placement: 10–12

Electrical Technology I, students will gain knowledge and skills needed to enter the workforce as an electrician or building maintenance supervisor, prepare for a postsecondary degree in a specified field of construction or construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, electrical theory, tools, codes, installation of electrical equipment, and the reading of electrical drawings, schematics, and specifications.

### **3rd Year**

#### **Building Maintenance Technology II**

Grade Placement: 10–12

In Building Maintenance Technology II, students will continue to gain advanced knowledge and skills needed to enter the workforce as a building maintenance technician or supervisor and construction project manager or secure a foundation for a postsecondary degree in construction management, architecture, or engineering. Students will acquire knowledge and skills in safety, Occupational Safety, and Health Administration (OSHA) standards, and safety devices in electrical circuits; maintenance of electrical and heating, ventilation, and air conditioning (HVAC) systems; and concepts of historic preservation.

#### **(HVAC) Technology II**

Grade Placement: 11–12

Prerequisites Technology I

Heating, Ventilation, and Air Conditioning (HVAC) and Refrigeration Technology II, students will gain advanced knowledge and skills needed to enter the industry as HVAC and refrigeration technicians or building maintenance technicians or supervisors, prepare for a postsecondary degree in a specified field of construction or construction management, or pursue an approved apprenticeship program. Students will acquire knowledge and skills in safety, electrical theory, use of tools, codes, installation of commercial HVAC equipment, heat pumps, troubleshooting techniques, various duct systems, and maintenance practices.



In a cooperative partnership with Western Technical College, TISD is proud to offer an opportunity to attain an Associate of Occupational Studies in Refrigeration & HVAC Technology

\*This program is available to sophomores who meet the EOC, attendance, academic and behavioral/discipline requirements. #TISDProud

## Arts, A/V Technology & Communications

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.

### Digital Communications POS

#### Principles of Arts, Audio/Video Technology, and Communications

Grade Placement: 8-10

The goal of this course is for the student understands arts, audio/video technology, and communications systems. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.

#### Audio/Video Production I

Grade Placement: 10–12

Prerequisite: Principles of Arts, Audio/Video Technology, and Communications

In addition to developing technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an understanding of the industry with a focus on pre-production, production, and post-production audio and video products. Requiring a lab requisite for the course affords necessary time devoted specifically to the production and post-production process. Districts are encouraged to offer this lab in a consecutive block with Audio/Video Production I to allow students sufficient time to master the content of both courses.

#### Audio/Video Production II

Grade Placement: 11–12

Prerequisite: Audio/Video Production I

Building upon the concepts taught in Audio/Video Production, in addition to developing advanced knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced understanding of the industry with a focus on pre-production, production, and post- production products. Through diverse forms of storytelling and production, students will exercise and develop creativity, intellectual curiosity, and critical-thinking, problem-solving, and collaborative skills. This course may be implemented in an audio format or a format with both audio and video. Requiring a lab requisite for the course affords necessary time devoted specifically to the production and post-production process.

# Arts, A/V Technology & Communications

## Design and Multimedia Arts POS

The 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.

## Principles of Arts, Audio/Video Technology, and Communications

Grade Placement: 8-10

The goal of this course is for the student understands arts, audio/video technology, and communications systems. Within this context, students will be expected to develop an understanding of the various and multifaceted career opportunities in this cluster and the knowledge, skills, and educational requirements for those opportunities.

## Graphic Design and Illustration I

Grade Placement: 10–12

Prerequisite: Principles of Arts, Audio/Video Technology, and Communications

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.

## Graphic Design and Illustration II

Grade Placement: 10–12

Prerequisite: Graphic Design and Illustration I

Within this context, in addition to developing advanced technical knowledge and skills needed for success in the Arts, Audio/Video Technology, and Communications Career Cluster, students will be expected to develop an advanced understanding of the industry with a focus on mastery of content knowledge and skills. Districts are encouraged to offer this lab in a consecutive block with Graphic Design and Illustration II to allow students sufficient time to master the content of both courses.

# **Business, Marketing and Finance**

## **Business Management POS**

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

## **Principles of Business, Marketing, and Finance**

Grade Placement: 8–11

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**

Grade Placement: 9–12

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.

## **Business Management**

Grade Placement: 10–12

Global Business is designed for students to analyze global trade theories, international monetary systems, trade policies, politics, and laws relating to global business as well as cultural issues, logistics, and international human resource management.

## **Business, Marketing and Finance**

### **Accounting and Financial Services POS**

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

## **Principles of Business, Marketing, and Finance**

Grade Placement: 9–11

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**

Grade Placement: 9–12

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**

Grade Placement: 9–12

In Money Matters, 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 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.

## **Accounting I**

Grade Placement: 10–12

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.

# Education & Training

## Teaching and Training POS

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

## Principles of Education and Training

Grade Placement: 9–10

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.

## Instructional Practices

Grade Placement: 11–12

Recommended Prerequisites: Principles of Education and Training

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.

## Practicum in Education and Training

Grade Placement: 12

Prerequisite: Instructional Practices

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. Students learn to plan and direct individualized instruction and group activities, prepare instructional materials, assist with record keeping, make physical arrangements, and complete other responsibilities of classroom teachers, trainers, paraprofessionals, or other educational personnel.

# Health Science

## Healthcare Therapeutic POS (WTC Medical / Clinical Assistant)

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.

### 1st Year

#### Medical Terminology

Grade Placement: 11–12

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.

#### Anatomy and Physiology

Grade Placement: 11–12

Prerequisite: Biology and a second science credit

Recommended Prerequisite: A course from the Health and Science Career Cluster

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.

#### Health Science Theory/Health Science Clinical (2 Credits)

Grade Placement: 11–12

Prerequisites: Principles of Health Science and Biology

Recommended Corequisite: Health Science Clinical

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.



## 2nd Year

### Health Informatics

Grade Placement: 11–12

Prerequisites: Business Management I and Medical Terminology

The Health Informatics course is designed to provide knowledge of one of the fastest growing areas in both academic and professional fields. The large gap between state of the art computer technologies and the state of affairs in health care information technology has generated demand for information and health professionals who can effectively design, develop, and use technologies such as electronic medical records, patient monitoring systems, and digital libraries, while managing the vast amount of data generated by these systems.

### Pharmacology

Grade Placement: 11–12

Prerequisites: Biology and Chemistry.

Recommended Prerequisites: A course from the Health and Science Career Cluster.

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.

### Practicum in Health Science (2 Credits)

Grade Placement: 11–12

Prerequisites: Health Science Theory and Biology.

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.



In a cooperative partnership with Western Technical College, TISD is proud to offer an opportunity to attain a Certified Medical / Clinical Assistant.

\*This program is available to Juniors who meet the EOC, attendance, academic and behavioral/discipline requirements.

#TISDProud

# Information Technology (IT)

## Networking POS

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

## Principles of Information Technology

Grade Placement: 8-9

Prerequisite: 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.

## Computer Science I

Grade Placement: 9-10

Prerequisite: Principles of IT, Algebra I

Computer Programming I, students will acquire knowledge of structured programming techniques and concepts appropriate to developing executable programs and creating appropriate documentation. Students will analyze the social responsibility of business and industry regarding the significant issues relating to the environment, ethics, health, safety, and diversity in society and in the workplace as related to computer programming. Students will apply technical skills to address business applications of emerging technologies.

## AP Computer Science

Grade Placement: 10-11

Prerequisite: None

In Computer Programming II, students will expand their knowledge and skills in structured programming techniques and concepts by addressing more complex problems and developing comprehensive programming solutions. Students will analyze the social responsibility of business and industry regarding the significant issues relating to environment, ethics, health, safety, and diversity in society and in the workplace as related to computer programming. Students will apply technical skills to address business applications of emerging technologies.

## Networking

Grade Placement: 11-12

Prerequisite: Principles of IT, Computer Programming I

In Digital Media,

# Law, Public Safety, Corrections and Security

## Law Enforcement POS

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

## Principles of Law, Public Safety, Corrections and Security

Grade Placement: 9-12

Prerequisite: 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.

## Law Enforcement I

Grade Placement: 10-12

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.

## Law Enforcement II

Grade Placement: 10-12

Prerequisite: Law Enforcement I

Law Enforcement II provides the knowledge and skills necessary to prepare for a career in law enforcement. Students will understand ethical and legal responsibilities, patrol procedures, first responder roles, telecommunications, emergency equipment operations, and courtroom testimony.

## Court Systems and Practices

Grade Placement: 10-12

Prerequisite: Law Enforcement I

Court Systems and Practices is an overview of the federal and state court systems. The course identifies the roles of judicial officers and the trial processes from pretrial to sentencing and examines the types and rules of evidence. Emphasis is placed on constitutional laws for criminal procedures such as search and seizure, stop and frisk, and interrogation.

## Criminal Investigations

Grade Placement: 10-12

Prerequisite: Principles of LPSCS

Criminal Investigation is a course that introduces students to the profession of criminal investigations. Students will understand basic functions of criminal investigations and procedures and will learn how to investigate or follow up during investigations. Students will learn terminology and investigative procedures related to criminal investigation, crime scene processing, evidence collection, fingerprinting, and courtroom presentation. Through case studies and simulated crime scenes, students will collect and analyze evidence such as fingerprint analysis, bodily fluids, hairs, fibers, shoe and tire impressions, bite marks, drugs, tool marks, firearms and ammunition, blood spatter, digital evidence, and other types of evidence.

## Practicum in Law, Public Safety, Corrections, and Security

Grade Placement: 11-12

Prerequisite: Biology, Chemistry, Any LPSCS Class

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. Scientific methods of investigation can be experimental, descriptive, or comparative. The method chosen should be appropriate to the question being asked.



# Manufacturing

## Welding POS (WTC Advanced Welding Certification)

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

### 1<sup>st</sup> Year

#### Principles of Manufacturing

Grade Placement: 9–12

Recommended Prerequisites: Algebra I or Geometry.

In Principles of Manufacturing, students are introduced to knowledge and skills used in the proper application of principles of manufacturing. The study of manufacturing technology allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities. Students will gain an understanding of what employers require to gain and maintain employment in manufacturing careers.

#### Introduction to Welding

Grade Placement: 9-10

Introduction to Welding will introduce welding technology with an emphasis on basic welding laboratory principles and operating procedures. Students will be introduced to the three basic welding processes. Topics include: industrial safety and health practices, hand tool and power machine use, measurement, laboratory operating procedures, welding power sources, welding career potentials, and introduction to welding codes and standards. Introduction to Welding will provide students with the knowledge, skills, and technologies required for employment in welding industries. This course supports integration of academic and technical knowledge and skills. Students will reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills will prepare students for future success.

#### Welding I

Grade Placement: 10–12

Recommended Prerequisites: Algebra I, Introduction to Welding

Welding I provide the knowledge, skills, and technologies required for employment in metal technology systems. Students will develop knowledge and skills related to this system and apply them to personal career development. This course supports integration of academic and technical knowledge and skills. Students will reinforce, apply, and transfer knowledge and skills to a variety of settings and problems. Knowledge about career opportunities, requirements, and expectations and the development of workplace skills prepare students for future success.

## 2<sup>nd</sup> Year

### **Metal Fabrication and Machining I**

Grade Placement: 11–12

Recommended Prerequisite: Algebra I or Geometry.

Metal Fabrication and Machining I provides the knowledge, skills, and certifications required for equal employment opportunities in the metal production industry. Students must have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.

### **Welding II**

Grade Placement: 11–12

Prerequisites: Welding I. Recommended Prerequisites: Algebra I or Geometry

Welding II builds on the knowledge and skills developed in Welding I. Students will develop advanced welding concepts and skills as related to personal and career development. Students will integrate academic and technical knowledge and skills. Students will have opportunities to reinforce, apply, and transfer knowledge and skills to a variety of settings and problems.



In a cooperative partnership with Western Technical College, TISD is proud to offer an opportunity to attain an Advanced Welding Technology certification.

\*This program is available to Juniors who meet the EOC, attendance, academic and behavioral/discipline requirements. #TISDProud



# Science, Technology, Engineering & Mathematics (STEM)

## Cybersecurity POS

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

## Fundamentals of Computer Science

Grade Placement: 8th

Fundamentals of Computer Science is intended as a first course for those students just beginning the study of computer science. Students will learn about the computing tools that are used every day. Students will foster their creativity and innovation through opportunities to design, implement, and present solutions to real-world problems. Students will collaborate and use computer science concepts to access, analyze, and evaluate information needed to solve problems. Students will learn the problem-solving and reasoning skills that are the foundation of computer science. 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 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.

## Foundations of Cybersecurity

Grade Placement: 9-12

In the Foundations of Cybersecurity course, students will develop the knowledge and skills needed to explore fundamental concepts related to the ethics, laws, and operations of cybersecurity. Students will examine trends and operations of cyberattacks, threats, and vulnerabilities. Students will review and explore security policies designed to mitigate risks. The skills obtained in this course prepare students for additional study in cybersecurity. A variety of courses are available to students interested in this field. Foundations of Cybersecurity may serve as an introductory course in this field of study.

## Advanced Placement Computer Science Principles

Recommended prerequisite: 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

## Computer Science I

Grade Placement: 9-12

Prerequisite: Algebra I.

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.



# Transportation, Distribution & Logistics

## Diesel Technician POS (WTC Diesel Technician AOS)

The Diesel and Heavy Equipment program of study teaches students to diagnose, repair, modify, or redo mechanical and hydraulic equipment on crane, bulldozer, grader, conveyor, construction equipment, bus, and truck diesel engines.

### 1<sup>st</sup> Year

#### Principles of Transportation Systems

Grade Placement: 10–12

In Principles of Transportation Systems, students will gain knowledge and skills in the safe application, design, production, and assessment of products, services, and systems. This knowledge includes the history, laws and regulations, and common practices used in the transportation industry. Students should apply knowledge and skills in the application, design, and production of technology as it relates to the transportation industries. This course allows students to reinforce, apply, and transfer their academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings.

#### Automotive Basics

Grade Placement: 10-12

Automotive Basics includes knowledge of the basic automotive systems and the theory and principles of the components that make up each system and how to service these systems. Automotive Basics includes applicable safety and environmental rules and regulations. In Automotive Basics, students will gain knowledge and skills in the repair, maintenance, and servicing of vehicle systems. This study allows students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. The focus of this course is to teach safety, tool identification, proper tool use, and employability.

#### Diesel Equipment Technology I

Grade Placement: 10-12

Prerequisite: Auto Tech I

Diesel Equipment Technology I includes knowledge of the function and maintenance of diesel systems. Rapid advances in diesel technology have created new career opportunities and demands in the transportation industry. This course provides the knowledge, skills, and technologies required for employment in transportation systems.

### 2<sup>nd</sup> Year

#### Principles of Distribution and Logistics

Grade Placement: 10–12

In Principles of Distribution and Logistics, students will gain knowledge and skills in the safe application, design, production, and assessment of products, services, and systems. This knowledge includes the history, laws and regulations, and common practices used in the logistics of warehousing and transportation systems. Students should apply knowledge and skills in the application, design, and production of technology as it relates to distribution and logistics industries. This course allows students to reinforce, apply, and transfer their academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings.

## Automotive Technology I

Grade Placement: 10-12

Prerequisite: Automotive Basics

Automotive Technology I: Maintenance and Light Repair includes knowledge of the major automotive systems and the principles of diagnosing and servicing these systems. This course includes applicable safety and environmental rules and regulations. In Automotive Technology I: Maintenance and Light Repair, students will gain knowledge and skills in the repair, maintenance, and diagnosis of vehicle systems. This study will allow students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. The focus of this course is to teach safety, tool identification, proper tool use, and employability.

## Small Engine Technology I

Grade Placement: 9–12

Small Engine Technology I includes knowledge of the function and maintenance of the systems and components of all types of small engines such as outdoor power equipment, motorcycles, generators, and irrigation engines. This course is designed to provide training for employment in the small engine technology industry. Instruction includes the repair and service of cooling, air, fuel, lubricating, electrical, ignition, and mechanical systems. In addition, the student will receive instruction in safety, academic, and leadership skills as well as career opportunities.

## 3rd Year

### Automotive Technology II

Grade Placement: 10-12

Prerequisite: Auto Tech I

Automotive Technology II: Automotive Service includes knowledge of the major automotive systems and the principles of diagnosing and servicing these systems. Automotive Technology II: Automotive Service includes applicable safety and environmental rules and regulations. In this course, students will gain knowledge and skills in the repair, maintenance, and diagnosis of vehicle systems. This study will allow students to reinforce, apply, and transfer academic knowledge and skills to a variety of interesting and relevant activities, problems, and settings. The focus of this course is to teach safety, tool identification, proper tool use, and employability.

### Diesel Equipment Technology II

Grade Placement: 10-12

Prerequisite: Principles of IT, Computer Programming I

Diesel Equipment Technology II includes knowledge of the function, diagnosis, and service of diesel equipment systems. Rapid advances in diesel technology have created new career opportunities and demands in the transportation industry. This course provides the advanced knowledge, skills, and technologies required for employment in transportation systems.



In a cooperative partnership with Western Technical College, TISD is proud to offer an opportunity to attain an Associate of Occupational Studies in Diesel Mechanics.

\*This program is available to sophomores who meet the EOC, attendance, academic and behavioral/discipline requirements. #TISDProud