KATY ISD

INNOVATIVE PATHWAYS

Excellence Beyond the Classroom

miller CAREER & TECHNOLOGY CENTER

RAINES ACADEMY

26 27

CTE COURSES

WHAT IF SCHOOL DIDN'T JUST PREPARE YOU FOR THE FUTURE, BUT ACTUALLY LAUNCHED YOU INTO IT?

KATY ISD
INNOVATIVE PATHWAYS
Excellence Beyond the Classroom

miller CAREER & TECHNOLOGY CENTER

RAINES ACADEMY




Start Early, Get Ahead

Miller and Raines CTE courses give students a head start by offering industry certifications and hands-on experiences. These opportunities can lead to real career prospects and introduce students to professional standards in high-demand fields.

Earn Credit While Building Your Future

Students who successfully complete a CTE course at Miller or Raines will earn high school elective credits. The number of credits depends on the program. Full details are available in SchooLinks.

Big Opportunities, Small Costs

There is no tuition, however some programs require a fee for supplies and/or a uniform. Specific details will be shared at Spring Orientation sessions. The Dual Credit Real Estate program offered through HCC does require a fee.

No Car, No Problem

Katy ISD bus transportation is available for Miller and Raines CTE students, or students may provide their own transportation. Miller's Pharmacy, Extended Practicum in Law, Veterinary Assisting, and Practicum in Education courses require students to have their driver license and vehicle to get to and from internship sites.

Stay Connected to Your Home Campus

Students attend part of the day at their home campus and part of the day at Miller or Raines. The Counselors at Miller, Raines, and your home campus will attempt to create a schedule that incorporates all of your requests.

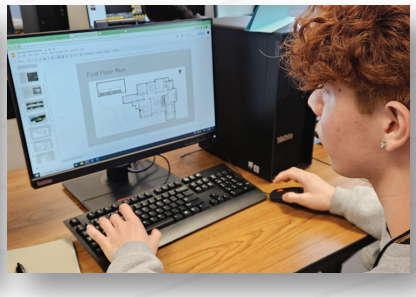
Miller Career & Technology Center (MCTC) and Raines Academy (RA) serve as central sites for specialty Career & Technical Education (CTE) courses that are not offered at a student's home campus. Our CTE courses specialize in trades, applied sciences, technologies and career preparation.

2026 - 2027

Programs at Miller Career & Technology Center

ARCHITECTURE
AUTOMOTIVE TECHNOLOGY
COMPUTER TECHNICIAN
CISCO NETWORK ENGINEERING
CLINICAL ROTATIONS
CONSTRUCTION TRADES
COSMETOLOGY
CULINARY ARTS
CYBER SECURITY
DENTAL ASSISTING
DIGITAL AUDIO
EDUCATION & TRAINING
EMERGENCY MEDICAL TECHNICIAN (EMT)
LAW ENFORCEMENT
LEGAL STUDIES
MANUFACTURING ENGINEERING
PHARMACY TECH
PRACTICUM IN ENGINEERING
VETERINARY SCIENCE



2026 - 2027

Programs at Raines Academy

COMMERCIAL DRIVER LICENSE PROGRAM
DUAL CREDIT REAL ESTATE
WATER OPERATIONS LICENSING PROGRAM
UNDERGROUND UTILITIES



MILLER CAREER & TECHNOLOGY CENTER
1734 KATYLAND DR. | KATY, TX 77493
281-237-6300 MCTC.KATYISD.ORG
MCTC@KATYISD.ORG

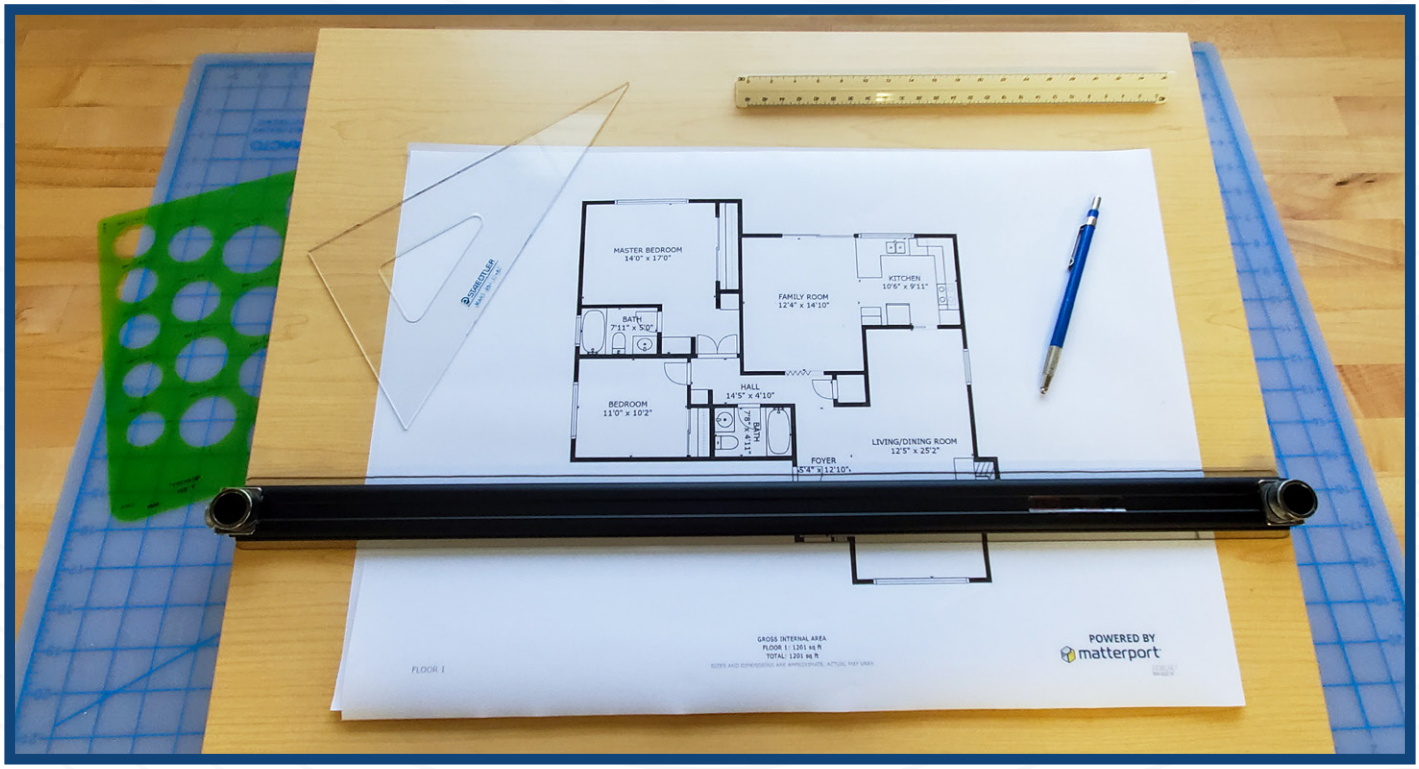
RAINES ACADEMY
1742 KATYLAND DR. | KATY, TX 77493
281-237-1500 RA.KATYISD.ORG
NORMAJWHITE@KATYISD.ORG

ARCHITECTURAL DESIGN

CAREER CLUSTER: ARCHITECTURE & CONSTRUCTION

STATEWIDE 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 *Prerequisites: Architectural Design I and Geometry*	2.0	2	11-12	MCTC
Practicum in Architectural Design *Prerequisite: Architectural Design II*	2.0	2	12	MCTC



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.

CAREER *Possibilities*

Building Code Writer | Full-Building Designer | Historical Preservation | Interior Designer | Project Manager | Structural Engineer

8030V ARCHITECTURAL DESIGN II

Grades: 11-12 2 Credits

Prerequisites: 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.

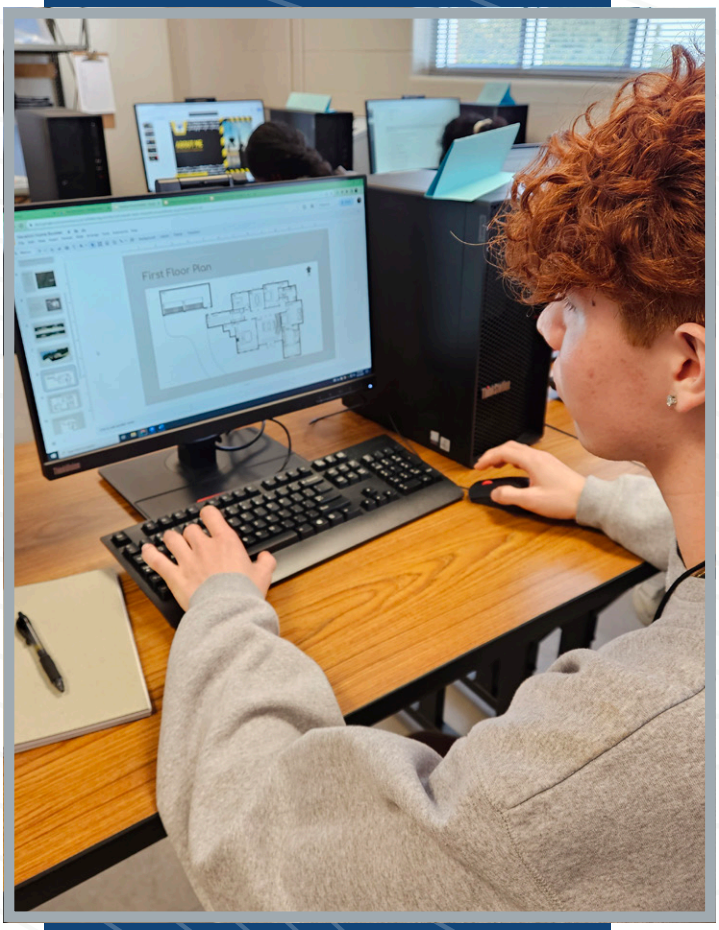
8001V PRACTICUM IN ARCHITECTURAL DESIGN

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

Course experiences focus on real-life applications of architecture, both in lesson content and project work. MCTC provides 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 regarding their future careers in this industry.

CERTIFICATION Opportunity

Autodesk Associate Revit

miller CAREER & TECHNOLOGY CENTER

AUTOMOTIVE TECHNOLOGY

CAREER CLUSTER: TRANSPORTATION, DISTRIBUTION & LOGISTICS

STATEWIDE PROGRAM OF STUDY: AUTOMOTIVE & COLLISION REPAIR

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

MILLER CAREER & THE GARAGE TECHNOLOGY CENTER

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

2 credits-taken concurrently with Automotive Basics

8707V AUTOMOTIVE BASICS

1 credit-taken concurrently with Automotive Technology I Maintenance & Light Repair

Grade: 11-12

—

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.

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 in the Garage at Miller. Students may also have the opportunity to visit various dealerships and tour their service areas.

CERTIFICATION *Opportunities*

Multiple Automotive Service Excellence Student Certifications (ASE)

miller
CAREER & TECHNOLOGY CENTER

CLINICAL ROTATIONS

CAREER CLUSTER: HEALTH SCIENCE

STATEWIDE PROGRAM OF STUDY: DIAGNOSTIC AND THERAPEUTIC SERVICES

Course	Credits	Class Periods	Grade	Location
Principles of Health Science* AND Medical Terminology* *Corequisite: 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 10-12	Home Campus
Clinical Rotations *Prerequisites: Principles of Health Science* and Medical Terminology* and Health Science Theory** **Students who have only taken two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*	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.

CAREER *Possibilities*

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

8082V CLINICAL ROTATIONS

Grade: 12 2 Credits

Prerequisites: Principles of Health Science, Medical Terminology*, & Health Science Theory**
**Students who have only taken two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*

—

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.

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 out on rotations once a week as a class and 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.

CERTIFICATION *Opportunities*

- Basic Life Support (BLS)
- Cardiopulmonary Resuscitation (CPR)
- Electrocardiogram (EKG) Technician
- Patient Care Technician (PCT)

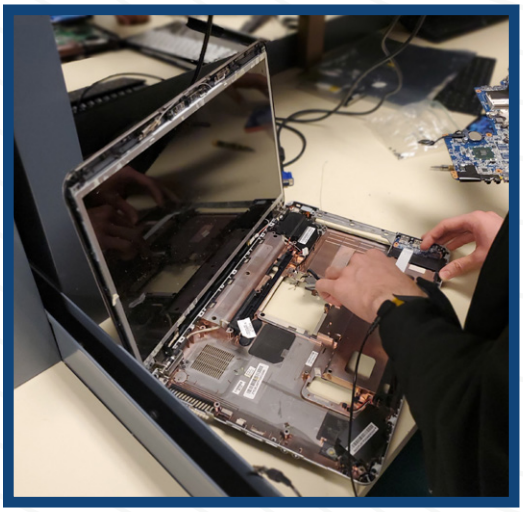
miller
CAREER & TECHNOLOGY CENTER

COMPUTER TECHNICIAN

CAREER CLUSTER: INFORMATION TECHNOLOGY

STATEWIDE PROGRAM OF STUDY: INFORMATION TECHNOLOGY SUPPORT & SERVICES

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*	1.0 1.0 1.0 1.0 1.0	1 1 1 1 1	8 9-12 9-12 9-12 9-12	Junior High Home Campus Home Campus Home Campus Home Campus
Computer Technician *Prerequisite: Principles of Information Technology or Introduction to Computer Science or Computer Science I or AP Computer Science Principles or AP Computer Science A*	2.0	2	11-12	MCTC
Practicum in Computer Technician *Prerequisite: Computer Technician*	2.0	2	12	MCTC



EXPECTATIONS OF *Students*

- Ability to work both independently and in a group.
- Ability to 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

8664V COMPUTER TECHNICIAN

Grades: 11-12 2 Credits

—

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.

8688V PRACTICUM IN COMPUTER TECHNICIAN

Grade: 12 2 Credits

Prerequisite: Computer Technician

—

This course provides students with practical, real-world experience in the field of computer technology. Building on foundational knowledge of hardware, software, and networking, students will apply their skills in diagnosing, troubleshooting, and repairing computer systems, printers, and mobile devices. The course emphasizes hands-on learning in professional environments, allowing students to install and configure operating systems, implement security measures, and perform routine maintenance under the supervision of experienced technicians. By the end of the practicum, students will gain confidence and proficiency in addressing technical challenges and supporting IT operations in diverse workplace settings.

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.

CERTIFICATION *Opportunities*

CompTIA Tech+

CompTIA A+

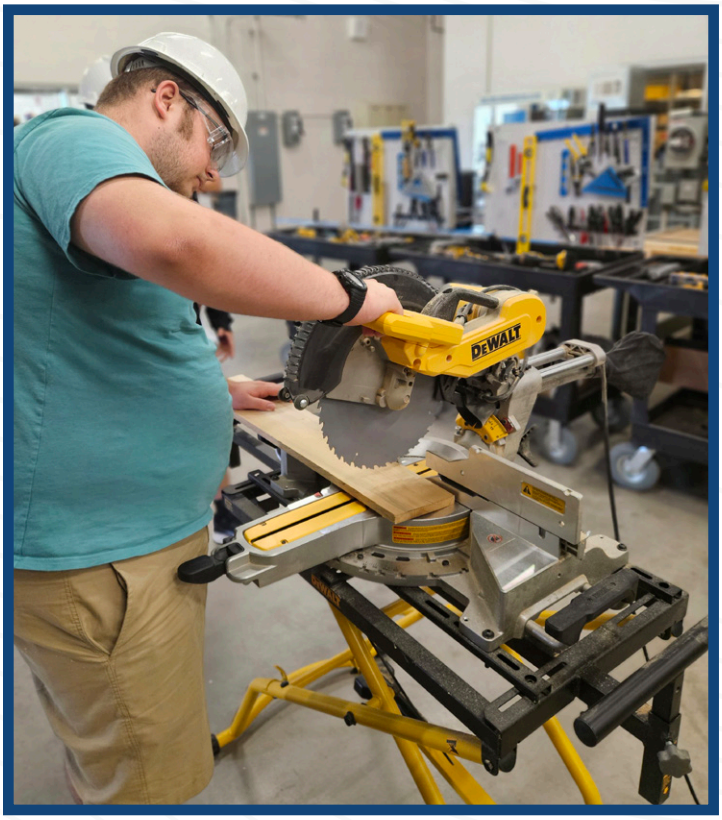
miller
CAREER & TECHNOLOGY CENTER

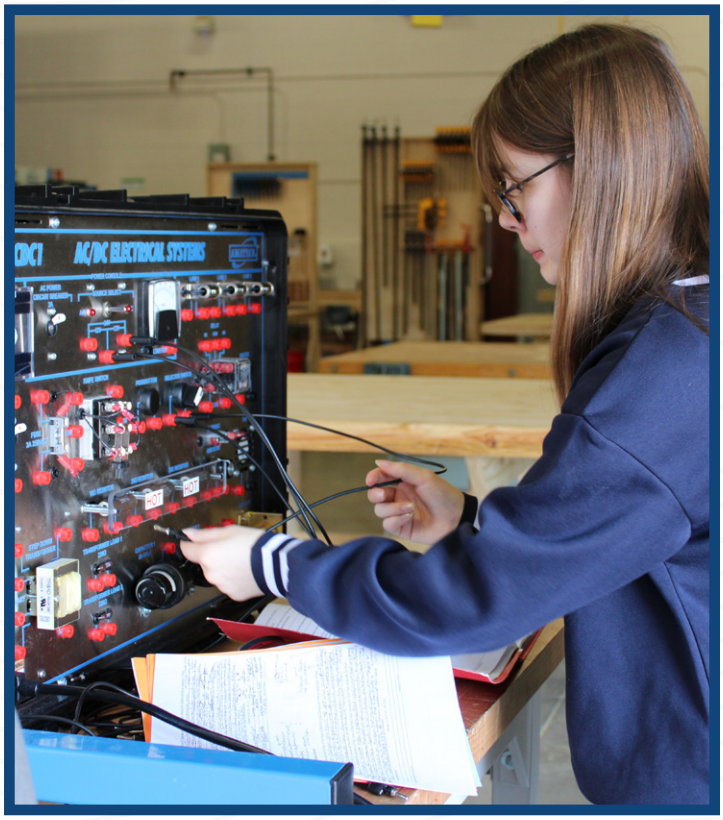
CONSTRUCTION TRADES

CAREER CLUSTER: ARCHITECTURE & CONSTRUCTION

STATEWIDE 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: Principles of Construction & Construction Trades I*	2.0	2	12	MCTC





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.

CAREER *Possibilities*

Building Inspector | Carpenter | Construction Manager | Electrician | 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 insight 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.

CERTIFICATION *Opportunities*

National Center for Construction Education & Research (NCCER) Core

EPA 608 Refrigerant Handling License

miller
CAREER & TECHNOLOGY CENTER

COSMETOLOGY

CAREER CLUSTER: HUMAN SERVICES

STATEWIDE PROGRAM OF STUDY: COSMETOLOGY & PERSONAL CARE SERVICES

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

the Salon — Miller Career & Technology Center

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.

CAREER *Possibilities*

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

8743V INTRODUCTION TO COSMETOLOGY

1 Credit - taken concurrently with Cosmetology I

8744V COSMETOLOGY I

2 Credits - taken concurrently with Introduction to Cosmetology

Grades: 11-12

—

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

1 Credit - taken concurrently with Cosmetology II

8752V COSMETOLOGY II

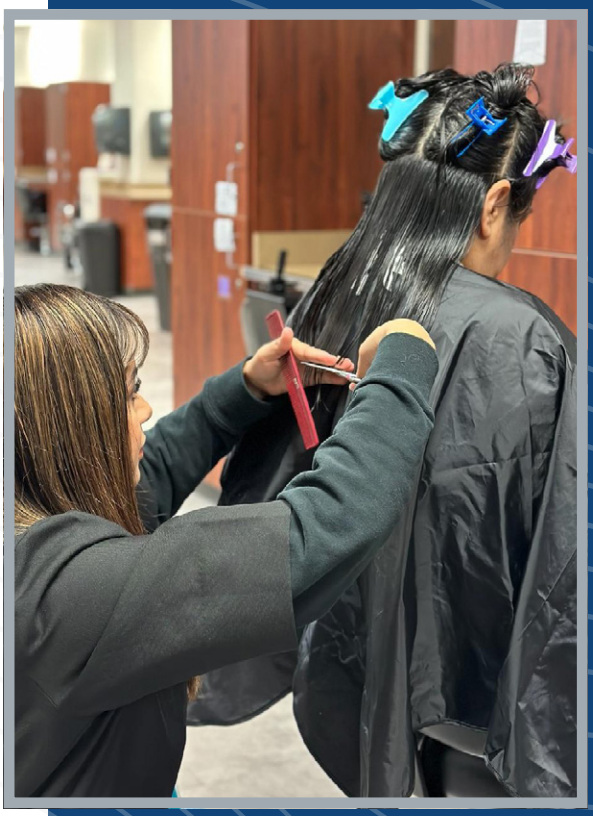
2 Credits - taken concurrently with Cosmetology Design & Color Theory

Grade: 12

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.



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. In the Salon at Miller, students gain hands-on experience working with real clients, applying what they've learned in a practical setting and building 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.

CERTIFICATION *Opportunities*

Cosmetology Operator License through the State Board of Texas

miller
CAREER & TECHNOLOGY CENTER

CULINARY ARTS

CAREER CLUSTER: HOSPITALITY & TOURISM

STATEWIDE 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 & Foundations of Restaurant Management*	2.0	2	12	MCTC

old town MILLER CAREER & TECHNOLOGY CENTER bistro

EXPECTATIONS OF Students

- Show willingness to learn theory and food safety prior to entering the kitchen lab area.
- Demonstrate ability to acquire knowledge of the requirements of a food handler.
- Display professional behavior in both the classroom and kitchen lab area.

CAREER Possibilities

Executive Chef | Nutritionist | Pastry Chef | Personal Health Coach | Restaurant Owner | Sous Chef

8371V CULINARY ARTS

2 Credits- taken concurrently with Restaurant Management

8364V FOUNDATIONS OF RESTAURANT MANAGEMENT

1 Credit- taken concurrently with Culinary Arts

Grades: 11-12

—

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

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 real-world Culinary setting, as they assist in running our onsite restaurant, Old Town Bistro, our catering service, and the our quick serve counter. 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.

CERTIFICATION Opportunities

ServSafe® Manager Certification

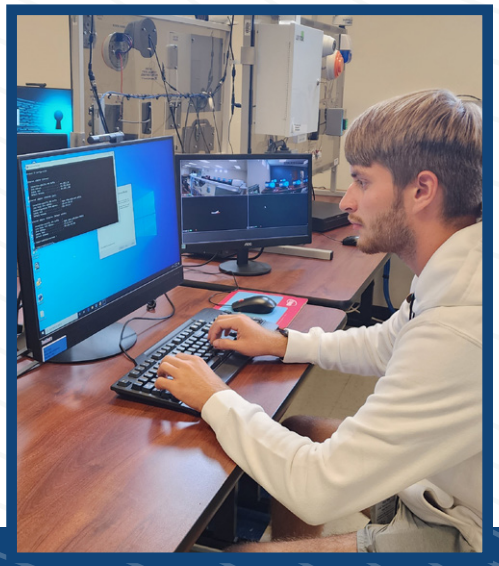
miller
CAREER & TECHNOLOGY CENTER

CYBER SECURITY

CAREER CLUSTER: INFORMATION TECHNOLOGY

STATEWIDE PROGRAM OF STUDY: CYBER SECURITY

Course	Credits	Class Periods	Grade	Location
Principles of Information Technology	1.0	1	8	Junior High
OR				
Introduction to Computer Science	1.0	1	9-12	Home Campus
OR				
Computer Science I *Prerequisite: Algebra I*	1.0	1	9-12	Home Campus
OR				
AP Computer Science Principles *Prerequisite: Algebra I*	1.0	1	9-12	Home Campus
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*	1.0	1	9-12	Home Campus
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*	2.0	2	11-12	MCTC
Practicum in Cyber Security *Prerequisites: Cyber Security I & II*	2.0	2	12	MCTC



EXPECTATIONS OF *Students*

- Willingness to engage in lectures and labs to practice knowledge gained.
- Ability to acquire in-depth knowledge of network and data security to countermeasure various types of cyber threats.
- Exhibit ethical behavior.
- Ability to work both independently and in groups.

CAREER *Possibilities*

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

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

—

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.

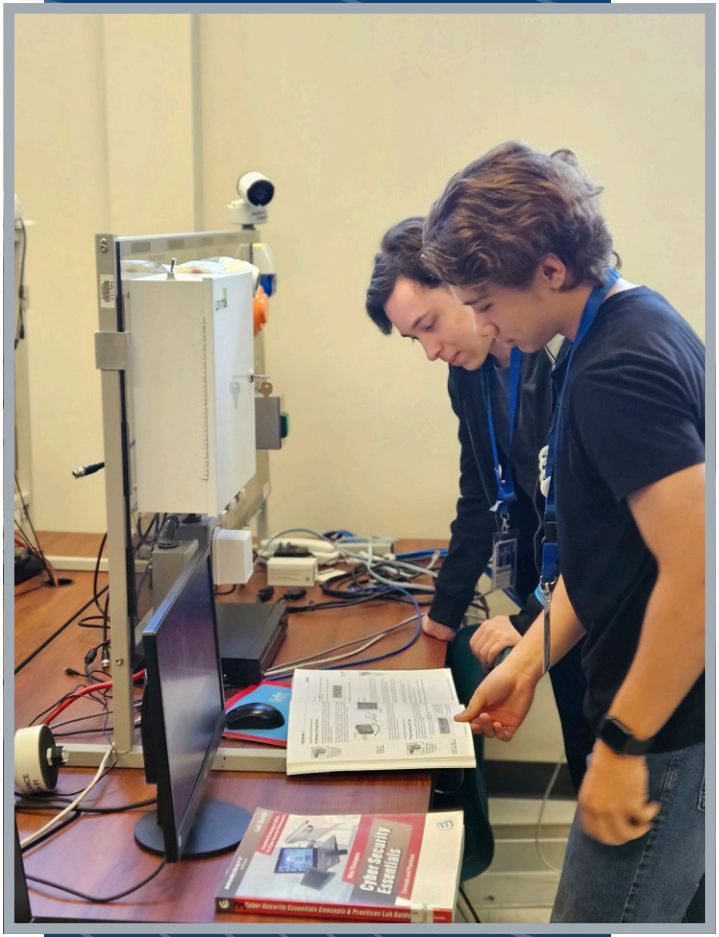
8689V PRACTICUM IN CYBER SECURITY

Grade: 12 2 Credits

Prerequisites: Cyber Security I & II

—

This course provides advanced application of previously learned knowledge and skills. Students receive instruction in real-world simulations, tackling security challenges such as ethical hacking, network defense, threat analysis, and data protection. Through collaborative projects, they will gain exposure to industry-standard tools and techniques used to secure computer systems and networks. The course emphasizes problem-solving, critical thinking, and teamwork while preparing students for careers in cybersecurity or further study in the field. By the end of the practicum, students will have built a portfolio of skills and knowledge to advance in cyber defense and IT security roles.



PROGRAM Experiences

This program 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

CompTIA Security+

CompTIA CySA+

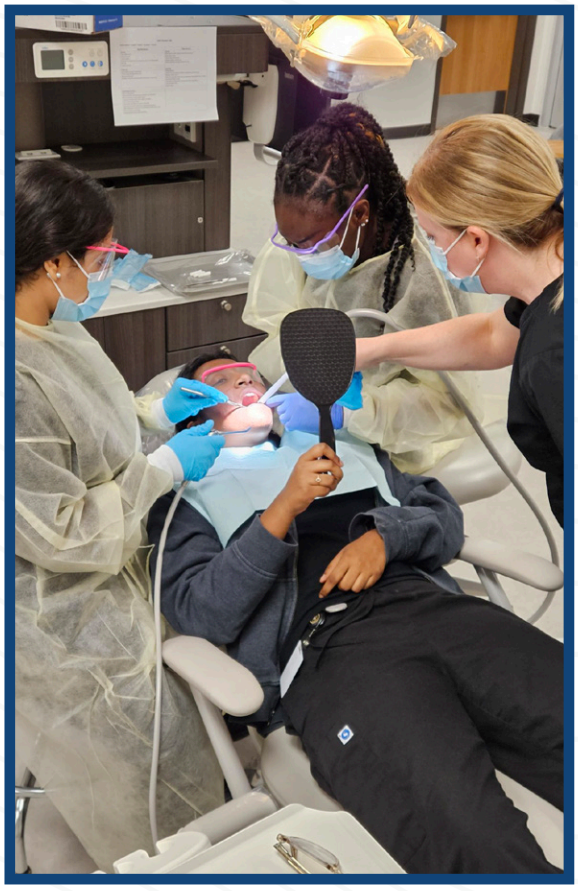
miller
CAREER & TECHNOLOGY CENTER

DENTAL ASSISTING

CAREER CLUSTER: HEALTH SCIENCE

STATEWIDE PROGRAM OF STUDY: DIAGNOSTIC AND THERAPEUTIC SERVICES

Course	Credits	Class Periods	Grade	Location
Principles of Health Science* AND Medical Terminology* *Corequisite: 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 10-12	Home Campus
Dental Assisting I & II *Prerequisites: Principles of Health Science* and Medical Terminology* and Health Science Theory** **Students who have only taken two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*	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.

CAREER *Possibilities*

Dental Assistant | Dental Hygienist | Dentist | Oral & Maxillofacial Surgeon | Orthodontist | Periodontist

8075V DENTAL ASSISTING I: ANATOMY & PHYSIOLOGY (FALL SEMESTER)

8076V DENTAL ASSISTING II: EQUIPMENT & PROCEDURES (SPRING SEMESTER)

Grade: 12 1 Credit Each Course

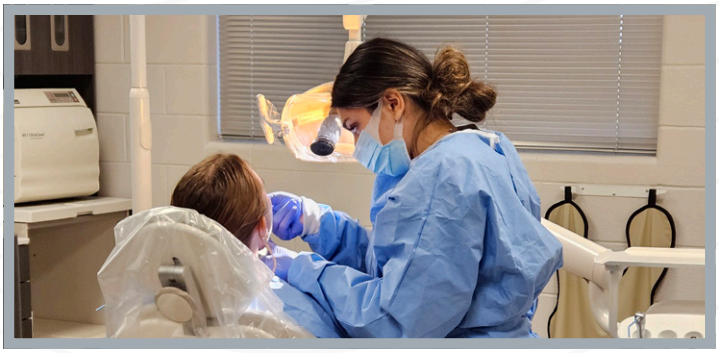
Prerequisites: Principles of Health Science, Medical Terminology*, & Health Science Theory**

**Students who have only taken two of the three prerequisites may be considered on a deferred basis.*

Students who have all prerequisites will be considered first.

—

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.



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.

CERTIFICATION *Opportunities*

- Basic Life Support (BLS)
- Cardiopulmonary Resuscitation (CPR)
- NOMAD X-ray Certification
- Registered Dental Assistant

miller
CAREER & TECHNOLOGY CENTER

DIGITAL AUDIO

CAREER CLUSTER: ARTS, AUDIO VISUAL TECHNOLOGY & COMMUNICATIONS

STATEWIDE PROGRAM OF STUDY: DIGITAL COMMUNICATION

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

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.

CAREER *Possibilities*

Audio Engineer | Audio Forensics & Restoration | Audio Post Production Specialist | Broadcaster | Gaming Audio Engineer | Installation & Design Engineer | Live Sound Engineer | Mixing Engineer | Producer

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.

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.

CERTIFICATION Opportunities

Adobe Certified Professional Premiere Pro

Dante Level I Certification

miller CAREER & TECHNOLOGY CENTER

EDUCATION & TRAINING

CAREER CLUSTER: EDUCATION & TRAINING

STATEWIDE 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 *Prerequisites: Principles of Education & Training* and Human Growth & Development** **Students who have only taken one of the prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*	2.0	2	11-12	MCTC
Practicum in Education *Prerequisite: Instructional Practices in Education*	2.0	2	12	MCTC

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.

CAREER *Possibilities*

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

8990V INSTRUCTIONAL PRACTICES IN EDUCATION & TRAINING

Grades: 11-12 2 Credits

Prerequisite: Principles of Education & Training and Human Growth & Development**
**Students who have only taken one of the prerequisites may be considered on a deferred basis. Students who have met all prerequisites will be considered first.*

—

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 have a valid Driver's License and obtain a MCTC parking permit by the 3rd day of school to remain eligible.

—

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.

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.

CERTIFICATION Opportunity

Educational Aide 1 certificate through TEA

miller CAREER & TECHNOLOGY CENTER

EMERGENCY MEDICAL TECHNICIAN

CAREER CLUSTER: HEALTH SCIENCE

STATEWIDE PROGRAM OF STUDY: DIAGNOSTIC AND THERAPEUTIC SERVICES

Course	Credits	Class Periods	Grade	Location
Principles of Health Science* AND Medical Terminology* *Corequisite: 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 10-12	Home Campus
Emergency Medical Technician (EMT) *Prerequisites: Principles of Health Science* and Medical Terminology* and Health Science Theory** **Students who have only taken two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*	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.

CAREER *Possibilities*

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

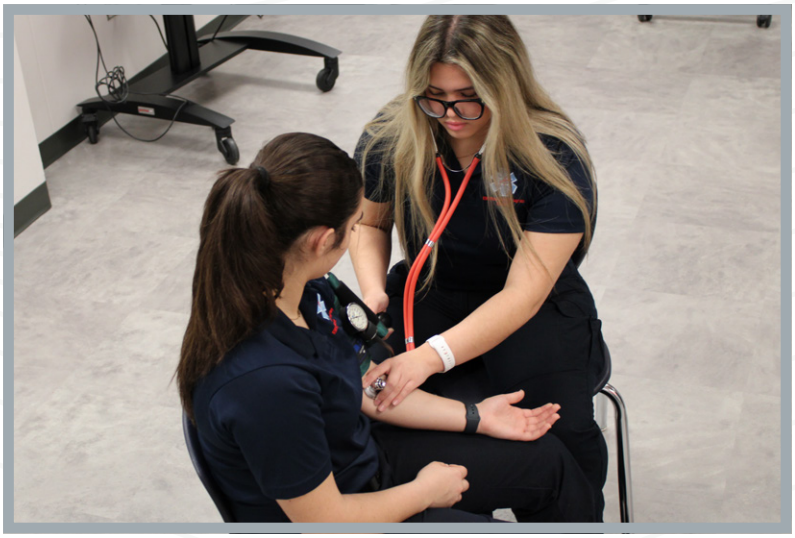
8085V EMERGENCY MEDICAL TECHNICIAN (EMT)

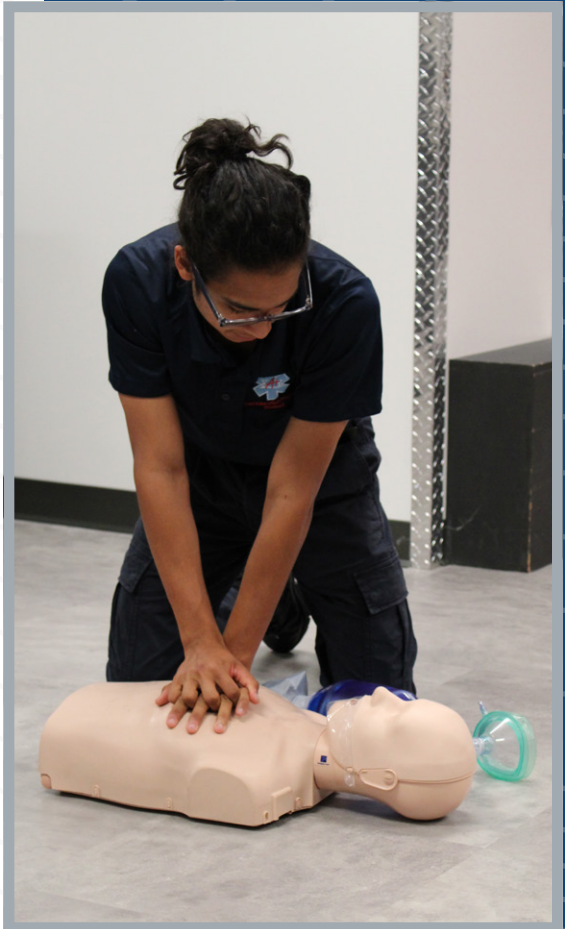
Grade: 12 2 Credits

Prerequisites: Principles of Health Science, Medical Terminology*, & Health Science Theory**
**Students who have only taken two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*

—

Students must be 17 years of age by October 1, 2026 to remain eligible.
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.

CERTIFICATION *Opportunities*

Basic Life Support (BLS)

Cardiopulmonary Resuscitation (CPR)

Emergency Medical Responder (EMR)

Emergency Medical Technician (EMT)

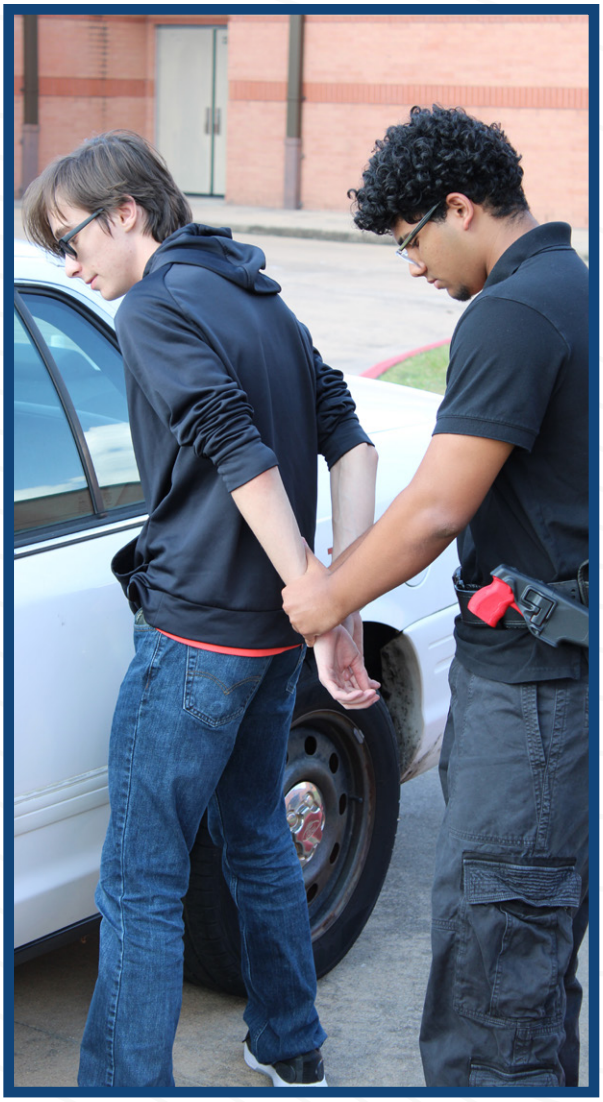
miller
CAREER & TECHNOLOGY CENTER

LAW ENFORCEMENT

CAREER CLUSTER: LAW & PUBLIC SERVICE

STATEWIDE PROGRAM OF STUDY: LAW ENFORCEMENT

Course	Credits	Class Periods	Grade	Location
Law Enforcement I & II	2.0	2	11-12	MCTC
Criminal Investigations & Correctional Service *Prerequisites: Law Enforcement I & II* OR Extended Practicum in Law *Prerequisites: Law Enforcement I & II or Court Systems & Advanced Legal Skills*	2.0 3.0	2 3	12 12	MCTC MCTC



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.

CAREER *Possibilities*

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

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.

8998V EXTENDED PRACTICUM IN LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Grade: 12 3 Credits

Prerequisites: Court Systems & Practices and Advanced Legal Systems OR Law Enforcement I & II
Students must have a valid Driver's License and obtain a Miller parking permit by the 3rd day of school to remain eligible.

—

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.

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.

CERTIFICATION *Opportunity*

IAED Emergency Telecommunicator

miller
CAREER & TECHNOLOGY CENTER

LEGAL STUDIES

CAREER CLUSTER: LAW & PUBLIC SERVICE

STATEWIDE PROGRAM OF STUDY: LEGAL STUDIES

Course	Credits	Class Periods	Grade	Location
Court Systems & Advanced Legal Skills	2.0	2	11-12	MCTC
Extended Practicum in Law *Prerequisites: Court Systems & Advanced Legal Skills or Law Enforcement I & II*	3.0	3	12	MCTC

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.

CAREER *Possibilities*

Compliance Officer | Court Reporter | Defense Attorney
Federal Judge | Paralegal | 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.

8998V EXTENDED PRACTICUM IN LAW, PUBLIC SAFETY, CORRECTIONS & SECURITY

Grade: 12 3 Credits

Prerequisites: Court Systems & Practices and Advanced Legal Systems OR Law Enforcement I & II
Students must have a valid Driver's License and obtain a Miller parking permit by the 3rd day of school to remain eligible.

—

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.

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.

CERTIFICATION *Opportunity*

Community Emergency Response Team (Teen CERT)

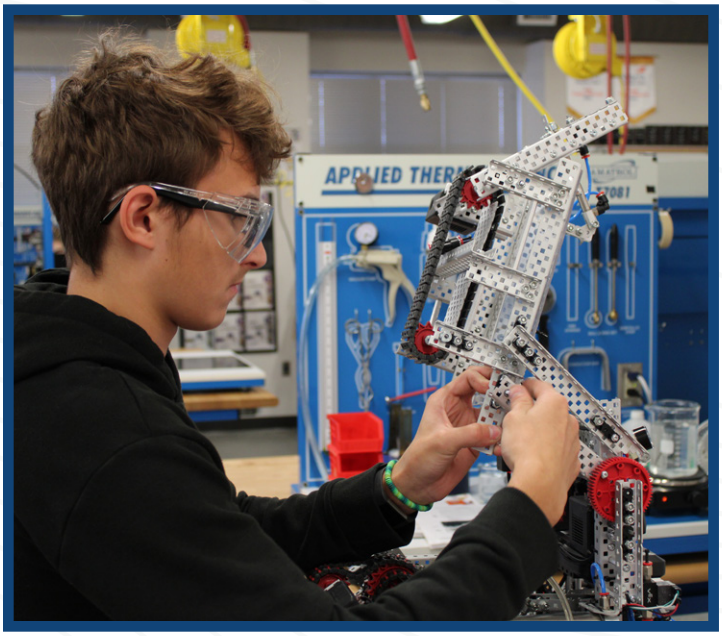
miller
CAREER & TECHNOLOGY CENTER

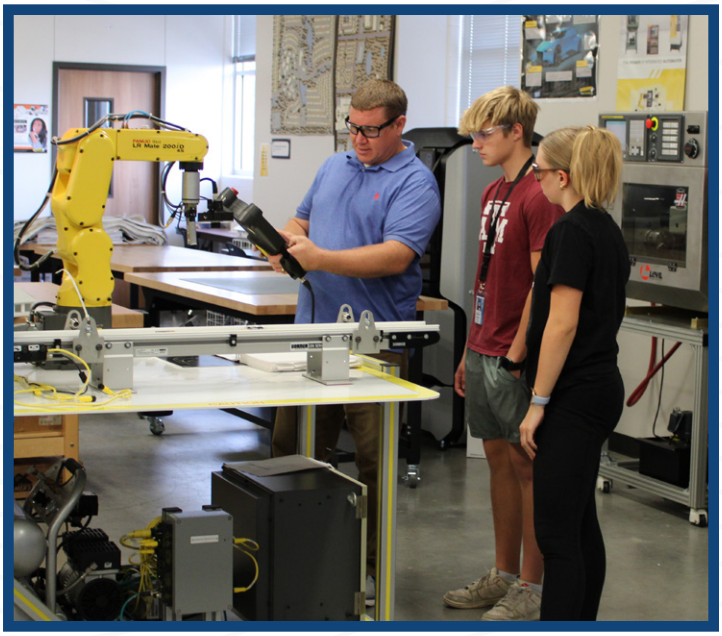
MANUFACTURING ENGINEERING

CAREER CLUSTER: MANUFACTURING

STATEWIDE PROGRAM OF STUDY: ROBOTICS & AUTOMATION TECHNOLOGY

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





EXPECTATIONS OF *Students*

- Ability to learn theory through both lecture and the computer-based modules.
- 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).

CAREER *Possibilities*

CNC Machinist | CNC Programmer | Electrical Engineer | Mechatronics Engineer | Plant Manager | Process Controller | Robot Programmer

8057V MANUFACTURING ENGINEERING I (FALL SEMESTER)

8058V MANUFACTURING ENGINEERING II (SPRING SEMESTER)

Grades: 11-12 1 Credit Each Course

Prerequisite: 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.

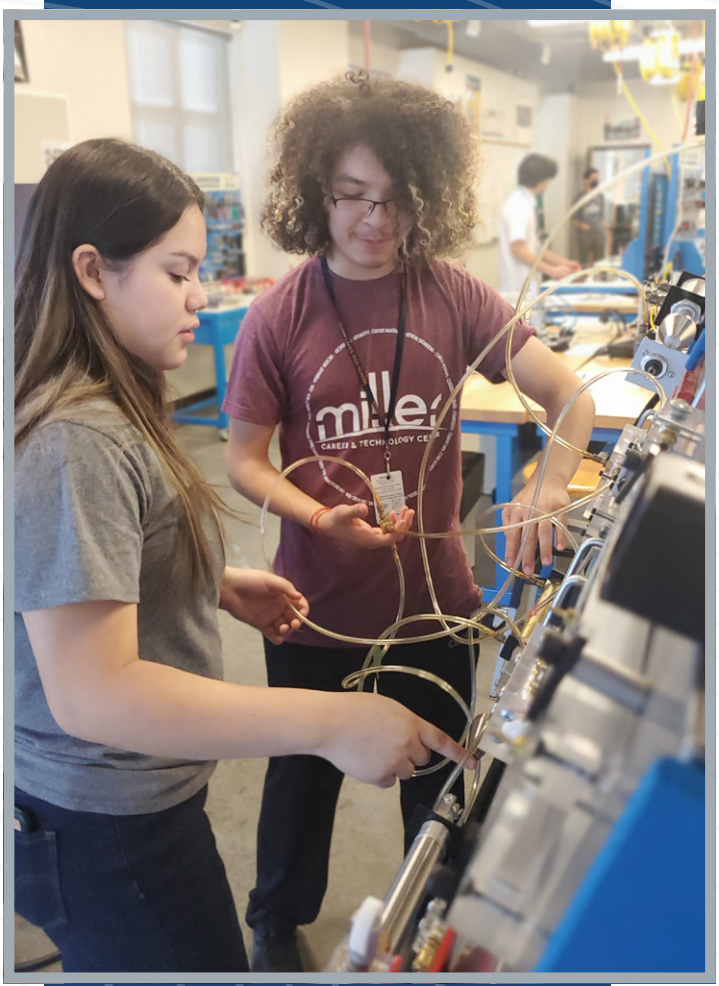
8059V PRACTICUM IN MANUFACTURING ENGINEERING

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.



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.

CERTIFICATION *Opportunities*

Certified Manufacturing Associate

SACA C-101 Associate- Basic Operations

SACA C-201 Electrical Systems 1

FANUC Robot Operator 1

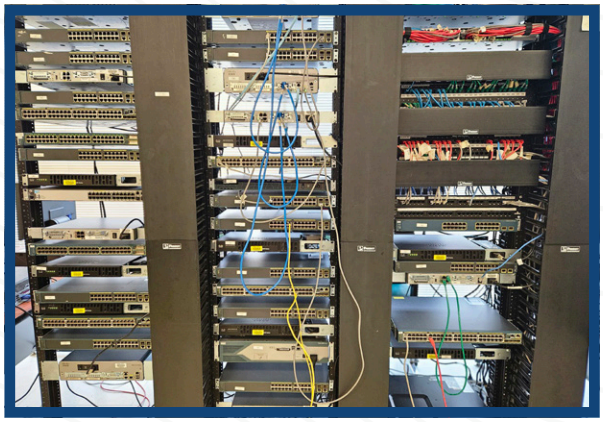
miller
CAREER & TECHNOLOGY CENTER

NETWORK ENGINEERING

CAREER CLUSTER: INFORMATION TECHNOLOGY

STATEWIDE PROGRAM OF STUDY: NETWORKING SYSTEMS

Course	Credits	Class Periods	Grade	Location
Principles of Information Technology	1.0	1	8	Junior High
OR				
Introduction to Computer Science	1.0	1	9-12	Home Campus
OR				
Computer Science I *Prerequisite: Algebra I*	1.0	1	9-12	Home Campus
OR				
AP Computer Science Principles *Prerequisite: Algebra I*	1.0	1	9-12	Home Campus
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*	1.0	1	9-12	Home Campus
Network Engineering I *Prerequisite: Principles of Information Technology or Intro to Computer Science or Computer Science I or AP Computer Science Principles or AP Computer Science A* *Note: Students must have completed Algebra II or be concurrently enrolled in Algebra II*	2.0	2	11-12	MCTC
Network Engineering II *Prerequisite: Network Engineering I*	2.0	2	12	MCTC



EXPECTATIONS OF *Students*

- Willingnesss 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 | Cloud Computing Specialist | IT Manager | Network Engineer | Systems Administrator

8685V CISCO NETWORK ENGINEERING I

Grades: 11-12 2 Credits

Prerequisite: 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

—

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.

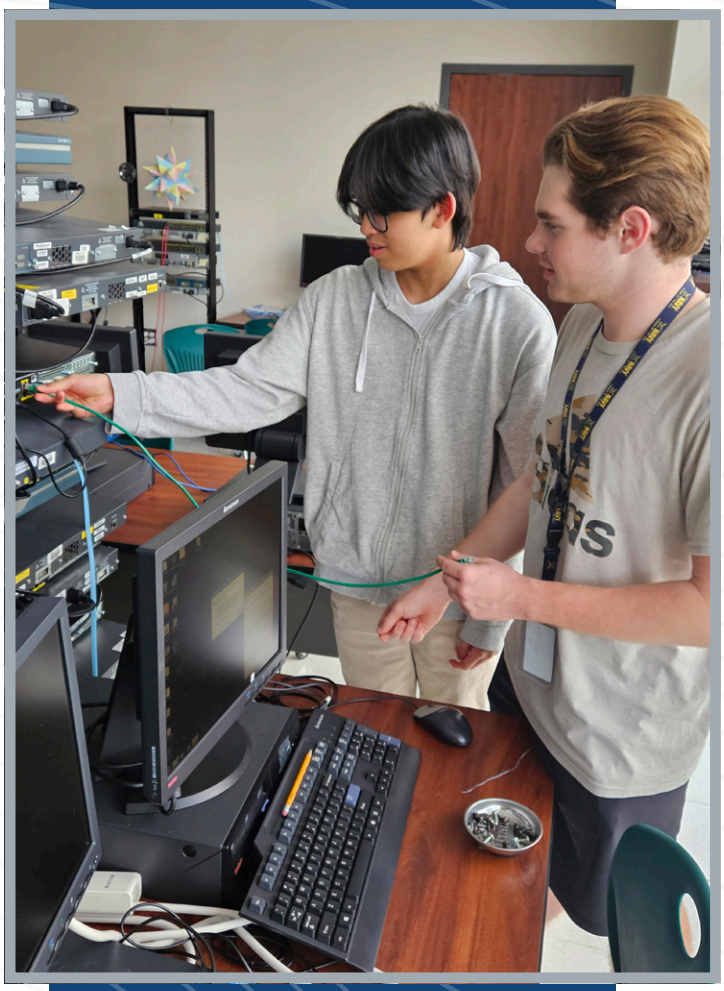
8686V CISCO NETWORK ENGINEERING II

Grade: 12 2 Credits

Prerequisite: Network Engineering I

—

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 Opportunity

Cisco Certified Network Associate (CCNA) certification

miller
CAREER & TECHNOLOGY CENTER

PHARMACY TECHNICIAN

CAREER CLUSTER: HEALTH SCIENCE

STATEWIDE PROGRAM OF STUDY: DIAGNOSTIC AND THERAPEUTIC SERVICES

Course	Credits	Class Periods	Grade	Location
Principles of Health Science* AND Medical Terminology* *Corequisite: 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 10-12	Home Campus
Pharmacy I, Pharmacy II, & Pharmacology *Prerequisites: Principles of Health Science* and Medical Terminology* and Health Science Theory** **Students who have only taken two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.* *Note: All students must have completed Chemistry to be eligible for Pharmacy I.*	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.

CAREER *Possibilities*

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

8087V PHARMACY I (FALL SEMESTER)

8088V PHARMACY II (SPRING SEMESTER)

1 Credit Each Course

8097V PHARMACOLOGY

1 Credit - taken concurrently with Pharmacy I & II

Grade: 12

Prerequisites: Principles of Health Science, Medical Terminology* & Health Science Theory**

**Students who have only taken two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*

Note: All students must have completed Chemistry to be eligible for Pharmacy I.
Students must have a valid Driver's License and obtain a Miller parking permit by the 3rd day of school to remain eligible.

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.

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.

CERTIFICATION Opportunity

Certified Pharmacy Technician

miller
CAREER & TECHNOLOGY CENTER

PRACTICUM IN ENGINEERING

CAREER CLUSTER: SCIENCE, TECHNOLOGY, ENGINEERING & MATH (STEM)

STATEWIDE PROGRAM OF STUDY: ENGINEERING

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

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.

CAREER *Possibilities*

Aerospace Engineer | Chemical Engineer | Civil Engineer
Environmental Engineer | Hydraulics | Structural Engineer

8660V PRACTICUM IN ENGINEERING

Grades: 11-12 2 Credits

Prerequisites: Principles of Applied Engineering and Engineering Design & Presentation and Geometry

—

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.

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.

CERTIFICATION *Opportunity*

Autodesk Inventor

miller
CAREER & TECHNOLOGY CENTER

VETERINARY SCIENCE

CAREER CLUSTER: AGRICULTURE, FOOD, & NATURAL RESOURCES

STATEWIDE 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 1	10-12 10-12	Home Campus
Veterinary Science *Prerequisites: Principles of Agriculture* and Equine Science* and Small Animal Management** **Students who have only taken one or two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*	2.0	2	11-12	MCTC
Veterinary Assisting *Prerequisite: Veterinary Science*	2.0	2	12	MCTC

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 live animals, blood, feces, and urine.
- A desire to learn technical information for assisting veterinarians.
- Demonstrate professionalism while at internship site.

CAREER *Possibilities*

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

8147V VETERINARY SCIENCE

Grades: 11-12 2 Credits

Prerequisite: Principles of Agriculture and Equine Science* and Small Animal Management**

**Students who have only taken one or two of the three prerequisites may be considered on a deferred basis. Students who have all prerequisites will be considered first.*

—

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 Science

Students must have a valid Driver's License and obtain a Miller parking permit by the 3rd day of school to remain eligible.

—

This course provides advanced application of previously learned knowledge and skills from Veterinary Science. 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, the Dog Wash at Miller 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.

CERTIFICATION *Opportunities*

Elanco Fundamentals of Veterinary Medicine

Certified Veterinary Assisting (CVA) offered by the Texas Veterinary Medical Association

miller
CAREER & TECHNOLOGY CENTER

COMMERCIAL DRIVER LICENSE

CAREER CLUSTER: SUPPLY CHAIN & TRANSPORTATION

STATEWIDE PROGRAM OF STUDY: TRANSPORTATION, DISTRIBUTION & LOGISTICS

Course	Credits	Class Periods	Grade	Location
Extended Practicum in Transportation	3.0	3	12	Raines Academy

EXPECTATIONS OF *Students*

- Display professional behavior in the classroom and during hands-on practice.
- Students must pass written competency exams before obtaining a Class A learner's permit.
- Display and maintain self-motivation and a positive attitude.

CAREER *Possibilities*

| Heavy Equipment Operator | Long-Haul Truck Driver | Regional Truck Driver | Terminal Manager

8716U EXTENDED PRACTICUM IN TRANSPORTATION

Grade: 12 3 Credits *(one semester only- Fall, Spring or Summer)*

Student must be 18 years of age and have a valid driver's license within two weeks of the start date of this course.

—

This course provides instruction for students to conduct pre-trip, on-the-road, and post-trip vehicle and equipment inspections. Other skills include map reading, managing log books and cargo documentation, dispatch procedures, emergency responsibilities, and transportation agency regulations.

PROGRAM *Experiences*

The CDL program prepares students for success in the transportation industry through hands-on and classroom learning. Students begin in the classroom, mastering written knowledge tests and safety regulations. After earning their learner's permit, students transition to behind-the-wheel training, focusing on vehicle safety, pre-trip inspections, and essential driving skills. Training includes backing and maneuvering exercises, as well as on-road driving practice to build confidence ensuring students are ready for real-world driving and career opportunities.

CERTIFICATION *Opportunity*

Commercial Driver's License - Class A (CDL)

RAINES ACADEMY

REAL ESTATE DUAL CREDIT

CAREER CLUSTER: MANAGEMENT & ENTREPRENEURSHIP

STATEWIDE PROGRAM OF STUDY: BUSINESS, MARKETING, & FINANCE

Course	Credits	Class Periods	Grade	Location
Fundamentals of Real Estate, Business Law and Practicum in Entrepreneurship	4.0	3	12	Raines Academy

EXPECTATIONS OF *Students*

- Display professional behavior in the classroom and during field experience.
- Display and maintain self-motivation and a positive attitude.
- Demonstrate excellent verbal and written communication skills.

CAREER *Possibilities*

Leasing Consultant | Property Manager | Real Estate Broker | Real Estate Marketing Specialist | Residential Real Estate Agent

8690U FUNDAMENTALS OF REAL ESTATE

Grade: 12 **1 Credit** - ***taken concurrently with Business Law for Real Estate and Practicum in Entrepreneurship***

8547U BUSINESS LAW FOR REAL ESTATE

Grade: 12 **1 Credit** - ***taken concurrently with Business Law for Real Estate and Practicum in Entrepreneurship***

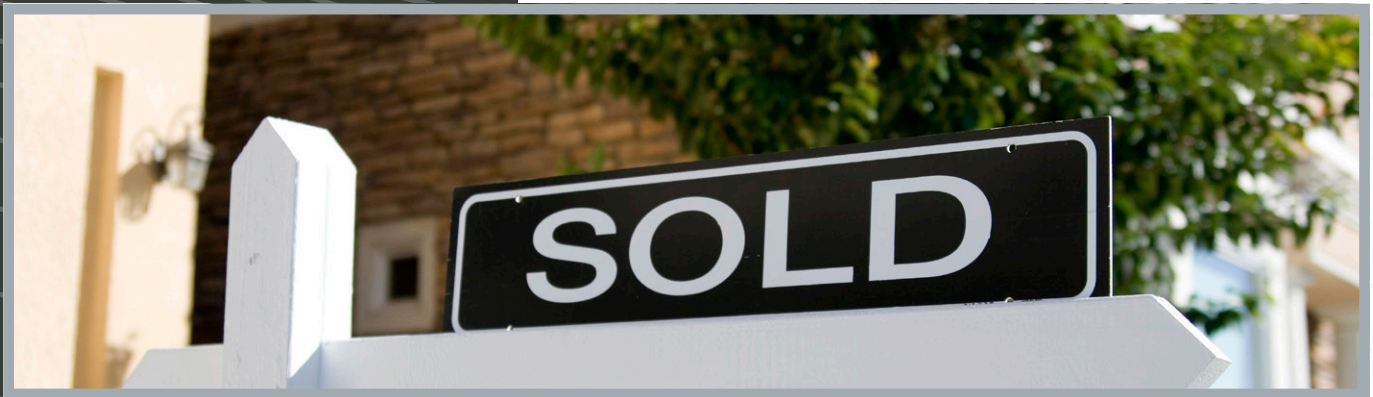
8691U PRACTICUM IN ENTREPRENEURSHIP

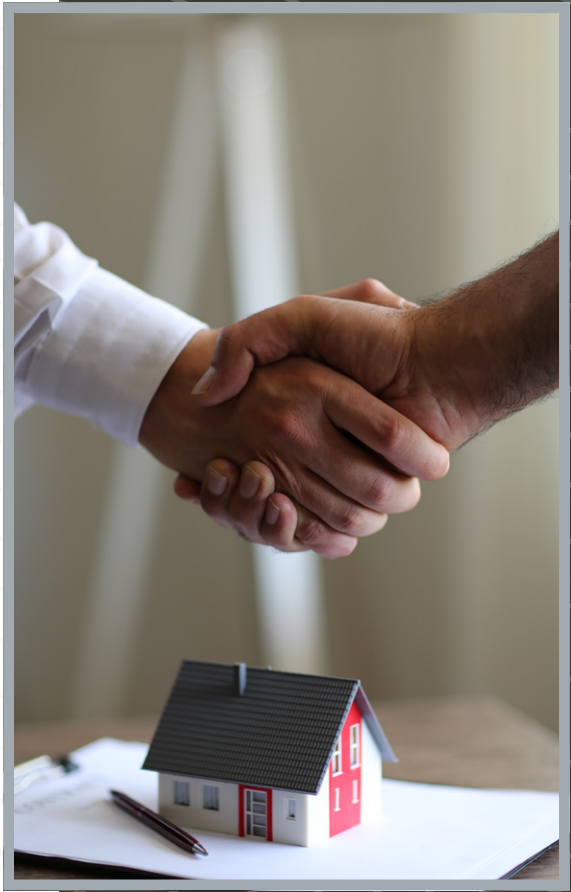
Grade: 12 **2 Credits** - ***taken concurrently with Fundamentals of Real Estate and Business Law for Real Estate***

HCC Admission Requirements, TSI Requirement, $65 fee per HCC course.

—

These courses are designed to teach students the principles necessary to begin and operate a business. The course's primary focus is to help students understand the process of analyzing a business opportunity, preparing a business plan, determining feasibility of an idea using research, and developing a plan to organize and promote the business and its products and services. In addition, students understand capital required, return on investment desired, and potential for profit.





PROGRAM *Experiences*

The dual credit Real Estate program, offered in partnership with HCC gives students a head start in the real estate industry. Students complete coursework to earn their Texas Residential Real Estate License, gaining knowledge in property law, contracts, and ethical practices. During the second part of the program, students are paired with a licensed broker, providing field experience learning the ins and outs of the profession. Hands-on activities include home staging, marketing and selling properties, and managing real estate paperwork. This program equips students with practical skills and professional connections to launch a successful career in real estate.

CERTIFICATION *Opportunity*

Residential Real Estate License

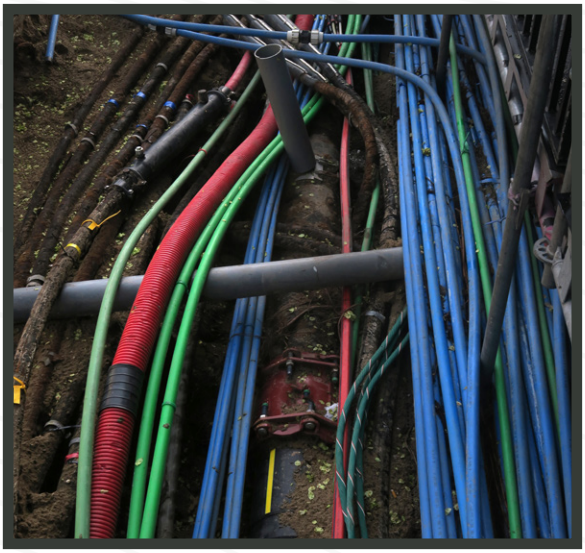
RAINES ACADEMY

UNDERGROUND UTILITIES

CAREER CLUSTER: ARCHITECTURE & CONSTRUCTION

STATEWIDE PROGRAM OF STUDY: CONSTRUCTION MANAGEMENT & INSPECTION

Course	Credits	Class Periods	Grade	Location
Principles of Construction, Principles of Architecture, and Practicum in Construction	4.0	3	12	Raines Academy



AVAILABLE FALL OF 2026

8024V PRINCIPLES OF CONSTRUCTION

Grade: 12 **1 Credit** - ***taken concurrently with Principles of Architecture and Practicum in Construction***

8023U PRINCIPLES OF ARCHITECTURE

Grade: 12 **1 Credit** - ***taken concurrently with Principles of Construction and Practicum in Construction***

8584U PRACTICUM IN CONSTRUCTION

Grade: 12 **2 Credits** - ***taken concurrently with Principles of Architecture and Principles of Construction***

—

Course information coming soon.

PROGRAM *Experiences*

Our Underground Utilities program introduces students to the essential skills and knowledge needed to work in the utility construction industry. Field experiences and potential industry partnerships provide real-world exposure, preparing students for entry-level positions in a high-demand career field.

CERTIFICATION *Opportunity*

National Center for Construction Education & Research (NCCER) Core

RAINES ACADEMY

WATER OPERATIONS

CAREER CLUSTER: AGRICULTURE, FOOD, AND NATURAL RESOURCES

STATEWIDE PROGRAM OF STUDY: ENVIRONMENTAL AND NATURAL RESOURCES

Course	Credits	Class Periods	Grade	Location
Practicum in Agriculture, Food, and Natural Resources	2.0	2	12	Raines Academy

EXPECTATIONS OF *Students*

- Display professional behavior in the classroom and during lab time
- Ability to work on projects independently and in a group setting.
- Demonstrate professionalism while at internship site.
- Adhere to all safety protocols.

CAREER *Possibilities*

Environmental Technician | Industrial Water Treatment Technician | Waste Water Treatment Plant Operator | Water Compliance Specialist

8125U PRACTICUM IN AGRICULTURE, FOOD, AND NATURAL RESOURCES

Grade: 12 2 Credits

—

This course provides students instruction on the essential role of clean water in public health, agriculture, animal science and wildlife.

PROGRAM *Experiences*

The Water Operations program prepares students for careers in the vital field of water treatment and distribution. Students work toward earning their Class D Water Operator License, gaining knowledge of the properties of clean water and the processes used to make water safe and potable. The curriculum emphasizes safety protocols at water treatment facilities, as well as wastewater treatment methods. Students engage in hands-on classroom experiments, take field trips to operational sites, and participate in a paid internship with Inframark, providing real-world experience and industry connections. This program equips graduates with the skills and credentials to begin a rewarding career in water operations.

CERTIFICATION *Opportunities*

Water Operator Class D License

Basic Waste Water Operator

RAINES ACADEMY

NOTES

NOTES

MILLER CAREER & TECHNOLOGY CENTER
1734 KATYLAND DR. | KATY, TX 77493
281-237-6300 MCTC.KATYISD.ORG
MCTC@KATYISD.ORG

RAINES ACADEMY
1742 KATYLAND DR. | KATY, TX 77493
281-237-1500 RA.KATYISD.ORG
NORMAJWHITE@KATYISD.ORG