COURSE CATALOG

miller

CAREER & TECHNOLOGY CENTER

At Miller Career & Technology Center,
we develop college- and career-ready students
through engaging, real-world experiences.

24
25

Table of Contents

BUSINESS & INDUSTRY

Table of Contents

BUSINESS & INDUSTRY

PUBLIC SERVICES

STEM

AGRICULTURE, FOOD, & NATURAL RESOURCES

CAREER CLUSTER

PROGRAM OF STUDY:

ANIMAL SCIENCE

Course	Credits	Class Periods	Grade	Location
Principles of Agriculture	1.0	1	9-10	Home Campus
Equine Science* AND Small Animal Management*	.5 .5	1	10-12	Home Campus
Veterinary Medical Applications *Prerequisite: Principles of Agriculture* and Equine Science* and Small Animal Management** **The Class of 2025 is waived from the prerequisite requirement for Veterinary Medical Applications.* **The Class of 2026 needs only ONE of the following: Equine Science, or Small Animal Management, or Livestock Production.*	2.0	2	11-12	MCTC
Veterinary Assisting *Prerequisite: Veterinary Medical Applications*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES?

First year students have the opportunity to test for the Elanco Fundamentals of Animal Science certification. After the completion of Veterinary Medical Applications, students who demonstrate the required skills/ competencies and have accrued and documented the necessary 300 hours, are eligible to take the Certified Veterinary Assisting (CVA) exam offered by the Texas Veterinary Medical Association. The required 300 hours must be supervised by a Doctor of Veterinary Medicine (DVM) or a Licensed Veterinary Technician (LVT).

8147V VETERINARY MEDICAL APPLICATIONS

—

Grades: 11-12 2 Credits

Prerequisites: Principles of Agriculture and Equine Science and Small Animal Management
**The Class of 2025 is waived from the prerequisite requirement for Veterinary Medical Applications.*
**The Class of 2026 needs only ONE of the following prerequisites: Equine Science or Small Management or Livestock Production.*

This course provides an introduction to animal care, including handling, health, safety, sanitation, surgical preparation, anatomy and physiology, and medical terminology. Students learn basic skills necessary to begin work in a veterinary clinic. They will interact with live animals, with the intent to analyze behavior and apply proper restraint and handling techniques.

8148V VETERINARY ASSISTING

—

Grade: 12 2 Credits

Prerequisite: Veterinary Medical Applications
Students must provide their own transportation to internship site.

This course provides advanced application of previously learned knowledge and skills from Veterinary Medical Applications. Students participate in an internship at a veterinary clinic, animal shelter, or other animal facility where they will gain further industry experience. Students may acquire hours needed to obtain CVA certification. The additional 300 hours must be supervised by a Doctor of Veterinary Medicine (DVM) or Licensed Veterinary Technician (LVT) and completed within one calendar year of taking the CVA exam.

PROGRAM EXPERIENCES

Students interested in the animal science field have the opportunity to gain knowledge and experience caring for a variety of animal breeds. They will learn proper medical terminology and safety and sanitation standards. During lab time students practice various handling and restraint techniques on real animals, as well as how to take vitals, and grooming procedures. Lab activities also include dissecting and labeling organs and how to take and analyze fecal, urine and blood samples. During their 2nd year, students have the opportunity to participate in a nonpaid internship at either a Vet clinic or animal shelter. On Fridays, our Vet lab is open to the public to bring in their dogs to be groomed by both 1st and 2nd year students for a small fee. This gives all of our students another chance at hands-on experience.

CAREER POSSIBILITIES

- Animal Trainer
- Breed Analyst
- Companion Animal Therapy Specialist
- Veterinarian
- Veterinary Assistant
- Veterinary Technician
- Zoologist

EXPECTATIONS OF STUDENTS?

- Motivated to learn scientific view of animals from both the laboratory and veterinary assistant perspective
- Willing to work with all types of animals
- Willingness to handle blood, live animals, feces, and urine
- A desire to learn technical information for assisting veterinarians
- Demonstrate professionalism while at internship site

ARCHITECTURE & CONSTRUCTION

CLUSTER

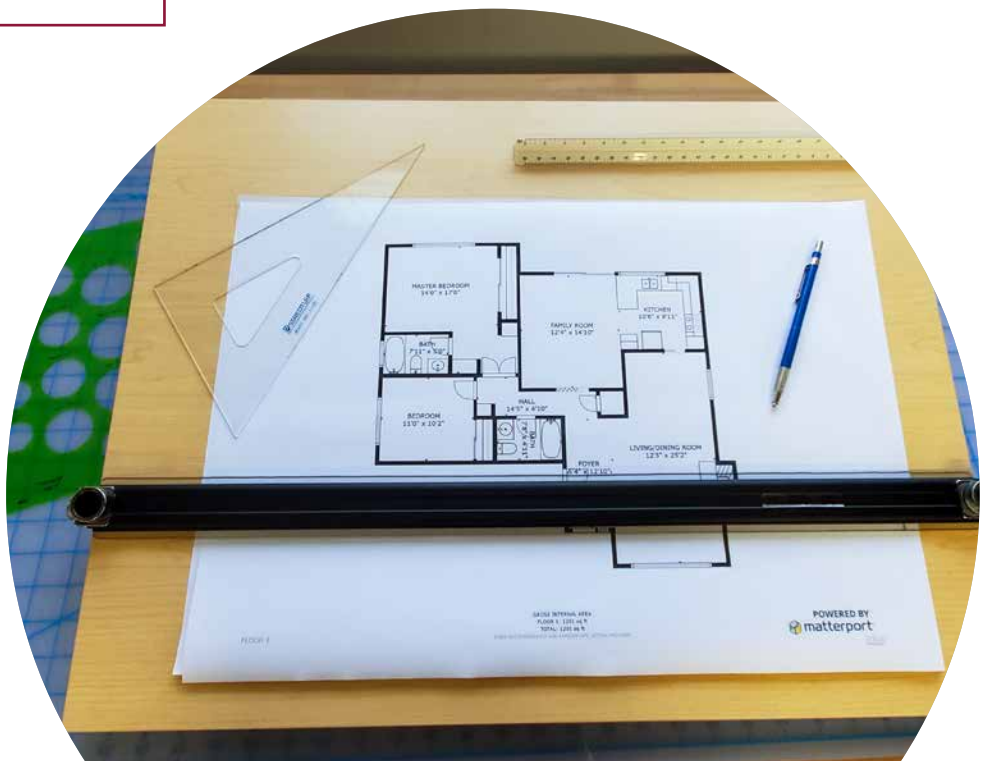
PROGRAM OF STUDY:

ARCHITECTURAL DRAFTING & DESIGN

Course	Credits	Class Periods	Grade	Location
Architectural Design I	1.0	1	10-12	Home Campus
Architectural Design II *Prerequisite: Architectural Design I and Geometry*	2.0	2	11-12	MCTC
Practicum in Architectural Design *Prerequisite: Architectural Design II*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES

Students will have the opportunity to test for Autodesk Associate Revit while enrolled in the Architecture program.



8030V ARCHITECTURAL DESIGN II

Grades: 11-12 2 Credits
Prerequisite: Architectural Design I and Geometry

This course provides an understanding of the architectural process including project research/programming, conceptual and schematic design, design development and material selection. Students will learn the fundamentals of design history, techniques and tools related to presentation and production drawings, renderings, and scaled models for residential architecture.

8001V PRACTICUM IN ARCHITECTURAL DESIGN

Grade: 12 2 Credits
Prerequisite: Architectural Design II

This course builds upon architectural design foundations and increases understanding of the overall process in a classroom and workplace environment. Major emphasis is placed on projects as they relate to the business world, including its process, key definitions, budgets, schedules, and presentations. Projects are team-based involving cross-functional disciplines (engineering, project management) to derive cohesive solutions. Students may have the opportunity to gain field experience through field trips, guest speakers and job shadowing.

PROGRAM EXPERIENCES

MCTC provides students with a true experience and understanding of the profession. Course content focuses on real-life applications of architecture, both in lesson content and project work. We provide a fun but realistic familiarity for students with the requirements, time commitment, and dedication it takes to pursue a career in architecture. Once these courses are completed, students should be able to make a sound and educated decision in their future careers in this industry.

CAREER POSSIBILITIES

- Building Code Writer
- Civil Engineering
- Full-Building Designer
- Historical Preservation
- Interior Designer
- Plumbing & Hydraulics
- Project Management
- Structural Engineering

EXPECTATIONS OF STUDENTS

- Maintain self-motivation
- Demonstrate the ability to be a flexible team player
- Demonstrate excellent verbal and written communication skills
- Exhibit a willingness to share creative ideas

ARCHITECTURE & CONSTRUCTION

CLUSTER

PROGRAM OF STUDY:

CONSTRUCTION MANAGEMENT & INSPECTION

Course	Credits	Class Periods	Grade	Location
Principles of Construction & Construction Trades I	3.0	2	11-12	MCTC
Construction Trades II *Prerequisites: Construction Trades I and Principles of Construction*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES

First year Construction Trades students will have the opportunity to test for the National Center for Construction Education & Research (NCCER) Core certification. Second year students will have the opportunity to test for the EPA 608 Refrigerant Handling License.

CAREER POSSIBILITIES

- Building Inspector
- Carpenter
- Construction Manager
- Electrician
- HVAC Technician
- Painter
- Plumber
- Project Manager

8024V PRINCIPLES OF CONSTRUCTION

1 Credit - *taken concurrently with Construction Trades I*

8192V CONSTRUCTION TRADES I

2 Credits - *taken concurrently with Principles of Construction*

—

Grades: 11-12

Principles of Construction provides an introduction for students entering the construction industry. Students will gain knowledge of construction safety, construction mathematics, and common hand and power tools. **Construction Trades I** provides skills needed for the building maintenance industry as a technician or supervisor. Students will acquire knowledge and skills in plumbing, electrical, and heating, ventilation, and air conditioning (HVAC) systems. They will learn methods for repair and installation of drywall, roofing, and insulation systems.

8196V CONSTRUCTION TRADES II

—

Grade: 12 2 Credits

Prerequisites: Principles of Construction and Construction Trades I

This course builds on previously learned skills needed to enter the construction workforce as a building maintenance technician, supervisor, or construction project manager. Through hands-on experience, students will gain further knowledge in Occupational Safety and Health Administration (OSHA) standards, safety devices in electrical circuits, and maintenance of electrical heating, ventilation, and air conditioning (HVAC), and plumbing systems.

PROGRAM EXPERIENCES

These courses provide a unique opportunity to explore diverse careers within the construction industry, giving students insights into potential paths for their future. Beyond the toolbox, construction courses teach teamwork, problem-solving, and safety practices, fostering qualities that extend well beyond construction sites and into any career choice. By engaging in real-world projects, students not only apply academic concepts but also develop a strong work ethic and attention to detail, laying the groundwork for success in various fields. Whether planning to enter the workforce directly or pursue further education, a construction course in high school equips students with skills, knowledge, and a practical mindset that will serve them well.

EXPECTATIONS OF STUDENTS

- **Work both independently and as a team to complete projects.**
- **Display professional behavior in the classroom and the Construction lab area.**
- **Show willingness to learn theory before going into the Construction lab area for hands-on training.**
- **Pass multiple safety tests before entering the lab area.**

ARTS, A/V TECHNOLOGY & COMMUNICATIONS

CAREER CLUSTER

PROGRAM OF STUDY:

DIGITAL AUDIO

Course	Credits	Class Periods	Grade	Location
Digital Audio I & II	2.0	2	11-12	MCTC
Practicum in Digital Audio *Prerequisite: Digital Audio I & II*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES

Students will have the opportunity to test for the Dante Level I Certification as well as the NOCTI Audio Visual Communications Certification while enrolled in our Digital Audio program.

PROGRAM EXPERIENCES

Students develop knowledge of the audio recording process including production, tracking, mixing, and mastering. In addition to music recording, the class will also explore post production sound for film, television, and video games as well as live sound for concerts and sporting events. Students receive hands-on experience while working on industry standard equipment and software.

8027V DIGITAL AUDIO I - FALL SEMESTER

8028V DIGITAL AUDIO II - SPRING SEMESTER

Grades: 11-12 1 Credit Each Course

—

This course provides an introduction to the digital audio industry. Students explore audio careers in the areas of music production, live sound, film production, animation, game design, radio, and television. Using Digital Audio Work Stations (DAWS) such as ProTools for recording and mixing, students will develop an understanding of the industry with a technical emphasis on production and critical listening skills.

8682V PRACTICUM IN DIGITAL AUDIO

—

Grade: 12 2 Credits

Prerequisites: Digital Audio I & Digital Audio II

This course provides Advanced application of previously learned knowledge and skills. Students will develop a deeper understanding of the audio industry with a focus on industry pathways such as live sound, broadcast, streaming, podcasting, studio recording, and audio for film, video, and games. Students will continue to build their resumes and demo reels.

8017V DUAL CREDIT DIGITAL AUDIO I - FALL SEMESTER

8019V DUAL CREDIT DIGITAL AUDIO II - SPRING SEMESTER

Grades: 11-12 1 Credit Each Course

HCC Admission requirements, TSI Requirement, $65 fee per HCC course

—

Students earn six college credit hours upon successful completion of Fall semester: MUSC 1335 Commercial Music Software (3 credits) and MUSC 1331: MIDI (3 credits). Upon successful completion of Spring semester students earn another six college hours: MUSC 1323 Audio Electronics and MUSC 1327 Audio Engineering I.

CAREER POSSIBILITIES

- Audio Engineer
- Audio Forensics & Restoration
- Broadcasting
- Gaming Audio Engineer
- Installation & Design Engineer
- Live Sound Engineer
- Mixing Engineer
- Post Production for Film/TV
- Producer

EXPECTATIONS OF STUDENTS

- Work on projects both independently and in a group setting.
- Exhibit professional behavior in both the classroom and studio.
- Show willingness to learn theory before lab time in studio.
- Motivated to learn audio equipment operation.

ARTS, A/V TECHNOLOGY & COMMUNICATIONS

CAREER CLUSTER

PROGRAM OF STUDY:

DIGITAL COMMUNICATIONS

Course	Credits	Class Periods	Grade	Location
Principles of Arts A/V & Communication OR Digital Communication in the 21st Century *Prerequisite: Principles of Arts A/V & Communication* OR Audio Video Production *Prerequisite: Principles of Arts A/V & Communication and Digital Communication in the 21st Century*	1.0 1.0 1.0	1 1 1	7-12 9-12 10-12	Home Campus Home Campus Home Campus
Film 1 – Advanced A/V Production *Prerequisite: Principles of Arts A/V & Communication, or Digital Communication in the 21st Century, or Audio/Video Production*	2.0	2	11-12	MCTC
Film 2 – Practicum of A/V Production *Prerequisite: Film I – Advanced A/V Production*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES

During this course students will have the opportunity to earn the Adobe After Effects or Adobe Premiere Pro certification, which are both industry level video editing software.

8005V FILM I- ADVANCED AUDIO/VIDEO PRODUCTION

Grades: 11-12 2 Credits

Prerequisites: Principles of Arts A/V, or Digital Communication in the 21st Century, or Audio Video Production I

—

This course provides advanced training for employment in the film and video/television production industry. Students further explore the three production stages, including script writing, making shot lists, camera techniques, operation of different types of production equipment and linear editing methods using Adobe Premiere.

8006V DUAL CREDIT FILM I-ADVANCED AUDIO/VIDEO PRODUCTION

Grades: 11-12 2 Credits

Prerequisites: Principles of Arts A/V, or Digital Communication in the 21st Century, or Audio Video Production I

—

HCC Admission Requirements, TSI Requirement, $65 fee per HCC course
Students earn six college credit hours upon successful completion of this course: RTVB 1321: TV Field Production and RTVB 1329: Scriptwriting.

8035V FILM II: PRACTICUM IN AUDIO/VIDEO PRODUCTION

Grade: 12 2 Credits

Prerequisites: Film I

—

This course provides advanced application of previously learned knowledge and skills. Students receive instruction in the operation of higher-end cameras, mastery of media graphics, linear editing, color correction, audio techniques, lighting, script writing, direction, production, special effects, signal control and managing equipment.

EXPECTATIONS OF STUDENTS

- **Ability to work on projects both independently and in a group setting.**
- **Exhibit professional behavior in both the classroom and studio.**
- **Show willingness to learn theory before lab time in studio.**
- **Demonstrate excellent communication skills.**

CAREER POSSIBILITIES

- **Director**
- **Editor**
- **Producer**
- **Replay Technician**
- **Storyboard Artist**
- **Writer**

PROGRAM EXPERIENCES

With the world leaning on technology more often than not, it is critical to be a step ahead of others in the industry in order to stay competitive. Our Film courses provide students with both college and industry level knowledge so that they are prepared for post-secondary opportunities. The hands-on lab time provided for students during class will teach current standards using industry-level software.

BUSINESS, MARKETING, & FINANCE

CLUSTER

PROGRAM OF STUDY:

PROFESSIONAL ADVANCEMENT THROUGH CAREER EDUCATION

Course	Credits	Class Periods	Grade	Location
PACE KAP *Note: Students must have a 3.8 GPA or higher and will be scheduled into AP English Literature at MCTC*	1.0	1	12	MCTC

8553V PACE KAP

8554V PACE KAP/GT

Grade: 12 1 Credit Each Course

Prerequisites: Students with a 3.8 GPA or higher, enrollment in AP English Literature at MCTC
Students must provide their own transportation to internship site.

—

This course provides students the opportunity to research, design, and construct an independent project on a topic related to their career interest under the supervision of a mentor in the first semester. Students will submit progress reports, a final written report, and will defend their solutions to a panel of outside reviewers. In the second semester, students have the opportunity to reinforce, apply, and transfer their knowledge and skills through a non-paid internship experience for a minimum of 6 hours a week.

CERTIFICATION OPPORTUNITIES

Students may have an opportunity to earn a certification if the internship site encourages or requires them to have one.

PROGRAM EXPERIENCES

The internship approach to career development provides students with a shadowing experience alongside a professional in the field of their choice. Students have the opportunity to see the day-to-day duties and responsibilities of a future career. They enjoy the real-world application of the skills they have learned in the regular classroom. The internship also provides networking opportunities within the career field while developing a professional relationship with their mentor.

EXPECTATIONS OF STUDENTS

- Have a positive attitude with your appearance and speech.
- Develop positive relationships with your peers, mentor, and coworkers.
- Become confident with public speaking.
- Demonstrate dependability and punctuality.

CAREER POSSIBILITIES

Students pursue the possibilities in a professional field of their choice.

HOSPITALITY & TOURISM

CAREER CLUSTER

PROGRAM OF STUDY:

CULINARY ARTS

Course	Credits	Class Periods	Grade	Location
Culinary Arts & Foundations of Restaurant Management	3.0	2	11-12	MCTC
Practicum in Culinary Arts *Prerequisites: Culinary Arts and Foundations of Restaurant Management*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES?

While taking the first year of Culinary Arts, students are prepared for the ServSafe® Manager Certification exam. This management level certification can assist in more job opportunities and the potential for higher pay. The ServSafe® certification is valid for 5 years.

8371V CULINARY ARTS

Grades: 11-12 2 Credits - *taken concurrently with Foundations of Restaurant Management*

8364V FOUNDATIONS OF RESTAURANT MANAGEMENT

Grades: 11-12 1 Credit - *taken concurrently with Culinary Arts*

—

This course provides an introduction to and overview of the culinary industry. Students learn knife skills, industry-specific vocabulary, and experience hands-on labs in all areas of food production using commercial kitchen equipment. Students also learn skills for restaurant management and service.

8373V PRACTICUM IN CULINARY ARTS

Grade: 12 2 Credits

Prerequisites: Culinary Arts and Foundations of Restaurant Management

—

This course provides a more in-depth application of previously learned knowledge and skills. Students learn to produce more complex dishes appropriate for restaurant service at the on-site bistro and for competition. The Old Town Bistro is run by practicum students and is open to the public for dining and catering services.

PROGRAM EXPERIENCES

Culinary Arts covers a wide range of topics within the industry. After being taught safety and sanitation procedures for handling food and kitchen equipment, students participate in hands-on labs in all areas of food production using commercial grade kitchen equipment. Skills they will learn include basic knife handling and chopping, sautéing, baking, grilling, and plate presentation. Second year students will have the opportunity to experience working in a restaurant setting, as they assist in running our onsite bistro. They will rotate through each position including serving, cooking, hosting and supervising, and are able to practice all the skills acquired during class and lab time. Taking our Culinary Arts courses also exposes students to a variety of post-secondary options in the restaurant and service industry.

EXPECTATIONS OF STUDENTS?

- **Ability to work on projects both independently and in a group setting.**
- **Exhibit professional behavior in both the classroom and studio.**
- **Show willingness to learn theory before lab time in studio.**
- **Demonstrate excellent communication skills.**

CAREER POSSIBILITIES

- **Executive Chef**
- **Nutritionist**
- **Pastry Chef**
- **Personal Health Coach**
- **Restaurant Owner**
- **Sous Chef**

INFORMATION TECHNOLOGY

CAREER CLUSTER

PROGRAM OF STUDY:

INFORMATION TECHNOLOGY SUPPORT & SERVICES

Course	Credits	Class Periods	Grade	Location
Principles of Information Technology* OR	1.0	1	8	Junior High
Introduction to Computer Science* OR	1.0	1	9-12	Home Campus
Computer Science I* *Prerequisite: Algebra I* OR	1.0	1	9-12	Home Campus
AP Computer Science Principles* *Prerequisite: Algebra I* OR	1.0	1	9-12	Home Campus
AP Computer Science A* *Prerequisite: Algebra I* *Successful completion of this course awards one advanced math credit and one language other than English credit*	1.0	1	9-12	Home Campus
Computer Technician ** The Classes of 2025 and 2026 are waived from the prerequisite requirement for Computer Technician.*	2.0	2	11-12	MCTC

8664V COMPUTER TECHNICIAN

Grades: 11-12 2 Credits

Prerequisite: Principles of Information Technology or Introduction to Computer Science or Computer Science I or AP Computer Science Principles or AP Computer Science A

**The Classes of 2025 and 2026 are waived from the prerequisite requirement for Computer Technician.*

—

This course provides an introduction to basic computer hardware and software. Through hands-on labs, students learn how to build computer systems, troubleshoot and repair computers, printers and mobile devices, install and configure operating systems (Windows and Linux), and learn networking and security concepts.

PROGRAM EXPERIENCES

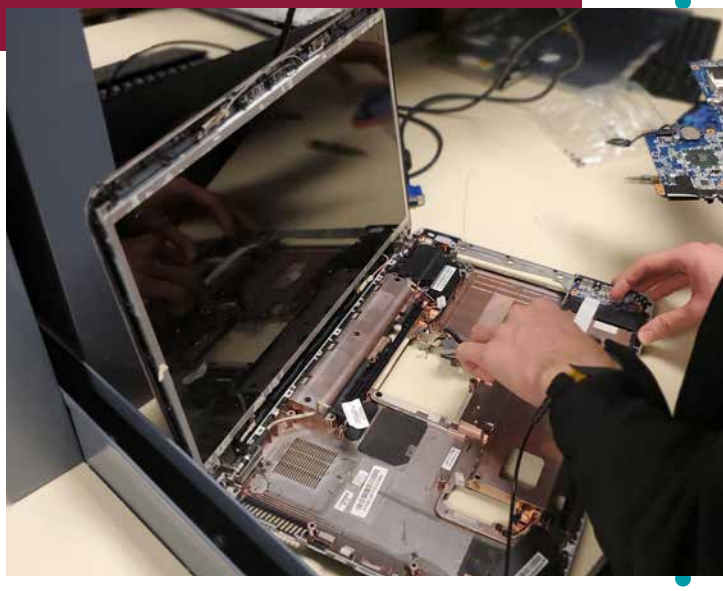
As advancements in technology are more frequently made, the IT field is constantly expanding. Students have the opportunity to gain the most up-to-date knowledge through both classroom instruction and hands-on experience. During lab time they will have numerous projects to sharpen their IT abilities, such as disassembling and reassembling computers to learn the internal components, how they connect with cabling, and how they are installed. All the skills learned throughout this course will provide students with insight into various areas of the IT field as well as potential post-secondary job options available within the industry.

EXPECTATIONS OF STUDENTS

- **Ability to work both independently and in a group.**
- **Engage in labs and critical thinking.**
- **Ability to acquire working knowledge of computer systems and desktop support.**

CAREER POSSIBILITIES

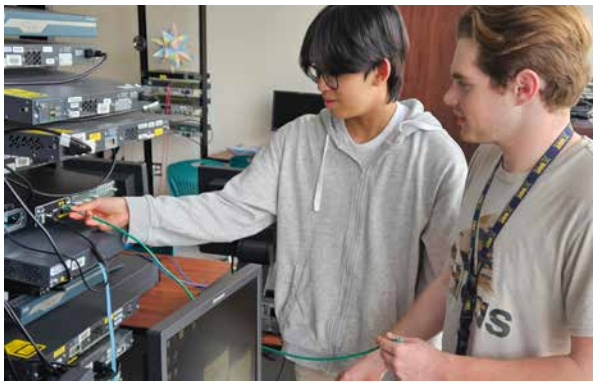
- **Computer Hardware Engineer**
- **Computer System Analyst**
- **Database Administrator**
- **Field Service Technician**



CERTIFICATION OPPORTUNITIES

After completion of this course, students will be prepared to take the CompTIA A+ certification exam, which is an entry level industry certification for PC computer service technicians.

INFORMATION TECHNOLOGY
CAREER CLUSTER



PROGRAM OF STUDY:
CISCO NETWORK ENGINEERING

Course	Credits	Class Periods	Grade	Location
Principles of Information Technology* OR Introduction to Computer Science* OR Computer Science I* *Prerequisite: Algebra I* OR AP Computer Science Principles* *Prerequisite: Algebra I* OR AP Computer Science A* *Prerequisite: Algebra I* *Successful completion of this course awards one advanced math credit and one language other than English credit* OR Computer Technician*	1.0 1.0 1.0 1.0 1.0 2.0	1 1 1 1 1 2	8 9-12 9-12 9-12 9-12 11-12	Junior High Home Campus Home Campus Home Campus Home Campus MCTC
Network Engineering I & Lab *Prerequisite: Principles of Information Technology* or Intro to Computer Science* or Computer Science I* or AP Computer Science Principles* or AP Computer Science A* or Computer Technician** **The Classes of 2025 and 2026 are waived from the prerequisite requirement for Network Engineering. Note: Students must have completed Algebra II or be concurrently enrolled in Algebra II*	2.0	2	11-12	MCTC
Network Engineering II & Lab *Prerequisite: Network Engineering I & Lab*	2.0	2	12	MCTC

8685V CISCO NETWORK ENGINEERING I AND LAB

Grades: 11-12 2 Credits

Prerequisites: Algebra II or concurrent enrollment in Algebra II AND Principles of Information Technology or Introduction to Computer Science or Computer Science I or AP Computer Science Principles or AP Computer Science A or Computer Technician
**The Classes of 2025 and 2026 are waived from the prerequisite requirement for Cisco Network Engineering I, with the exception of Algebra II.*

—

This course provides an introduction to the basics of computer networking. Students focus on network architecture, function, theory, and design. Students build networks using enterprise-level Cisco equipment and learn hands-on job skills, including network configuration and troubleshooting. By the end of the course, students will be able to design and build LANs, configure enterprise routers and switches, and implement IP addressing schemes.

8686V CISCO NETWORK ENGINEERING II AND LAB

Grade: 12 2 Credits

Prerequisite: Network Engineering I and Lab

—

This course focuses on advanced network engineering concepts used to support large-scale enterprise networks that are commonly found in the industry today. It is designed to prepare students to sit for Cisco's CCNA certification exam. Students learn advanced routing and switching concepts, wireless essentials, and network security automation. They troubleshoot routers and switches and learn to resolve common issues.

PROGRAM EXPERIENCES

This class is designed to prepare students for entry-level work in network engineering. It lays the foundation for not only networking, but also IT specialties such as Cyber Security. Students learn how to build and maintain the enterprise level networks that companies large and small rely on. The knowledge and experience gained in this class can lead to an early start to a career in IT.

CERTIFICATION OPPORTUNITIES

After successfully completing our two year Network Engineering program, students will be prepared to sit for the Cisco Certified Network Associate (CCNA) certification. This industry-level certification is one of the most sought-after in the IT field.

EXPECTATIONS OF STUDENTS

- **Willingness to engage in lectures and labs to practice knowledge gained.**
- **Ability to acquire basic understanding of how networks function.**
- **Ability to work independently on the computer.**

CAREER POSSIBILITIES

- **Chief Information Officer**
- **IT Manager**
- **Network Engineer**
- **Specialties including Cloud Computing & Security**
- **Systems Administrator**

MANUFACTURING
CAREER CLUSTER

PROGRAM OF STUDY:

MANUFACTURING: ROBOTICS & AUTOMATION TECHNOLOGY

Course	Credits	Class Periods	Grade	Location
Principles of Manufacturing OR Principles of Applied Engineering	1.0	1	8-12	Home Campus
Manufacturing Engineering I & II *Prerequisite: Principles of Manufacturing or Principles of Applied Engineering*	2.0	2	11-12	MCTC
Practicum in Manufacturing Engineering *Prerequisite: Manufacturing Engineering I & II*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES

During the first year of Manufacturing Engineering, students will have the opportunity to sit for the Certified Manufacturing Associate and Autodesk Associate Fusion 360 certification exam. Students enrolled in Practicum in Manufacturing will have the opportunity to test for the FANUC Robot Operator I certification.

CAREER POSSIBILITIES

- CNC Machinist
- CNC Programming
- Maintenance Technician
- Mechatronics Engineering
- Plant Management
- Process Control
- Robot Programming

8057V MANUFACTURING ENGINEERING I - FALL SEMESTER

8058V MANUFACTURING ENGINEERING II - SPRING SEMESTER

Grades: 11-12 1 Credit each course

Prerequisites: Principles of Applied Engineering or Principles of Manufacturing

—

This course provides an introduction to diverse manufacturing. Students develop skills in automation and mechatronics engineering utilizing innovative computer simulations and hands-on training stations to apply learned skills in hydraulics, pneumatics, mechanical fabrication, thermodynamics, electrical control and programmable logic controllers (PLCs) in a real-world environment.

8059V PRACTICUM IN MANUFACTURING ENGINEERING

Grade: 12 2 Credits

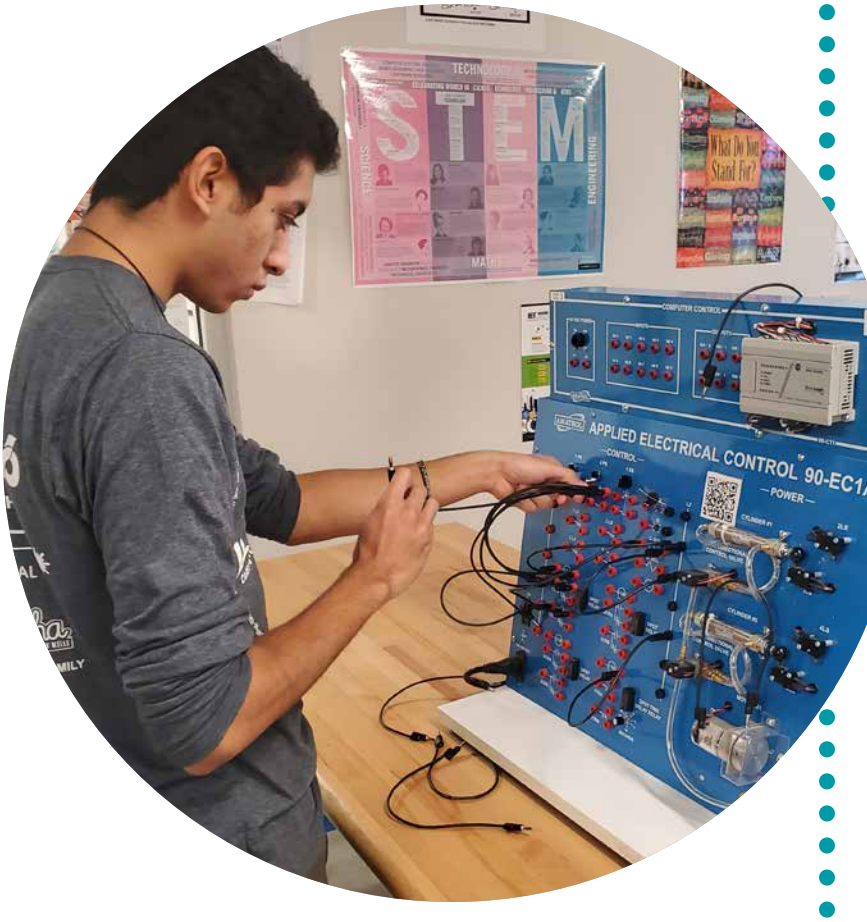
Prerequisites: Manufacturing Engineering I & II

—

This course provides practical application of previously learned knowledge and skills in real-world and simulated environments. Students create solutions in automation and manufacturing by mastering the Tabletop Mechatronics station, Fanuc Robotic Arm and Fanuc Computer Numerical Control (CNC). They transform CAD designs into 3D models using a 3D printer.

EXPECTATIONS OF STUDENTS

- **Ability to learn theory through both lecture and the computer-based lab area.**
- **Exhibit ability to work independently during lab time.**
- **Ability to apply learned skills on various simulators including programmable logic controls (PLC), electronics, pneumatics/ hydraulics, and computer numerical controls (CNC).**



PROGRAM EXPERIENCES

Manufacturing Engineering is broadly defined as the branch of engineering that focuses on the set up, continuous improvement, and operations of the manufacturing process. Students enrolled in Manufacturing Engineering will receive hands-on lab experience to gain skills and knowledge to better understand this process. Future Engineers and Machine Technicians alike will benefit from this course as it focuses on Mechatronics and Mechatronics Engineering.

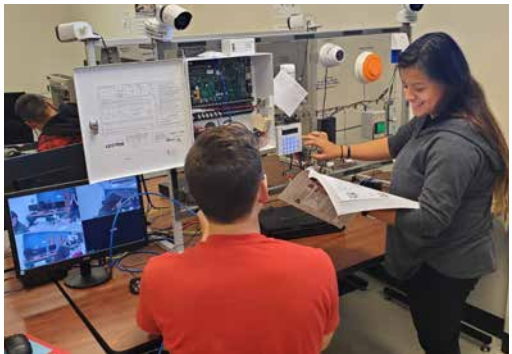
SCIENCE, TECHNOLOGY, ENGINEERING & MATH (STEM)

CAREER CLUSTER

PROGRAM OF STUDY:

CYBER SECURITY

Course	Credits	Class Periods	Grade	Location
Principles of Information Technology OR	1.0	1	8	Jr High
Introduction to Computer Science OR Computer Science I OR *Prerequisite: Algebra I*	1.0 1.0	1 1	9-12 9-12	Home Campus Home Campus
AP Computer Science Principles OR *Prerequisite: Algebra I*	1.0	1	9-12	Home Campus
AP Computer Science A OR *Prerequisite: Algebra I* *Successful completion of this course awards one advanced math credit and one language other than English credit*	1.0	1	9-12	Home Campus
Computer Technician OR Network Engineering I & Lab *Prerequisite: Principles of Information Technology* or Intro to Computer Science* or Computer Science I* or AP Computer Science Principles* or AP Computer Science A* or Computer Technician** **The Classes of 2025 and 2026 are waived from the prerequisite requirement for Network Engineering.* *Note: Students must have completed Algebra II or be concurrently enrolled in Algebra II*	2.0 2.0	2 2	11-12 11-12	MCTC MCTC
Cyber Security I & II *Prerequisite: Principles of Information Technology, or Introduction to Computer Science or Computer Science I or AP Computer Science Principles or AP Computer Science A or Computer Technician or Network Engineering I & Lab*	2.0	2	11-12	MCTC



8678V CYBER SECURITY I - FALL SEMESTER

8679V CYBER SECURITY II - SPRING SEMESTER

Grades: 11-12 1 Credit Each Course

Prerequisite: Either Principles of Information Technology or Introduction to Computer Science or Computer Science I or AP Computer Science Principles, or AP Computer Science A or Computer Technician (formerly Computer Maintenance) or Cisco Network Engineering I/Lab.

This course provides an understanding of cybersecurity concepts, system vulnerabilities, common cyber-attack mechanisms and tools, intrusion detection systems, and methods to mitigate cybersecurity risks. Simulated and hands-on labs provide experience in various areas including firewall, router, and switch security, cryptography, encryption, VPNs, virtualization, steganography, hashing, security design principles, and social engineering.

EXPECTATIONS OF STUDENTS

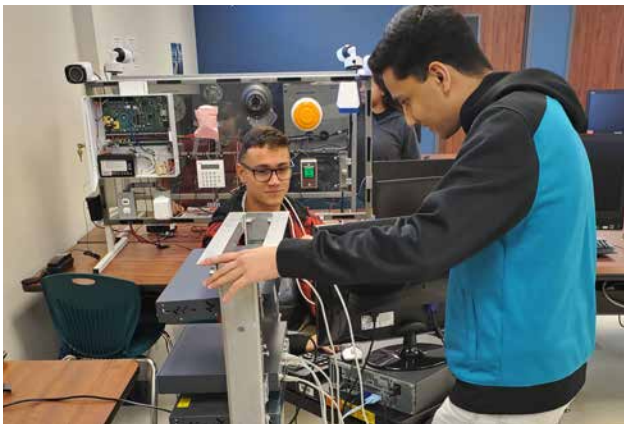
- **Ability to learn theory through both lecture and the computer-based lab area.**
- **Exhibit ability to work independently during lab time.**
- **Ability to apply learned skills on various simulators including programmable logic controls (PLC), electronics, pneumatics/ hydraulics, and computer numerical controls (CNC).**

PROGRAM EXPERIENCES

Many day-to-day functions and activities are shifting globally to an online or virtual setting, including shopping, payment methods, hospital record keeping, office meetings and even classroom instruction. While there are benefits to embracing the digital age, one potential major issue is the security of personal and confidential information. The Cyber Security field is rapidly growing as we find ways to protect people's privacy online. This course provides students knowledge and experience through hands-on lab time, including projects in ethical hacking, cryptography practice, digital forensics, Raspberry Pi projects, and risk management. Students will also have the opportunity to be exposed to several potential job options within the Cyber industry.

CERTIFICATION OPPORTUNITIES

After completion of this course, students will be prepared to take the CompTIA Security+ certification exam, which is an entry level industry certification. It lays the foundation for a career in the Cyber Security field.



CAREER POSSIBILITIES

- **Chief Information Officer**
- **Cryptography**
- **IT Security Consultant**
- **IT Security Engineer**
- **Junior IT Auditor/Penetration Tester**
- **Network Administrator**

TRANSPORTATION, DISTRIBUTION & LOGISTICS

CAREER CLUSTER

PROGRAM OF STUDY:

AUTOMOTIVE

Course	Credits	Class Periods	Grade	Location
Automotive Basics & Auto Tech I	3.0	3	11-12	MCTC
Automotive Technology II *Prerequisites: Automotive Basics & Auto Tech I*	3.0	3	12	MCTC

EXPECTATIONS OF STUDENTS

- Work both independently and as a team to complete projects.
- Display professional behavior in the classroom and auto shop.
- Show willingness to learn theory before going into the auto shop for hands-on training.
- Pass online safety tests before entering the shop area.

CAREER POSSIBILITIES

- Detailer
- Maintenance Technician
- Master Technician
- Parts Manager
- Service Advisor
- Service Manager
- Shop Foreman
- Technical Trainer

8700V AUTOMOTIVE TECHNOLOGY I MAINTENANCE & LIGHT REPAIR

Grades: 11-12 2 credits - taken concurrently with Automotive Basics

8707V AUTOMOTIVE BASICS

Grades: 11-12 1 credit - taken concurrently with Automotive Technology I Maintenance & Light Repair

—

Automotive Basics provides an introduction to the automotive industry and focuses on safety and environmental rules and regulations, tool identification, proper tool use and employability skills. After passing a safety course in **Automotive Technology I**, students learn how to perform basic vehicle maintenance, including oil changes and brake jobs. They also learn how to perform diagnostic tests to determine vehicle issues.

8715V AUTOMOTIVE TECHNOLOGY II/LAB-AUTOMOTIVE SERVICE

Grade: 12 3 Credits

Prerequisites: Automotive Technology I and Automotive Basics

—

This course provides a more in-depth, practical application of previously learned knowledge and skills through classroom and shop settings. Students will further their knowledge of vehicle maintenance and learn how to run advanced diagnostic tests on computer-controlled systems, including anti-lock brake systems, traction control systems, and powertrain control modules. Students will perform wheel alignments and continue to diagnose and service customer vehicles in the shop.

CERTIFICATION OPPORTUNITIES

Students will have the opportunity to test for student level ASE certifications which will help when applying for entry level positions in a repair facility. They may also move on to post-secondary technical training and build on this certification. All Automotive Technology students will have to take and pass online safety exams before beginning to work in the auto shop.

PROGRAM EXPERIENCES

Students will develop knowledge of the operation, repair, and maintenance of motor vehicles including preventive maintenance, brakes, electronics, HVAC, drive trains, engine performance, suspension systems and tires. They receive hands-on experience while working on vehicles brought in by clients from the community. Students may also have the opportunity to visit various dealerships and tour their service areas.

EDUCATION & TRAINING
CAREER CLUSTER

PROGRAM OF STUDY:
TEACHING AND TRAINING

Course	Credits	Class Periods	Grade	Location
Principles of Education & Training* AND Human Growth & Development*	1.0 1.0	1 1	9-12 10-12	Home Campus
Instructional Practices in Education *Prerequisite: Principles of Education* and Human Growth & Development** **The Classes of 2025 and 2026 are waived from the prerequisite requirement for Instructional Practices in Education.*	2.0	2	11-12	MCTC
Practicum in Education *Prerequisite: Instructional Practices in Education*	2.0	2	12	MCTC

CAREER POSSIBILITIES

- Coach
- Librarian
- School Administrator
- School Counselor
- Social Worker
- Teaching-Elementary or Secondary

EXPECTATIONS OF STUDENTS

- Exhibit a positive attitude.
- Demonstrate strong organizational skills.
- Display the ability to follow through with tasks.
- Show willingness to assist teachers at various elementary grade levels.
- Display a desire to work hands-on with elementary students.

8990V INSTRUCTIONAL PRACTICES IN EDUCATION & TRAINING

Grades: 11-12 2 Credits

Prerequisites: Principles of Education & Training and Human Growth & Development**
**The Classes of 2025 and 2026 are waived from the prerequisite requirement for Instructional Practices in Education.*

—

This course provides students the opportunity to explore the exciting career of teaching through classroom instruction and field experience in a school setting. Students rotate through local Katy ISD schools and facilities to observe teachers during instructional delivery. Students plan lessons, assist with small groups, create bulletin boards, and work to build their leadership and communication skills.

8991V PRACTICUM IN EDUCATION & TRAINING

Grade: 12 2 Credits

Prerequisite: Instructional Practices in Education & Training
**Students must provide their own transportation to internship site.*

—

This course provides a more in-depth experience as an intern in a local Katy ISD Pre-Kindergarten through 8th grade classroom. Lesson creation, classroom management skills, and teaching methods are studied and practiced. Students work alongside a teacher mentor and assist with all aspects of instruction.

CERTIFICATION OPPORTUNITIES

Students who complete the second year of the Education & Training program, may qualify for the Educational Aide 1 certificate through TEA. Applicants must be a high school student 18 years of age or older and have a final grade of 70 or better in two or more Education and Training courses for three or more credits verified in writing by the superintendent of the district where the credits were earned.

PROGRAM EXPERIENCES

While there are countless positions within the education field including counselors, administrators, coaches and speech therapists, many of these first require several years of teaching experience. This course will not only prepare students for working in the classroom as a teacher but will provide the leadership skills necessary to move up within the industry. With field experience at various grade levels, they will be able to make an informed decision at what level they are most comfortable teaching. Students will also be able to observe the daily functions of teachers, administrators and paraprofessionals.

HEALTH CARE THERAPEUTIC
CAREER CLUSTER

PROGRAM OF STUDY:
CLINICAL ROTATIONS

Course	Credits	Class Periods	Grade	Location
Principles of Health Science AND Medical Terminology* *Prerequisite: Principles of Health Science* AND Health Science Theory *Corequisite: Medical Terminology* *Prerequisite: Principles of Health Science*	1.0 1.0 1.0	1 1 1	9-12 10-12 11-12	Home Campus
Clinical Rotations *Prerequisites: Principles of Health Science, Medical Terminology*, and Health Science Theory* **The Classes of 2025 and 2026 are waived from the Medical Terminology prerequisite requirement for Clinical Rotations.*	2.0	2	12	MCTC

EXPECTATIONS OF STUDENTS

- Demonstrate professionalism in the work place.
- Display excellent communication skills.
- Demonstrate motivation, integrity, and a positive attitude.

8082V CLINICAL ROTATIONS

Grade: 12 2 Credits

Prerequisites: Principles of Health Science, Medical Terminology, & Health Science Theory
**The Classes of 2025 and 2026 are waived from the Medical Terminology prerequisite requirement for Clinical Rotations.*
†Please note dual credit Medical Terminology and dual credit Health Science Theory do not satisfy the required prerequisites for Clinical Rotations.

—

This course provides practical application of previously learned knowledge and skills through classroom and clinical settings. Students have the opportunity to rotate through various departments of area hospitals and community health centers while observing professional health care providers. Students are required to follow all immunization guidelines of the affiliated rotation sites.

CERTIFICATION OPPORTUNITIES

During the school year, students will have the opportunity to earn the Patient Care Technician (PCT) certification, an entry level certification within the medical field. All students are also BLS/CPR certified during the first semester of the school year. In addition, students may choose to sit for the EKG Technician certification exam.

PROGRAM EXPERIENCES

For students who are interested in the medical field but unsure of what area they may want to focus, this course provides the opportunity for exposure to several departments. Students are able to go on rotations once a week as a class to observe doctors and nurses performing daily functions in various medical departments. This experience typically helps students decide what area they may or may not want to study within the medical field. Currently, MCTC is partnered with Memorial Hermann, Methodist West, and Encompass.

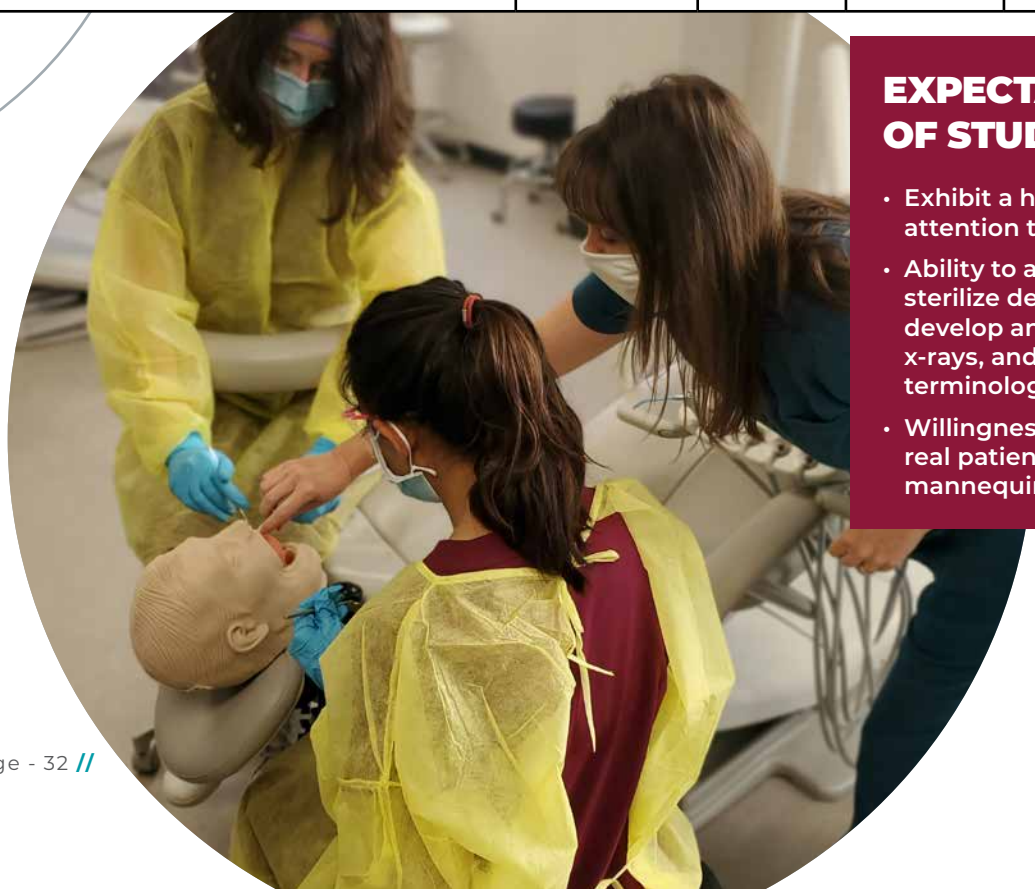
CAREER POSSIBILITIES

- Anesthesiologist
- EKG Technician
- Physician
- Podiatrist
- Radiologist
- Registered Nurse
- Surgeon
- X-Ray Technician

HEALTH CARE THERAPEUTIC
CAREER CLUSTER

PROGRAM OF STUDY:
DENTAL ASSISTING

Course	Credits	Class Periods	Grade	Location
Principles of Health Science AND Medical Terminology* *Prerequisite: Principles of Health Science* AND Health Science Theory *Corequisite: Medical Terminology* *Prerequisite: Principles of Health Science*	1.0 1.0 1.0	1 1 1	9-12 10-12 11-12	Home Campus
Dental Assisting I & II *Prerequisites: Principles of Health Science, Medical Terminology*, and Health Science Theory* **The Classes of 2025 and 2026 are waived from the Medical Terminology prerequisite requirement for Dental Assisting.*	2.0	2	12	MCTC



EXPECTATIONS OF STUDENTS

- Exhibit a high level of attention to detail.
- Ability to acquire skills to sterilize dental equipment, develop and take x-rays, and apply dental terminology.
- Willingness to work with real patients as well as mannequins.

8075V DENTAL ASSISTING I: ANATOMY & PHYSIOLOGY - FALL SEMESTER

8076V DENTAL ASSISTING II: EQUIPMENT & PROCEDURES - SPRING SEMESTER

Grade: 12 1 Credit Each Course

Prerequisites: Principles of Health Science, Medical Terminology, & Health Science Theory
**The Classes of 2025 and 2026 are waived from the Medical Terminology prerequisite requirement for Dental Assisting.*
†Please note dual credit Medical Terminology and dual credit Health Science Theory do not satisfy the required prerequisites for Dental Assisting.

—

This course provides an introduction to the dental field within the health science industry. Through lecture and hands-on skills practice, students learn how to sterilize instruments, operate suction devices, obtain and process X-rays, and take impressions for dental appliances. Administrative tasks such as scheduling appointments, patient records, and ordering supplies are also incorporated.

CERTIFICATION OPPORTUNITIES

During this course students will have the opportunity to sit for the NOMAD Certification exam, which certifies students to take full sets of X-rays on patients. Students will also be prepared to take the Registered Dental Assistant exam, an entry level certification within the dental industry. While they test in March, students will not be able to register with the Texas State Board of Dental Examiners until proof of high school graduation is shown.

PROGRAM EXPERIENCES

This course is a great starting point for students considering a career in the dental field as a hygienist or a dentist. Dental Assisting lays a foundation of language, anatomy, and procedures that will be used in all dental career paths. Hands-on experience includes practicing the skills learned in our state of the art dental lab with 4 industry level, fully functional dental chairs. Students will learn how to operate suctioning equipment, how to take full sets of X-rays, create bleach trays, and how to properly sterilize lab equipment, among many other skills.

CAREER POSSIBILITIES

- **Dental Assistant**
- **Dental Hygienist**
- **Dentist**
- **Oral & Maxillofacial Surgeon**
- **Orthodontist**
- **Periodontist**

HEALTHCARE THERAPEUTIC
CAREER CLUSTER

PROGRAM OF STUDY:

EMERGENCY MEDICAL TECHNICIAN (EMT)

Course	Credits	Class Periods	Grade	Location
Principles of Health Science AND Medical Terminology* *Prerequisite: Principles of Health Science* AND Health Science Theory *Corequisite: Medical Terminology* *Prerequisite: Principles of Health Science*	1.0 1.0 1.0	1 1 1	9-12 10-12 11-12	Home Campus
Emergency Medical Technician (EMT) *Prerequisites: Principles of Health Science, Medical Terminology*, and Health Science Theory* **The Classes of 2025 and 2026 are waived from the Medical Terminology prerequisite requirement for Emergency Medical Technician (EMT).*	2.0	2	12	MCTC

EXPECTATIONS OF STUDENTS

- Demonstrate hands-on practices and preparation for testing in the national mandated patient care skills.
- Exhibit a high level of attention to detail.
- Students are required to pass a background check and drug screening test.
- Students must be willing to submit to multiple health screenings and obtain flu vaccine.

8085V EMERGENCY MEDICAL TECHNICIAN (EMT)

Grade: 12 2 Credits

Prerequisites: Principles of Health Science, Medical Terminology, & Health Science Theory
**The Classes of 2025 and 2026 are waived from the Medical Terminology prerequisite requirement for Emergency Medical Technician (EMT).*
†Please note dual credit Medical Terminology and dual credit Health Science Theory do not satisfy the required prerequisites for Emergency Medical Technician (EMT).

—

This course provides instruction in emergency medical care to persons with severe injuries or illness. Through lecture and hands-on practice, students learn skills for handling medical and trauma care. Students participate in weekend/holiday rotations with community partners to respond to real EMS calls.

PROGRAM EXPERIENCES

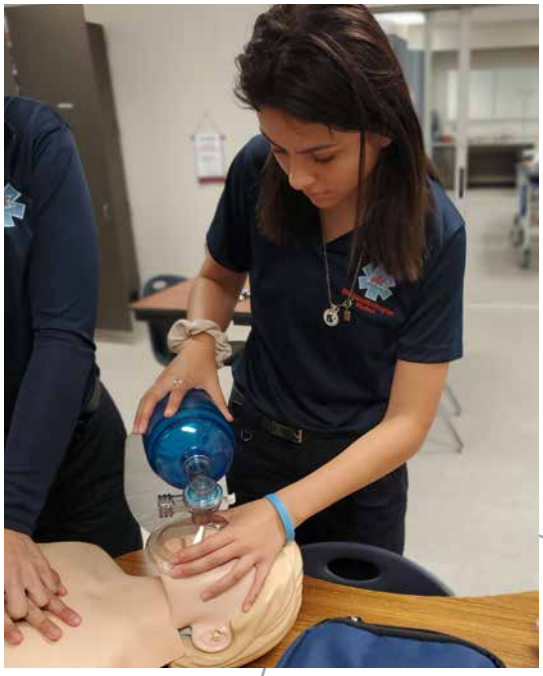
Students will be exposed to different career options in this field as they learn how to treat patients who have experienced various types of trauma. They are then able to use those skills while on rotations outside of school hours with actual paramedics. These rotations are required as part of the certification students can test for at the end of the school year.

CAREER POSSIBILITIES

- Emergency Room Technician
- EMT
- Firefighter
- Military Medic
- Offshore Medic
- Paramedic

CERTIFICATION OPPORTUNITIES

Students are prepared to sit for the Emergency Medical Services (EMS) National Registry exam at the end of the school year. They will also test in the national mandated patient care skills portion. Students must be 17 years of age by October 1. Students may sit for the National Registry of Emergency Medical Technicians exam prior to the age of 18. However, they may not apply for certification in the state of Texas until age 18.



HEALTH CARE THERAPEUTIC
CAREER CLUSTER

PROGRAM OF STUDY:
PHARMACY TECHNICIAN

Course	Credits	Class Periods	Grade	Location
Principles of Health Science AND Medical Terminology* *Prerequisite: Principles of Health Science* AND Health Science Theory *Corequisite: Medical Terminology* *Prerequisite: Principles of Health Science*	1.0 1.0 1.0	1 1 1	9-12 10-12 11-12	Home Campus
Pharmacy I, Pharmacy II, & Pharmacology *Prerequisites: Principles of Health Science, and Medical Terminology*, and Health Science Theory, and Chemistry* **The Classes of 2025 and 2026 are waived from the Medical Terminology prerequisite requirement for Pharmacy I, Pharmacy II, & Pharmacology.*	3.0	3	12	MCTC

EXPECTATIONS OF STUDENTS

- Ability to spend time learning and mastering 200 types of drugs, Pharmacy Law, Pharmacology and Medical math.
- Willingness to take and pass a background check to participate in an internship at a local pharmacy.
- Demonstrate professionalism while at internship site.
- Display excellent communication skills.
- Adhere to all safety and privacy protocols.

8087V PHARMACY I - FALL SEMESTER

8088V PHARMACY II - SPRING SEMESTER

Grade: 12 1 Credit Each Course

8097V PHARMACOLOGY

Grade: 12 1 Credit - taken concurrently with Pharmacy I & II

Prerequisites: Chemistry, Principles of Health Science, Medical Terminology, & Health Science Theory
**The Classes of 2025 and 2026 are waived from the Medical Terminology prerequisite requirement for Pharmacy Tech.*
†Please note dual credit Medical Terminology and dual credit Health Science Theory do not satisfy the required prerequisites for Pharmacy Tech.

Students must provide their own transportation to internship site.

Requirement: *Student must have a social security number to register as a Technician in training and provide a specific clean drug test.*

—

This course provides practical application of previously learned knowledge and skills in a pharmacy setting. Students learn how to ensure the health and safety of their patients, prepare prescription and refill requests, pack and label prescribed medications, process insurance claims, track inventory, and perform a wide range of duties for retail and hospital-based pharmacies.
A non-paid internship at an approved pharmacy is required.

CERTIFICATION OPPORTUNITIES

After the completion of our Pharmacy Tech program, students may be eligible to sit for the state exam to become a Registered Pharmacy Technician once they have graduated from high school.

CAREER POSSIBILITIES

- Biostatistician
- Clinical Research Associate (CRA)
- Healthcare Informatics Specialist
- Medical or Pharmaceutical Sales
- Pharmaceutical Research Scientist
- Pharmacy Technician
- Quality Assurance Specialist

PROGRAM EXPERIENCES

The Pharmacy Technician course provides students with a well-rounded education, combining theoretical knowledge with practical skills. They will gain a comprehensive understanding of medications, knowledge of pharmacy law and ethics, and technology skills by utilizing pharmacy software. Through participation in an unpaid internship, students will have the opportunity to gain hands-on experience, understand the importance of teamwork and collaboration, as well as patient interaction skills both in person and on the phone

HUMAN SERVICES
CAREER CLUSTER

PROGRAM OF STUDY:
COSMETOLOGY

Course	Credits	Class Periods	Grade	Location
Intro to Cosmetology & Cosmetology I	3.0	3	11-12	MCTC
Cosmo Design & Color Theory and Cosmo II *Prerequisite: Intro to Cosmetology & Cosmetology I*	3.0	3	12	MCTC

CERTIFICATION OPPORTUNITIES

After successfully completing our two year Cosmetology program, students will be prepared to take the State Board exam. Once they have passed both the written and practical portions of this exam, students can become licensed Cosmetologists through the state of Texas. This license is crucial for anyone looking to work professionally in the field.

CAREER POSSIBILITIES

- Celebrity Stylist
- Cosmetology Instructor
- Esthetician
- Film/Theater Wig & Makeup Artist
- Hairstylist
- Nail Technician
- Salon Owner
- Wax Artist

8743V INTRODUCTION TO COSMETOLOGY

Grades: 11-12 1 Credit - taken concurrently with Cosmetology I

8744V COSMETOLOGY I

Grades: 11-12 2 Credits - taken concurrently with Introduction to Cosmetology

—

This course provides an introduction to the cosmetology industry. Students develop knowledge and skills regarding various cosmetology design elements, such as form, lines, texture, structure and illusion or depth as they relate to the art of cosmetology. Instruction includes sterilization and sanitation procedures, hair care, nail care, and skin care and meets the Texas Department of Licensing and Regulation (TDLR) requirements for licensure upon passing the state examination. Analysis of career opportunities, license requirements, knowledge and skills expectations, and development of workplace skills are included.

8751V COSMETOLOGY DESIGN & COLOR THEORY

Grade: 12 1 Credit - taken concurrently with Cosmetology II

8752V COSMETOLOGY II

Grade: 12 2 Credits - taken concurrently with Design & Color Theory

Prerequisites: Introduction to Cosmetology and Cosmetology I

—

This course prepares students for the licensing exam and mastery of skills learned the previous year, working with both manikins and clients. Instruction includes advanced training in professional standards/employability skills, Texas Department of Licensing and Regulation (TDLR) rules and regulations, use of tools, equipment, technologies and materials, and practical skills, such as haircutting techniques, highlighting and dying hair, manicures, pedicures, facials, and waxing.

EXPECTATIONS OF STUDENTS

- **Display and maintain self-motivation and a positive attitude.**
- **Willingness to acquire knowledge of skin diseases, biology, and anatomy.**
- **Ability to complete work in a timely manner. Skills are timed as students practice achieving the licensing standards.**

PROGRAM EXPERIENCES

MCTC offers a comprehensive cosmetology training program that provides students with essential skills in hairstyling, hair cutting, hair coloring, nail services, skincare, and more. With hands-on experience working with real clients, students can apply what they've learned in a practical setting and build confidence in their skills. In addition to honing their craft, students have the chance to express their creativity through various styling techniques, hair color choices, and nail designs. Being in a professional cosmetology program like the one at MCTC provides valuable networking opportunities, allowing students to connect with instructors, fellow students, and clients who help them establish relationships that could be beneficial for their future career in the beauty and wellness industry.

LAW & PUBLIC SERVICE

CAREER CLUSTER

PROGRAM OF STUDY:

LAW ENFORCEMENT

Course	Credits	Class Periods	Grade	Location
Law Enforcement I & II	2.0	2	11-12	MCTC
Criminal Investigations and Correctional Services *Prerequisite: Law Enforcement I & II* OR Practicum in Law *Prerequisite: Law Enforcement I & II or Court Systems & Advanced Legal Skills*	2.0 2.0	2 2	12 12	MCTC MCTC

CAREER POSSIBILITIES

- Border Patrol Agent
- Crime Scene Investigator
- FBI/CIA Agent
- Police Officer
- Probation Officer
- U.S. Marshal

CERTIFICATION OPPORTUNITIES

Students may have the opportunity to test for the IAED Emergency Telecommunicator certification while enrolled in Law Enforcement.

8970V LAW ENFORCEMENT I - FALL SEMESTER

8976V LAW ENFORCEMENT II - SPRING SEMESTER

Grades: 11-12 1 Credit Each Course

—

This course provides an introduction to the law enforcement industry. Students investigate the history and philosophy of criminal justice in **Law Enforcement I**. They experience real-world scenarios through a judgement and use of force simulator, analyze crime scenes and practice traffic stops. In **Law Enforcement II**, students dive into the impact, crime trends and theories related to the causes of crime. Students learn about the search and seizure process, as well as how both the interview and interrogation processes work.

8984V CRIMINAL INVESTIGATIONS - FALL SEMESTER

8977V CORRECTIONAL SERVICES - SPRING SEMESTER

Grade: 12 1 Credit Each Course

Prerequisites: Law Enforcement I & II

—

This course provides a more in-depth application of previously learned knowledge and skills. In Criminal Investigations, students learn terminology and procedures related to investigating crime scenes. They study evidence collection, fingerprinting and courtroom presentation through case studies and simulated crime scenes. Students gain experience collecting and analyzing bodily fluids, hairs, fibers, shoe and tire impressions, bite marks, blood spatter, firearms and ammunition, and other types of evidence. In Correctional Services, students learn the roles and responsibilities of a county/municipal correctional officer. They discuss relevant rules, regulations and laws of municipal, county, state, or federal facilities as well as defensive tactics, restraint techniques, and first aid procedures used in these settings. interrogation processes work.

PROGRAM EXPERIENCES

Our Law Enforcement students have the opportunity to explore the history of criminal justice. Hands-on lab time includes experiencing real world scenarios through the Judgement and Use of Force simulator. Students will also be introduced to proper procedures for analyzing crime scenes and collecting various types of evidence to be processed.

EXPECTATIONS OF STUDENTS

- **Willingness to participate in activities in all aspects of government and the law.**
- **Ability to learn theory as well as application of the law.**
- **Demonstrate excellent communication skills.**
- **Demonstrate maturity to discuss sensitive topics including murder, abuse, drug involvement, etc.**

LAW & PUBLIC SERVICE
CAREER CLUSTER

PROGRAM OF STUDY:
LEGAL STUDIES

Course	Credits	Class Periods	Grade	Location
Court Systems & Advanced Legal Skills	2.0	2	11-12	MCTC
Practicum in Law *Prerequisite: Court Systems & Advanced Legal Skills, or Law Enforcement I & II*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES

Students participating in the Practicum in Law course may have the opportunity to test for Teen CERT and earn a certificate of completion after their final exercise. The Community Emergency Response Team (CERT) Program is a national program of volunteers trained in disaster preparedness and emergency response.

CAREER POSSIBILITIES

- Court Reporter
- Defense Attorney
- Federal Judge
- Paralegal
- Prosecutor
- State Judge
- Victim's Advocate

8972V COURT SYSTEMS & PRACTICES - FALL SEMESTER

8987V ADVANCED LEGAL SYSTEMS - SPRING SEMESTER

Grades: 11-12 1 Credit Each Course

—

This course provides an introduction to the legal studies industry. In **Court Systems & Practices**, students learn basics about the criminal justice system, structure of the American court system, prosecution, right to counsel, types and rules of evidence, and sentencing. Students participate in mock trials. In **Advanced Legal Systems**, students dive deeper into the practical application of the law, as well as civil and criminal procedure. Students gain an understanding of the attorney-client relationship and the importance of confidentiality, discovery, pretrial motions, jury selection, opening statements, direct and cross examinations, and closing arguments. Students will also learn how to evaluate a set of facts and mold it into a coherent trial strategy, learning trial practice from the ground floor.

***8985V PRACTICUM IN LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY**

Grade: 12 2 Credits

Prerequisites: Court Systems & Practices and Advanced Legal Systems OR Law Enforcement I & II
Students must provide their own transportation to internship site.

—

This course provides supervised practical application of previously studied knowledge and skills in law, public safety, corrections, and security. Practicum experiences may occur in a variety of internship locations appropriate to the nature and level of student proficiency. This course is a capstone experience for students participating in a coherent sequence of career and technical education courses in the Law, Public Safety, Corrections, and Security Career Cluster. ***Practicum in Law is an alternative option for 2nd year students in the Law Enforcement program of study.**

PROGRAM EXPERIENCES

Our Legal Studies students will have the opportunity to gain insight into the American court system. Hands-on lab time includes participation in mock trials to help students understand various aspects including types and rules of evidence, the attorney-client relationship and jury selection. While taking the Practicum in Law course, students can potentially learn more about a specific area within criminal justice through a nonpaid internship.

EXPECTATIONS OF STUDENTS

- **Willingness to participate in activities in all aspects of government and the law.**
- **Ability to learn theory as well as application of the law.**
- **Demonstrate excellent communication skills.**
- **Willingness to participate in mock trials during lab time.**
- **Demonstrate maturity to discuss sensitive topics including murder, abuse, drug involvement, etc.**

SCIENCE, TECHNOLOGY, ENGINEERING & MATH (STEM)

CAREER CLUSTER

PROGRAM OF STUDY:

ENGINEERING

Course	Credits	Class Periods	Grade	Location
Principles of Applied Engineering	1.0	1	8-12	Home Campus
Engineering Design and Presentation *Prerequisites: Algebra I, and Principles of Applied Engineering*	1.0	1	9-12	Home Campus
Engineering Science *Prerequisite: Engineering Design and Presentation*	1.0	1	10-12	Home Campus
Practicum in STEM *Prerequisite: Engineering Science*	2.0	2	12	MCTC

CERTIFICATION OPPORTUNITIES

Students will have the opportunity to test for Autodesk Inventor while enrolled in the Practicum in STEM course.

PROGRAM EXPERIENCES

MCTC provides students with a true experience and understanding of the profession. The course content focuses on real-life applications of engineering, both in lesson content and project work. Students are provided a fun but realistic familiarity on the requirements, time commitment, and dedication it takes to pursue a career in engineering. Once completed with these courses, students should be able to make a sound and educated decision in their future careers in this industry.

8660V PRACTICUM IN STEM

Grade: 12 2 Credits

Prerequisites: Engineering Science, Algebra II or concurrent enrollment in Algebra II

—

This course builds upon engineering foundations and increases understanding of the overall design process in a classroom and workplace environment. Major emphasis is placed on projects as they relate to the business world, including its process, key definitions, budgets, schedules, and presentations. Projects are team-based involving cross-functional disciplines (architectural, project management) to derive cohesive solutions. Students may have the opportunity to gain field experience through field trips, guest speakers, and job shadowing.

CAREER POSSIBILITIES

- Aerospace Engineer
- Chemical Engineer
- Civil Engineer
- Environmental Engineer
- Hydraulics
- Structural Engineer

EXPECTATIONS OF STUDENTS

- Maintain self motivation.
- Demonstrate the ability to be a flexible team player.
- Demonstrate excellent verbal and written communication skills.
- Exhibit a willingness to share creative ideas.

FREQUENTLY ASKED QUESTIONS

BENEFITS OF TAKING A CTE COURSE

Our courses provide an opportunity to gain a certification, industry credentials, or field experience. The course work may provide job opportunities as well as introduce students to industry standards in a specific career.

Will I earn credit for courses taken at MCTC?

Students who successfully complete a CTE course at MCTC will earn elective credits. The number of credits received are dependent upon the program a student is enrolled in. The total amount of credits awarded for each program is available on the MCTC website as well as SchooLinks.

IS MCTC AVAILABLE TO ALL STUDENTS?

Our courses are for Katy ISD students classified as juniors or seniors. Courses on our campus have limited enrollment. If demand exceeds the maximum allowed enrollment, students' acceptance into a course may be determined by the following factors: unexcused absences, discipline, and official GPA. Decisions as to whether a particular course will be taught are based upon the number of students requesting the course and availability of personnel.

HOW DOES SCHEDULING WORK AT MCTC?

Students attend part of the day at their home campuses and part of the day at MCTC. Our counselor and your home campus counselor will attempt to create a schedule incorporating all of your requests.

HOW DO I GET TO/FROM MCTC?

Bus transportation is available for MCTC students, or students may provide their own transportation. Students enrolled in our morning classes are picked up from a designated neighborhood pickup point and transported to our campus. Students will not be picked up from their home campuses to attend MCTC in the morning. After the morning classes are dismissed, transportation is provided to home campuses. Students enrolled in afternoon MCTC classes will be transported from home campuses to Miller and then transported to a designated drop-off point in their neighborhood upon dismissal.

NOTES

Administration

Kelley Kirila, Principal

Judy Gray, Assistant Principal

Eileen Paulus, Assistant Principal

Kristel Green, Counselor

2023-2024 Katy ISD Board of Trustees

Victor Perez, President

Amy Thieme, Vice President

Dawn Champagne, Secretary

Lance Redmond, Member

Rebecca Fox, Member

Morgan Calhoun, Member

Mary Ellen Cuzela, Member

2023-2024 Katy ISD Administration

Dr. Ken Gregorski, Superintendent

Leslie Haack, Deputy Superintendent

Dr. Christine Caskey, Chief Academic Officer

Dr. Emily Craig, Asst. Superintendent Secondary School Leadership and Support

Chris Morgan, Asst. Superintendent Secondary School Leadership and Support

It is the policy of Katy ISD not to discriminate on the basis of sex, disability, race, religion, color, gender, age, or national origin in its educational programs and/or activities, including career and technology programs, nor in its employment practices and to provide equal access to the Boy Scouts and other designated youth groups.

miller
CAREER & TECHNOLOGY CENTER