

Arts and Audio Visual

INDUSTRY CERTIFICATIONS

- Adobe Animate CC

POSSIBLE CAREER PATHWAYS

- Animator
- Art Director
- Film Industry
- Game Designer
- Graphic Designer
- Historian
- Journalist
- Broadcaster
- Multimedia Artist/Designer
- Typographer
- Videographer
- Web Designer

MEDIAN PAY PER YEAR*

\$40,910 - \$92,500

Source: Bureau of Labor Statistics
Website: bls.gov/ooh

* The wage at which half of the workers in the occupation earned more than that amount and half earned less. Median Pay Per Year range includes occupations listed on Bureau of Labor Statistics.



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Program Description: Animation

The program has students explore the power of visual messages. Through analysis and application, students learn how today's industry uses imagery for storytelling. It is also used in marketing/branding. The program introduces students to graphic design as a form of visual communication.

The CTE program provides an understanding of design elements, design principles, color theory and typography. They also gain a firm grasp of video editing, animation and digital photography. Students use their understanding to plan, design as well as execute print and digital media. Projects will center on a specific purpose and audience. Students will learn how to use the computer as a design tool. They will complete a variety of projects that use the principles and elements of design. These include, but are not limited to identity, advertising and websites. Other projects include animation, digital photography, posters and video editing. The program develops students' communications, presentation, interpersonal and problem-solving skills.

Students can become Adobe Certified Associates (ACA) in Premiere Pro or Animate. The certifications give students highly desirable employability skills. Premiere Pro is the industry standard for film editing (video, image or audio formats). Animate is a multimedia software platform. It is a production tool for animations, browser games and rich Internet applications. Animate is also used for desktop applications, mobile applications and mobile games.

Students in the program will apply their knowledge and skills in industry work experiences. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Safety
- Design Elements and Principles
- Color Theory
- Typography
- Digital Photography
- Animation
- Motion Graphics
- 3D Animation

BUSINESS AND INDUSTRY PARTNERS

TBA

PROGRAM OF STUDY

HS Endorsement: Business & Industry			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Arts, Audio/Video Technology, and Communications	Animation I Digital Media	Animation II Animation II Lab	Practicum in Animation
Workforce Dual Credit			
Intro to Digital Media			

Arts and Audio Visual Cluster

INDUSTRY CERTIFICATIONS

- Adobe Certified Associate for Photoshop, Premiere Pro, Illustrator, and Audition

POSSIBLE CAREER PATHWAYS

- Animator
- Art Director
- Audio Visual Technician
- Desktop Publisher
- Film Industry
- Game Designer
- Graphic Designer
- Historian
- Journalist
- Broadcaster
- Multimedia Artist/Designer
- Packaging Designer
- Producer/Director
- Production Coordinator
- Pre-Press Specialist
- Typographer
- Videographer
- Web Designer

MEDIAN PAY PER YEAR*

\$40,910 - \$92,500

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Program Description: Audio/Video Production

The program provides training for entry-level employment in a wide array of industries. These include audio, video, television and film. Other work possibilities could lead to work in cable television, education, radio and business.

Typically, individuals in this field concentrate on specific areas of interest. Some might focus on videography, video editing and film editing. Others prefer to center on audio recording, audio mixing, sound reinforcement and sound design. Additional areas include dialog editing, lighting, directing and producing. Individuals could also pursue still or animated computer graphics and special effects. Professionals also work on voice talent, on-camera talent, production management and camera operation.

The CTE program will have students use professional grade equipment and software. They will create student-led productions. This will give them a solid foundation in audio, video, and film style production projects. They will also work on multi-camera video and film style production projects.

Skills students develop include video recording/editing, audio recording/editing, video production, scripting/writing, motion graphic video/animation, lighting techniques and crew positions.

Students in the program will apply their knowledge and skills in industry work experiences. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Safety
- Design Elements & Principles
- Color Theory
- Typography
- Digital Photography
- Animation
- Digital Audio & Editing
- Digital Filmmaking & Editing

BUSINESS AND COLLEGE PARTNERS

Hewlett Packard Enterprise · Lone Star College

PROGRAM OF STUDY

HS Endorsement: Business & Industry			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Arts, Audio/Video Technology, and Communications	Digital Media	Audio/Video Production	Audio/Video Production II
		Audio/Video Production Lab	Audio/Video Production Lab II

Workforce Dual Credit

Digital Sound
Digital Video

Transportation, Distribution and Logistics Cluster

INDUSTRY CERTIFICATIONS

- Inter-Industry Conference on Auto Collision Repair (I-CAR) – Refinishing Technician Level 1
- Inter-Industry Conference on Auto Collision Repair (I-CAR) – Non-Structural Level 1

POSSIBLE CAREER PATHWAYS

- Painter
- Body Technician
- Production Manager

MEDIAN PAY PER YEAR*

\$40,850 - \$41,850

Source: Bureau of Labor Statistics
Website: bls.gov/ooh

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Program Description: Collision Repair

The program prepares individuals to apply technical knowledge and skills to repair, reconstruct and finish automobile bodies, fenders, and external features. The program includes instruction in structure analysis, damage repair, non-structural analysis, mechanical and electrical components, plastics and adhesives, painting and refinishing techniques, and damage analysis and estimating.

Students will learn in a classroom setting. They will also apply their knowledge and skills in industry work experiences. The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Shop Safety
- Repair Procedures
- Estimate Costs
- Power Tools
- Sand & Prep Vehicles
- Paint
- Vehicle Detailing
- Repair Mechanical Systems of Vehicles

BUSINESS AND INDUSTRY PARTNERS

Beacon · Briggs Equipment · Norton Abrasives

COLLEGE PARTNER

Houston Community College

PROGRAM OF STUDY

HS Endorsement: Business & Industry

9th Grade	10th Grade	11th Grade	12th Grade
Principles of Transportation Systems	Basic Collision Repair and Refinishing	Collision Repair	Paint and Refinishing

Workforce Dual Credit

Basic Collision Repair and Refinishing DC
Collision Repair DC
Paint and Refinishing Lab DC



Information Technology Cluster

INDUSTRY CERTIFICATIONS

- Java OCA – Oracle Certified Associate – Java SW 8 Programming I

POSSIBLE CAREER PATHWAYS

- Applications Integrator
- Computer Programmer
- Computer Scientist
- Computer Systems Analyst
- Data Administrator
- Data Communications Analyst
- Data Scientist
- Game Designer
- Game Programmer
- Hardware/Software Engineer
- IT Manager
- IT Security Specialist
- Mobile App Developer
- Network Administrator or Architect
- Security or Database Administrator
- Simulation Programmer
- Technical Writer
- Telecommunication Technician
- 3D Animator
- User Interface Developer
- Virtual Reality Specialist
- Web Developer

MEDIAN PAY PER YEAR*

\$67,990 - \$88,270

Source: Bureau of Labor Statistics
Website: bls.gov/ooh

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Program Description: Computer Programming

The program involves the design, development, implementation and maintenance of computer systems and software. Field careers require knowledge of computer operating systems, programming languages and software development. Individuals with expertise in programming and software development work with cutting-edge technologies. They are working to develop tomorrow's products for use by businesses and consumers. People with this expertise are in high demand. For example, they are creating the software that launches and runs NASA space missions.

Students in the program will apply their knowledge and skills in industry work experiences. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Computer Fundamentals
- Computer Web Design
- Computer Programming
- Python
- JAVA
- PHP and MySQL
- Database Management
- Software Development Process

BUSINESS AND INDUSTRY PARTNERS

Amazon Future Engineer · Hewlett Packard Enterprise

PROGRAM OF STUDY

HS Endorsement: Business & Industry			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Information Technology	Computer Programming	Computer Programming II	Practicum in Information Technology

Architecture and Construction Cluster

INDUSTRY CERTIFICATIONS

- NCCER (National Center for Construction Education and Research) Core
- NCCER Carpentry Level 1
- OSHA 30

POSSIBLE CAREER PATHWAYS

- Apprentice Carpenter
- Architect
- Construction Manager
- Civil Engineer
- Journeyman Carpenter
- Master Carpenter
- Scaffold Builder
- Heavy Equipment Operator

MEDIAN PAY PER YEAR*

\$45,170 - \$91,370

Source: Bureau of Labor Statistics
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Program Description: Construction Technology

The program prepares students for entry-level careers in the construction industry. Students will use the National Center for Construction and Education Research (NCCER) curriculum. They will also use heavy equipment simulators to learn how to operate machinery.

Students in the program will apply their knowledge and skills in industry work experiences. The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Shop Safety
- Hand Tools
- Blue Print Reading
- Power Tools
- Heavy Equipment Simulation
- Framing & Wall Construction
- Construction Scheduling
- Residential Construction

BUSINESS AND INDUSTRY PARTNERS

Associated Builder and Contractors of Greater Houston · CenterPoint Energy · Construction and Maintenance Education Foundation · Greater Houston Builders Association · Texas Masonry Council · Electronic Power Design · International Union of Painters and Allied Trades · Brochsteins · Karsten

COLLEGE PARTNER

Lone Star College

PROGRAM OF STUDY

HS Endorsement: Business & Industry

9th Grade	10th Grade	11th Grade	12th Grade
Principles of Construction	Construction Technology I	Construction Technology II	Construction Management I

Workforce Dual Credit

Basic Construction Safety
Residential and Light Commercial Blueprint Reading
Construction Materials and Methods I
Building Codes and Inspections

Health Science Cluster

INDUSTRY CERTIFICATIONS

- CPR –American Heart Association – Basic Life Support
- CareerSafe OSHA 10
- CERT Team Life Support Training
- Registered Dental Assistant

POSSIBLE CAREER PATHWAYS

- Dental Assistant
- Dental Hygienist
- Dentist
- Health Informatics
- Support Services

MEDIAN PAY PER YEAR*

\$37,630 - \$158,120

Source: Bureau of Labor Statistics
Website: bls.gov/ooh

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Program Description: Dental Assistant

This program is ideal for individuals who enjoy working with their hands and desire to make a positive contribution in the dental field. Dental assistants are key members of the dental health care team. Students in the Dental Assistant program will train in all aspects of a dental practice. Students will learn to sterilize and disinfect instruments, prepare trays for dental procedures, and prepare materials for making impressions and restorations. The program also teaches students how to expose and process dental radiographs for proper diagnostic use. They will also learn to perform basic office duties including scheduling, dental procedure codes and patient privacy laws.

Students in the dental assistant program may apply their knowledge and skills in industry work experiences. This may include laboratory-based, paid or unpaid work experience for students.

COURSE CONTENT

- Administrative Dental Skills
- Oral & Dental Anatomy and Health
- Dental Radiology
- Infection Control
- Instrument Identification & Use
- Lecture & Lab Sessions
- Dental Procedures
- Effective Communication
- Customer Service

BUSINESS AND INDUSTRY PARTNERS

Sea Smiles Dental and Orthodonties • Suace Dental • Excel Dental Care

PROGRAM OF STUDY

HS Endorsement: Public Service			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Health Science	Medical Terminology	Health Science (Clinical) 1.0	Practicum in Health Science
		Medical Microbiology	Pathophysiology



Transportation, Distribution and Logistics Cluster

INDUSTRY CERTIFICATIONS

- Automotive Service Excellence (ASE) – Medium/Heavy Truck Technician
 - Diesel Engines
 - Brakes
 - Steering & Suspension
 - Electrical

POSSIBLE CAREER PATHWAYS

- Diesel Mechanic in Oil and Gas
- Diesel Mechanic in Transportation
- Field Service Technicians

MEDIAN PAY PER YEAR*

\$46,360

Source: Bureau of Labor Statistics
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Program Description: Diesel Technology

The program prepares students for entry-level careers in repair and maintenance of diesel engines. Diesel technology is the diagnosis, repair, and maintenance of large industrial diesel engines. Such engines may be used to power machines such as trains, large ships, electrical power generators, oilfield equipment, and heavy construction equipment. Students in the program will apply their knowledge and skills in industry work experiences.

The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

Students will also complete practicums at Aldine ISD bus depots.

COURSE CONTENT

- Shop Safety
- Preventative Maintenance
- Basic Principles of Diesel Engines
- Power Tools
- Electrical Systems of Diesel Engines
- Diesel Engine Testing & Repair
- Brake Systems
- Hydraulic Systems

BUSINESS AND INDUSTRY PARTNERS

CenterPoint Energy · Cummins · Doggett Heavy Machinery Services · FedEx · Mustang/CAT · Envirocon Systems · Amazon · Briggs · CenterPoint Energy · City of Houston · Ford · Gulf States Toyota · Port of Houston · International Union of Painters and Allied · Houston Contract Associates

COLLEGE PARTNERS

Lone Star College

PROGRAM OF STUDY

HS Endorsement: Business & Industry

9th Grade	10th Grade	11th Grade	12th Grade
Principles of Transportation Systems	Energy and Power of Transportation Systems	Diesel Equipment Technology I	Diesel Equipment Technology II

Workforce Dual Credit

Preventative Maintenance
Shop Safety and Procedures
Diesel Engine Testing and Repair I
Basic Electrical Systems
Diesel Engine I
Fuel Systems

Health Science Cluster

INDUSTRY CERTIFICATIONS

- CPR American Heart Association Basic Life Support
- CERT Team Life Support Training
- EMR Emergency Medical Responder
- OSHA 10 Occupational Safety & Health Administration
- Supervision Occupational Entry Level I – Lone Star

POSSIBLE CAREER PATHWAYS

- Therapeutic or Diagnostic Services
- Health Informatics
- Biotechnology Research and Development
- Emergency Medical Responder
- Ambulance Driver
- Paramedic, Firefighter, or EMT
- Surgical Technologist
- Physician Assistant
- Critical Care Physician
- Biomedical Scientist
- Clinical Research Associate
- Microbiologist
- Pharmacologist
- Physician Associate
- Research Scientist (life sciences)
- Scientific Laboratory Technician
- Technical Brewer
- Forensic Scientist

MEDIAN PAY PER YEAR*

\$26,740 - \$114,520

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Program Description: Emergency Medical Technician (EMT)

This program's coursework and hands-on experiences prepare students to administer care in emergency situations. Students will study anatomy and physiology. They will learn to conduct an initial patient assessment survey. This includes learning how to sort or triage patients to determine medical priorities. EMT students learn about airway management and how to administer oxygen therapy. They develop skills to respond quickly. The program covers bleeding control and shock management. Students will also learn about cardiac arrest and how to use an automated external defibrillator. Other skills include learning to assess and manage fractures and spinal injuries.

The EMT program prepares students for careers in pre-hospital emergency medicine. It enables graduates of the program to work as EMTs in a variety of settings. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Legal and Ethical Behavior in Health Care
- Pathophysiology Assessment & Management
- Pharmacology Assessment & Management
- Treatment Plan Implementation at EMT Level
- Oxygenation & Ventilation of Patient
- Use and Interpretation of Monitoring Devices
- Theory/Concepts/Skills of Specialized Tools
- Effective Communication

BUSINESS AND INDUSTRY PARTNERS

Harris County Emergency Services District • C.A.S.E.Y. Fire Ops • Houston Fire Department

COLLEGE PARTNERS

Lone Star College

PROGRAM OF STUDY

HS Endorsement: Public Service			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Health Science	Medical Terminology	Health Science (Clinical)	Practicum in Health Science
		Anatomy and Physiology	Pathophysiology

Workforce Dual Credit
Emergency Care Attendant
Clinical EMT
Emergency Medical Technician

Hospitality and Tourism Cluster

INDUSTRY CERTIFICATIONS

- Hospitality and Tourism Management
 - Year 1 and Year 2
 - Professional (American Hotel & Lodging Educational Institute)
- Hospitality Administration (Houston Community College)
 - Hotel Management – Certificate Level 1
 - Restaurant Management – Certificate Level 1

POSSIBLE CAREER PATHWAYS

- Business Manager
- Human Resources Manager
- Concierge
- Facilities Planning Manager
- Food Services Manager
- Hospitality Administrator
- Hotel/Motel Manager
- Convention or Event Planner
- Reservation and Ticket Agent
- Restaurant Manager
- Travel Agent or Guide
- Destinations Manager
- Director of Convention and Tourists Bureau or Sales
- Catering & Banquet Manager
- Executive Housekeeper
- Director of Operations

MEDIAN PAY PER YEAR*

\$32,700 - \$110,120

Source: Bureau of Labor Statistics
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Program Description: Hospitality & Tourism

The program prepares students for entry-level careers in this high-demand industry. Hospitality and tourism encompasses the management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel-related services. Hospitality and tourism careers require an emphasis in hands-on experience. CTE program students can earn industry certifications. The program also prepares students to pursue postsecondary education.

Students in the program will apply their knowledge and skills in industry work experiences. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Guest Relations
- Food and Beverage Service
- Marketing and Sales
- Hotel Business Operations
- Housekeeping: Quality Guestroom Service
- Operational Finance
- Banquets & Catering Events
- Human Resource Principles
- Destination & Tourism Concepts
- Travel-Related Services

BUSINESS AND INDUSTRY PARTNERS

DoubleTree Hotel Houston Intercontinental · Holiday Inn Houston – Intercontinental Airport · Sheraton North Houston at George Bush Intercontinental

COLLEGE PARTNER

Houston Community College

PROGRAM OF STUDY

HS Endorsement: Business & Industry			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Hospitality & Tourism	Hotel Management Travel and Tourism	Practicum in Hospitality Services I and Extended Practicum in Hospitality Services I	Practicum in Hospitality Services II and Extended Practicum in Hospitality Services II

Workforce Dual Credit

Introduction to Hospitality Industry
Hospitality Administration and Management
Hospitality Human Resources Management
Hospitality Management and Leadership
Hospitality Legal Issues
Hospitality Facilities Management
Co-Op Education – Capstone Course

Architecture and Construction Cluster

INDUSTRY CERTIFICATIONS

- NCCER (National Center for Construction Education and Research) Core
- NCCER HVAC Level 1
- HVAC Level 1 Certificate – Lone Star College
- NCCER HVAC Level 2
- NCCER HVAC Level 3
- EPA Certification
- OSHA 30

POSSIBLE CAREER PATHWAYS

- HVAC Installer
- HVAC Technician
- HVAC Commercial Technician
- Electrician

MEDIAN PAY PER YEAR*

\$47,080 - \$54,110

Source: Bureau of Labor Statistics
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Program Description: HVAC & Refrigeration Technology

The heating, ventilation, air conditioning and refrigeration technology program prepares students for a technical service career in residential or light commercial/industrial environmental systems. The student will study the mechanical and electrical/electronic systems involved in contemporary environmental controls. Students have an opportunity to earn a Level 1 Certificate upon successful completion of the program of study. The HVAC&R certificate program prepares the individual for basic, entry level employment in the residential and/or light commercial heating, air-conditioning and refrigeration service industry. The essentials of the mechanical and electrical systems of contemporary air-conditioning, heating and refrigeration systems are addressed throughout the program. Students in the program will apply their knowledge and skills in industry work experiences.

The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Shop Safety
- Hand Tools
- Blue Print Reading
- Power Tools
- Basic Electricity
- Soldering & Brazing
- HVAC Installation
- HVAC Trouble Shooting

BUSINESS AND INDUSTRY PARTNERS

Associated Builder and Contractors of Greater Houston · Beacon Equipment Resources · Construction and Maintenance Education Foundation · City of Houston · Comfort Systems · Spring Time Air / RSI Services LLC · International Union of Painters and Allied Trades

COLLEGE PARTNERS

Lone Star College

PROGRAM OF STUDY

HS Endorsement: Business & Industry

9th Grade	10th Grade	11th Grade	12th Grade
Principles of Construction	Electrical Technology I	HVAC and Refrigeration I	HVAC and Refrigeration II

Workforce Dual Credit

Basic Electricity for HVAC
Refrigeration Principles
Gas and Electric Heating
Residential Air Conditioning

Transportation, Distribution and Logistics Cluster

INDUSTRY CERTIFICATIONS

- Certified Logistics Technician
- Certified Logistics Associate

POSSIBLE CAREER PATHWAYS

- Forklift Operator
- Logistics Manager
- Commercial Driver
- Crane & Tower Operator
- Distribution & Logistics Manager
- Operations/Warehouse Manager
- Urban & Regional Planner
- Logistics Coordinator
- Industrial Production Manager
- Transportation Analyst/Managers
- Maritime Logician
- Train Depot Managers

MEDIAN PAY PER YEAR*

\$34,830 - \$92,460

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Website: bls.gov/ooh

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Program Description: Distribution & Logistics

The program prepares students for careers in warehousing, transportation and materials management. Distribution and logistics focuses on the movement of people, materials and goods by road, pipeline, air, rail and water. Students will use software programs. They will learn to develop a systematic plan to achieve effective inventory management (EIM). This is the result of outstanding inventory control and inventory management. Inventory control is managing the inventory already in the warehouse, stockroom or store. This entails knowing what products are “out there” and how much there is of each item. It is about knowing exactly how to locate each piece of each product in the warehouse. Inventory control means ensuring that all inventory remains in salable or usable condition. It is also about storing products to cut the cost of filling customer orders.

Inventory management is about determining when to order products and how much to order. It is also about deciding the most effective source of supply for each item in each warehouse. The goal is to ensure to have the right quantity of the right item in the right location at the right time. Inventory management includes all the activities of forecasting and replenishment.

The CTE students also learn how to move inventory from location to location.

Students in the program will apply their knowledge and skills in industry work experiences. The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Shop Safety
- Material Handling
- Inventory & Quality Control
- Record Keeping Systems
- Budget
- Operating a Fork Lift
- Commercial Drivers License
- Warehouse & Distribution Management
- Supply Chain Management
- Trade & Globalization

BUSINESS AND INDUSTRY PARTNERS

Briggs Equipment · Victory Packaging · Brochstein · Envirocon Sytems · Amazon · Port of Houston · City of Houston · FedEx

COLLEGE PARTNERS

Lone Star College · University of Houston (Supply Chain & Logistics Technology)

PROGRAM OF STUDY

HS Endorsement: Business & Industry			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Distribution & Logistics	Management of Transportation Systems	Distribution and Logistics	Practicum in Distribution and Logistics

Manufacturing Cluster

INDUSTRY CERTIFICATIONS

- National Institute for Metal Working Skills (NIMS)
- Machining Technology Level 1 – Lone Star College

POSSIBLE CAREER PATHWAYS

- Instrumentation Technician
- Process Control Technician
- Machinist
- CNC Operator

MEDIAN PAY PER YEAR*

\$44,110 - \$52,550

Source: Bureau of Labor Statistics
Website: bls.gov/ooh

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Program Description: Machining

Trained machinists are continuously needed in engineering, manufacturing and fabrication companies. There are not enough new workers available to fill the entry-level positions. The CTE program prepares students for work as a machinist. Students will learn to use, program and operate manual and computer numerical control (CNC) machining (i.e. lathes and mill machines). They will also use computer-assisted manufacturing (CAM) software.

Other skills include producing precision parts to design specification. Students must show the ability to use precision measuring equipment. Students will program and build projects on CNC machines. They must show their understanding of tolerance limits for each machining process. And they must verify that projects meet blueprint requirements. The program covers industrial materials, the processes and the principles of material behavior. Students will also show proper use of CAM software. They will design, layout and build a project.

Students in the program will apply their knowledge and skills in industry work experiences. The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Shop Safety
- Precision Measurements
- Print Reading
- Properties of Materials
- Computer Numerical Controlled (CNC) Machine Programming
- CNC Operations – Drilling, etc.
- CNC Machine Set Up and Operation

BUSINESS AND INDUSTRY PARTNERS

Greater Houston Manufacturing Association · GTNL Machine Shop · HAAS Automation Inc. · Mausbach Company · Electronic PowerDesign, Paul Veatts Enterprises · Brochsteins · Texas Stairs & Rails · Environcon Systems · International Union of Painters & Allied Trades

COLLEGE PARTNERS

Lone Star College

PROGRAM OF STUDY

HS Endorsement: Business & Industry

9th Grade	10th Grade	11th Grade	12th Grade
Principles of Manufacturing	Diversified Manufacturing I	Precision Metal Manufacturing I	Precision Metal Manufacturing II

Workforce Dual Credit

Print Reading for Machine Trades
Basic Machine Shop 1
Machine Shop Mathematics

Introduction to Computer-Aided Manufacturing (CAM) and Operation of CNC Turning Centers



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Health Science Cluster

INDUSTRY CERTIFICATIONS

- CPR – American Heart Association
- OSHA 10 Career Safe
- Phlebotomy
- EKG – Electrocardiogram
- PCT – Patient Care Technician / Assistant

POSSIBLE CAREER PATHWAYS

- Personal Care Technician
- Phlebotomist
- Medical or Nurse Assistant
- Health Care Assistant
- Health Informatics Specialist
- Clinical Analyst
- Cardiovascular Technologist
- Diagnostic Medical Sonographer
- Respiratory Therapist
- Community Health Worker
- Pathologist or Forensic Scientist
- Medical Technologist
- Cytotechnologist
- Biomedical Scientist
- Clinical Research Associate
- Food Technologist
- Microbiologist
- Pharmacologist
- Physician Associate
- Research Scientist (life sciences)
- Laboratory Technician
- Nurse

MEDIAN PAY PER YEAR*

\$27,510 - \$110,930

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Program Description: Patient Care Technician

This program prepares students to assist with the critical day-to-day care patients need. Patient care technicians are multi-skilled healthcare workers. They work under the direction and supervision of a registered nurse or health care practitioner. Patient care technicians carry out the essential basic bedside nursing functions. They come in direct contact with patients in the performance of their assigned duties. The CTE program is a hands-on experience. CTE students also receive supplementary training in EKG interpretation. Other skills include safety and security procedures, basic phlebotomy techniques and restorative skills. The latter covers prevention, self-care and independence as well as emotional support care skills.

Students in the program will apply their knowledge and skills in industry work experiences. The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Introduction to Allied Health
- EKG Basics
- Phlebotomy Training
- Body Systems & Functions
- First Aid/CPR
- Nurse Assistant Skills
- Medical Ethics & Patient Rights
- Communication & Professionals in the Workplace

BUSINESS AND INDUSTRY PARTNERS

Legend Oaks Healthcare & Rehab Center of NW Houston

PROGRAM OF STUDY

HS Endorsement: Public Service			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Health Science	Medical Terminology	Health Science (Clinical)	Practicum in Health Science
		Anatomy & Physiology	Pathophysiology

Health Science Cluster

INDUSTRY CERTIFICATIONS

- CPR – American Heart Association Basic Life Support
- CERT
- CareerSafe OSH 10 Healthcare

POSSIBLE CAREER PATHWAYS

- Physical Therapy Assistant
- Physical Therapist
- Certified Occupational Therapy Assistant
- Occupational Therapist
- Prosthetist
- Speech-Language Pathologist
- Respiratory Therapist
- Athletic Trainer
- Exercise Physiologist
- Kinesiotherapist
- Personal Trainer

MEDIAN PAY PER YEAR*

\$39,210 - \$86,850

Source: Bureau of Labor Statistics
Website: bls.gov/ooh

* The wage at which half of the workers in the occupation earned more than that amount and half earned less. Median Pay Per Year range includes occupations listed on Bureau of Labor Statistics.



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Program Description: Physical Therapy

Physical therapy helps people from birth to the elderly, addressing developmental impairments to recovery of functional mobility. Physical therapy assists people with reaching their maximum level of health and function while managing their effects of injuries and other health problems. Treatment techniques may include therapeutic exercises, functional mobility, gait training, neuromuscular re-education, and pain management.

Physical therapists (PTs) and physical therapist assistants (PTAs) are health care providers. Therapy aides or technicians play a role in preparing the client or patient for their therapy session and maintenance of the clinic and equipment for safe use. Therapy aides are under the supervision of the PTs and PTAs. PTs supervise PTAs, aides and techs.

Physical Therapists, physical therapist assistants and therapy aides usually work in hospitals, home health agencies, sports and fitness facilities, outpatient clinics, skilled nursing facilities and schools.

The CTE program provides a hands-on experience. Students in the program will apply their knowledge and skills in industry work experiences. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Effective Communication & Customer Service
- Rehabilitation Techniques
- Clinical Physical Therapy
- Safety Practices
- Therapeutic Exercise
- Human Anatomy & Physiology
- Legal & Ethical Behavior
- Theory & Skills Involving Specialized Tools

BUSINESS AND INDUSTRY PARTNERS

SIRE Therapeutic Horsemanship · ASA Prosthetics

PROGRAM OF STUDY

HS Endorsement: Public Service			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Health Science	Medical Terminology	Health Science (Clinical)	Practicum in Health Science
		Anatomy and Physiology	Pathophysiology

Agriculture, Food, and Natural Resources Cluster

POSSIBLE CAREER PATHWAYS

- Electrical Instrumentation Control Technician & Engineer
- Refinery Instrumentation & Controls Project Manager
- Chemical Engineer
- Instrumentation & Controls Technician
- Systems Engineer
- Flight Test Instrumentation Engineer
- Product Development Manager
- Sales Engineer
- Project Manager
- Process Control Engineer
- Plant Manager
- Operations Manager
- Field Service Technician/Engineer
- Field Services Manager/Director

MEDIAN PAY PER YEAR*

\$46,150 - \$102,160

Source: Bureau of Labor Statistics
Website: bls.gov/ooh

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Program Description: Instrumentation & Process Control Technology

The program prepares individuals with entry-level skills for a career in process technology. They will learn electronic engineering principles and technical skills. They apply those skills in the fields of instrumentation measurement and industrial control systems, which include automated systems and process control. This also includes plant and equipment maintenance, embedded micro-controllers and data acquisition systems.

This program centers on the areas of AC/DC electronics, digital and analog circuits. CTE students will learn to use electronic test equipment and computers for analysis. They will develop problem solving skills. Students will learn to read electrical schematics, process/system diagrams and instrument diagrams. They will also have the opportunity to earn credits towards a Level 1 Certificate in Process Technology.

Technicians install, maintain and repair the measuring and controlling instruments that make plants run safely. Individuals can find careers at power generation stations, water treatment facilities, chemical manufacturing plants, aerospace plants, bio-pharmaceutical plants, power plants, mining, medical device testing, paper mills, semiconductor manufacturing plants, food and beverage plants and petrochemical production. These industries that increasingly rely on automation. This is a great program of choice for individuals looking for a high-wage career. There is employment potential across nation and beyond.

Students in the program will apply their knowledge and skills in industry work experiences. The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Process Measurement Devices, Control Methods and Strategies
- Develop, Construct & Check Process Control Loop
- Specialized Test Equipment & Hand Tools
- Industrial Instrumentation & Maintenance
- Technical Communication

BUSINESS AND INDUSTRY PARTNERS

TBA

PROGRAM OF STUDY

HS Endorsement: Business & Industry			
9th Grade	10th Grade	11th Grade	12th Grade
Energy and Natural Resources Technology	Petrochemical Safety, Health and Environment	Oil and Gas Production I	Oil and Gas Production II
		Introduction to Process Technology	

STEM Cluster

INDUSTRY CERTIFICATIONS

- Fusion 360
- OSHA 10
- FANUC – Fuji Automatic Numerical Control – Robot Operator Certification

POSSIBLE CAREER PATHWAYS

- Maintenance Mechanic
- Control Engineer
- Field Service Engineer
- Assembler
- Control Systems Technician/ Engineer
- Automation & Robotics Technician
- Systems Engineer
- Production
- Manufacturing Production Process Development
- Maintenance, Installation and Repair
- Quality Assurance
- Logistics and Inventory Control
- Health, Safety and Environmental Assurance
- Industrial Engineer

MEDIAN PAY PER YEAR*

\$31,850 - \$85,880

Source: Bureau of Labor Statistics
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Program Description: Industrial Robotics & Automation Tech.

The program provides students training in an industrial setting. Topics include assembling, installation, programming, troubleshooting, maintaining and operating industrial robotic systems. Students will develop skills in industrial control systems and programming. They will use vision systems (aka computers with eyes) and multi-axis motion control. Students will learn about fluid power. This is a term describing hydraulics and pneumatics technologies. Both technologies use a fluid (liquid or gas) to transmit power from one location to another. With hydraulics, the fluid is a liquid (usually oil). Pneumatics uses a gas (usually compressed air). Students will learn how industrial automation provides solutions to improve client processes. And how it optimizes system performance. Companies achieve this through innovative engineering with many integration disciplines. Automation is used in a variety of industrial and non-industrial applications.

This is ideal for students who wish to explore how industry uses robots and automated systems. Students will use an engineering design process. They will apply basic programming skills to complete projects. Students will gain an understanding of programmable circuits. They will also study systems that use electronic building blocks as inputs and outputs. Other skills include testing and maintenance of robots and automated systems.

The hands-on application of mechanisms, machines and robotic systems develops STEM skill-sets. Students will move from concept to application as they solve problems using intelligent machines. They will also solve engineering problems. This will give students firsthand knowledge of simple machines, fabrication and logic circuitry. Students will also learn how to program complex robotic systems to perform a variety of tasks. Students in the program will apply their knowledge and skills in industry work experiences. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- // Safety
- // DC/AC Circuits
- // Digital Electronics
- // Microprocessor Programming
- // Pneumatics & Hydraulics
- // Industrial Robotics & Automation
- // Programmable Logic Controllers
- // Power Equipment Use

BUSINESS AND INDUSTRY PARTNERS

CenterPoint Energy · Paul Veatts Enterprises

PROGRAM OF STUDY

HS Endorsement: Science, Technology, Engineering & Mathematics (STEM)			
9th Grade	10th Grade	11th Grade	12th Grade
Principles of Applied Engineering	Robotics I	Robotics II Digital Electronics	Practicum in STEM

Manufacturing Cluster

INDUSTRY CERTIFICATIONS

- NCCER (National Center for Construction Education and Research) Core
- NCCER Welding Level 1
- Welding Level 1 Certificate – Lone Star College

POSSIBLE CAREER PATHWAYS

- Welder
- Structural Welder
- Pipe Fitter
- Welding Inspector
- Iron Worker

\$40,240 - \$52,590

Source: Bureau of Labor Statistics
Website: bls.gov/ooh

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Program Description: Welding

The program prepares students for a career as a welding technician. Welding is a high-tech industry that can take you places all over the world. Welders work on planes, NASCAR, national defense, laboratories, fabrication, construction, manufacturing, sales and repair. The varied welding industry impacts virtually every field. Technology is creating more uses for welding in the workplace.

CTE instructors train students in the fundamentals of shield metal arc welding (SMAW), Oxy-Acetylene cutting and plasma cutting. Students learn to use gases and/or welding processes. They will learn all four welding positions: flat, horizontal, vertical and overhead. Students will braze and solder metal parts according to diagrams, blueprints and written specifications.

Students will gain a basic understanding of welding and metal fabrication procedures. Skill development includes layout and measurement techniques, operating equipment, metal preparation and safety management. They learn tool and equipment maintenance, prototype development and evaluation and industrial management strategies. Students apply these skills in constructing a variety of projects.

Students will apply their knowledge and skills in industry work experiences. The CTE Department may structure the field experience. This may include laboratory-based, paid or unpaid work experiences for students.

COURSE CONTENT

- Shop Safety
- Power Tools
- WSP (Welding Set up Procedure)
- Oxy-Acetylene Cutting
- SMAW (Shielded Metal Arc Welding)
- Plasma Arc Cutting
- CNC Plasma Cutting
- Pipe Welding

BUSINESS AND INDUSTRY PARTNERS

Associated Builder and Contractors of Greater Houston · CenterPoint Energy · Construction and Maintenance Education Foundation · Lincoln Electric · Texas Stairs & Rails · Envirocon Systems · Brochsteins

COLLEGE PARTNERS

Lone Star College

PROGRAM OF STUDY

HS Endorsement: Business & Industry			
9th Grade	10th Grade	11th Grade	12th Grade
Introduction to Welding	Welding I	Welding II	Practicum in Manufacturing
Workforce Dual Credit			
Introduction to Layout and Fabrication Welding Fundamentals		Introduction to Shielded Metal Arc Welding (SMAW) Introduction to Welding Metallurgy	