Applied Construction Math I  
TECM 1001  
This course is designed for students who have little math skills (grade school level), or who have not had a math course for several years. Upon completion, this course will provide an understanding of fundamental operations using whole numbers, fractions, decimals and percentages. Basic math skills are strengthened through applications found in the construction industry. Students are introduced to logical problem solving.

Backflow Awareness (16 CEU hours)  
PFPB 2005  
Student must have a current Backflow Prevention Assembly Testers License  
This course offers Texas Commission of Environmental Quality (TCEQ) continuing education hours for those who have already received their BPAT license. The course consists of 16 hours of class and lab work, which will include all new and updated information from the industry and governmental bodies. The class is split with 4 hours in the lab and 12 hours in the classroom. Lunch will be provided.

Note 1: Students must bring a copy of the 10th Edition USC Manual for Cross-Connection Control, as required by TCEQ. Books are available for purchase upon request. Contact the CEF office for book cost and to request a copy PRIOR to the first day of class.

Note 2: This course also meets TCEQ Backflow continuing education requirements for Irrigation/Landscape Inspector License.

Backflow Practical Skills Refresher (8 CEU hours)  
PFPB 1000  
Student must have a current Backflow Prevention Assembly Testers License.

This course offers Texas Commission of Environmental Quality (TCEQ) continuing education hours for those who have already received their BPAT license. The course consists of 8 hours of class and lab work, which will include all new and updated information from the industry and governmental bodies. The class is split with 7 hours in the lab and 1 hour in the classroom. Lunch will be provided.

Note 1: Students must bring a copy of the 10th Edition USC Manual for Cross-Connection Control, as required by TCEQ. Books are available for purchase upon request. Contact the CEF office for book cost and to request a copy PRIOR to the day of the class.

Note 2: This course also meets TCEQ Backflow continuing education requirements for Irrigation/Landscape Inspector License.
Backflow Prevention Assembly Tester License  
**PFPB 1047**

Student is required to have two (2) years experience in a water related industry such as Plumbing, Sprinkler Fitting, fire alarm, irrigation, etc.

This 40 hour course offers Texas Commission of Environmental Quality (TCEQ) certification in Backflow Prevention. Using our new state-of-the-art classrooms and labs with expert instruction that is required for certification and testing of backflow assemblies in the state of Texas. The course consists of 40 hour semester. Course topics include history of backflow prevention, testing and repair of assemblies, (RPZA; DCVA; PVB; and SRVB) cross connection control program with state and local ordinance information and all related subjects. Course is approved for 8-hour CEU in Customer Service Inspectors License, Irrigator License, Wastewater Operators License, Water Operators License and Water Treatment Specialist License.

Note: This course also meets TCEQ Backflow requirements for Irrigation/Landscape Inspector License

Basic Commercial Blueprint Reading  
**DFTG 1023**

This course is designed for office, in the field personnel and is recommended for professional support staff for specialty and general contractors. Topics include: Evolution of the Construction Project—The Development of the Drawings & Specifications; Background Principles (Cracking the Code); Drawing Types Used in All Categories Drawings; Reading Drawings for Information; Overview of Architectural MEP Drawings; and Specifications.

Commercial Carpentry I-General  
**CRPT 1029**

Consists of 80 hours per semester - Course topics will include: Orientation to the Trade; Basic Safety; Basic Communication Skills; Introduction to Construction Math; Introduction to Hand & Power Tools; Hand and Power Tools; Building Materials, Fasteners, and Adhesives; Introduction to Construction Drawings; Introduction to Construction Drawings, Specifications and Layout; Floor Systems; Wall Systems; Ceiling Joist & Roof Framing; Introduction to Building Envelope Systems; Introduction to Basic Rigging; and Basic Stair Layout.

Commercial Field Engineering I  
**SRVY 1015**

The course will introduce the students with a working knowledge of the materials, methods, and equipment including drawings used in construction buildings today. Using the Construction Materials, Methods, and Techniques as a guide, the course topics include: Introduction to Field Engineering; Building Structures System, Construction, Standards; Material, Building Site, Soils Foundations; Concrete, Cast in place concrete, Pre-Cast; Masonry Mortars, Masonry Construction; Metals, Steel Frame Construction, Wood Plastic and Composites; Thermal Moisture Protection, Roofing Systems; Glass, Doors, Windows, Interior Finishes, Floors; Specialties, Equipment and Conveying Systems; Plumbing, Mechanical, Electrical; Division 01 to Division 05 Structural Drawings; Division 06 to Division 10 Structural and Architectural Drawings; and Division 11 to Division 16 Architectural Drawings.
Commercial Field Engineering II

SRVY 1001

This course covers the basic mathematical principles used for field surveying and measurement as applied to basic construction field engineering. Topics include: Dimensional; Conversions to Decimal Equivalents Unit Conversion, Algebra, Geometry-Perimeters, Area, Volumes; Trigonometry-Sine, Cosine & Tangents Right triangles; Law of Sine, Cosine Solving Oblique triangles; Instrument Setup Level Loops Records & Documentation Cut Fill Computation; Coordinate Geometry; Traverse Computations; Traverse Data Collection, Instrument set up; Horizontal Curves; and Vertical Curves.

Commercial Field Engineering IV

SRVY 1009

This course including lab covers an overview of the surveying profession as it applies to Field Engineering. Part two covers the Office Work and the Calculations. The course topics include: Filed Procedures, Equipment Calibration, Office Practice, Math Essentials, Chain Corrections, Traverse Computations, and Coordinate Geometry.

Commercial HVAC Service I-A

HART 1007

This course consists of 80 hours per semester including labs. The course topics are Basic Safety; Introduction to HVAC; Trade Mathematics; Basic Electricity; Fasteners, Hardware, and Wiring; Basic Cooper & Plastic Pipe Practices; and Soldering & Brazing.

Note 1: EPA Section 608 Universal Certification is highly recommended in order to graduate from this program. EPA Exam is offered in Spring only.

Note 2: Graduation Requirement: Students enrolled in HVAC I-B will be required to take the EPA Section 608 Refrigerant Recovery Exams. This EPA Section 608 Refrigerant Recovery class is MANDATORY for all students enrolled in HVAC I-B, unless the student has already received the EPA Core and Type II Certification. Proof of EPA Certification is required.
<table>
<thead>
<tr>
<th>Course</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Commercial HVAC Service II-A</td>
<td>CBFM 2017</td>
</tr>
<tr>
<td>This course consists of 80 hours per semester including labs. The course topics are Introduction to Air Distribution Systems, Sheet Metal Duct Systems, Fiberglass and Flexible Duct Systems, Basic Electricity, Alternating Current, and Introduction to Heating.</td>
<td></td>
</tr>
<tr>
<td>Note 1: EPA Section 608 EPA Core and Type II Certification is prerequisite for students going into HVAC III-A. If you have not passed this section of the exam, you should register to retake the EPA Exam prior to the completion of HVAC Level II-B.</td>
<td></td>
</tr>
<tr>
<td>Commercial HVAC Service III-A</td>
<td>HART 2036</td>
</tr>
<tr>
<td>This course consists of 80 hours per semester including labs. The course topics are Introduction to Hydronic Systems; Commercial Hydronic Systems; Customer Relations; Heat Pumps; Troubleshooting Heat Pumps; and Troubleshooting Cooling.</td>
<td></td>
</tr>
<tr>
<td>Construction Site Leadership I</td>
<td>CNBT 1009</td>
</tr>
<tr>
<td>Introduction of Fundamentals of Crew Leadership will teach the skills to be an effective leader, including the ability to communicate effectively; provide direction to your crew, and effectively plan and schedule the work of your crews.</td>
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</tr>
<tr>
<td>Electrical I-A</td>
<td>ELPT 1021</td>
</tr>
<tr>
<td>This course consists of 80 hours per semester including labs. The course topics are Orientation to the Trade, Basic Safety; Electrical Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Electrical Test Equipment; Hand Bending; Introduction to Basic Rigging, Device Boxes; Introduction to Electrical Circuit; Basic Communication Skills; and Basic Employability Skills.</td>
<td></td>
</tr>
<tr>
<td>Electrical I-A</td>
<td>ELPT 1021</td>
</tr>
<tr>
<td>This course consists of 80 hours per semester including labs. The course topics are Orientation to the Trade, Basic Safety; Electrical Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Electrical Test Equipment; Hand Bending; Introduction to Basic Rigging, Device Boxes; Introduction to Electrical Circuit; Basic Communication Skills; and Basic Employability Skills.</td>
<td></td>
</tr>
<tr>
<td>Electrical II-A</td>
<td>HART 1001</td>
</tr>
<tr>
<td>This course consists of 80 hours per semester including labs. The course topics are Alternating Current; Motors: Theory &amp; Application; Electrical Lighting; Conduit Bending; and Pull and Junction Boxes.</td>
<td></td>
</tr>
<tr>
<td>Electrical III-A</td>
<td>ELPT 1045</td>
</tr>
<tr>
<td>This course consists of 80 hours per semester including labs. The course topics are Load Calculations – Branch &amp; Feeders Circuits; Conductor Selection and Calculation; Practical Applications of Lighting; Hazardous Locations; Overcurrent Protection; and Calculations Review.</td>
<td></td>
</tr>
</tbody>
</table>
### Electrical IV-A  
**ELPT 1041**

This course consists of 80 hours per semester including labs. This level is crucial for Journeyman Exam Preparation. Course topics are: Load Calculations- Feeders & Services, Health Care Facilities, Standby & Emergency Systems, Basic Electronic Theory, and Fire Alarm Systems.

### Electrical Journeyman Prep  
**ELPT 2001**

Students are required to: (1) At least three years experience in Electrical Trade and preferably some classroom hours. (2) Basic math skills with ability to solve simple algebraic equations.

This class will consist of an intensive NEC review of Services and Service Equipment; Wiring Methods and Installation; Cabinets, Panelboards, Switchboards, Boxes and Conduit Bodies; Conductors; Motors and Generators; Utilization Equipment and Devices; Special Occupancies and Uses; Ambient Temperature and Other Conductor Derating Factors; Low Voltage Systems NEC requirements; and Hazardous locations.

Note: Students must have a copy of the 2020 NEC edition.

### Electrical Master Prep  
**ELPT 1015**

Students are required to: (1) At least three years experience in Electrical Trade and preferably some classroom hours. (2) Basic math skills with ability to solve simple algebraic equations.

This class will consist of an intensive NEC review of Services and Service Equipment; Wiring Methods and Installation; Conductors; Special Occupancies and Uses; Ambient Temperature Derating; electrical calculations of single family, multi-family and two family dwellings, electrical calculations of commercial structures, i.e. schools, offices, stores, banks, marinas, etc.

Note: Students must have a copy of the 2020 NEC Edition.

### English as a Second Language I  
**COMG 1000**

This course prepares students to communicate orally in both public and work environments. Emphasis is placed on developing language functions, pronunciation, listening skills, and improving social and intercultural skills.

NOTE: Test-Out available for Level I at no extra charge. See Career Testing page for details.

Este curso prepara al alumno para comunicarse con confianza en situaciones sociales y en el trabajo. Se desarrollan las varias funciones del lenguaje, se mejora la pronunciación y compresión auditiva y se practica la comunicación social y transcultural.

Aprobación por medio de examen disponible para Nivel I sin cargo extra.
English as a Second Language II  
COMG 1001

Students are taught to communicate orally in public and work environments. Emphasis is placed on developing language functions, pronunciation, listening skills, improving social and intercultural communication skills. Students acquire reading skills, vocabulary development, critical thinking skills, and the use of resources.

Continuación de ESL I. Este curso prepara al alumno para comunicarse con confianza en situaciones sociales y en el trabajo. Se desarrollan las varias funciones del lenguaje, se mejora la pronunciación y comprensión auditiva y se practica la comunicación social y transcultural. Los cursos instruye a los estudiantes, desarrollo de vocabulario, pensar en forma critica y el uso de los varios recursos disponibles en la institución.

English as a Second Language III  
COMG 1004

This course is a continuation of ESL II. This course prepares students to communicate orally in both public and work environments. Emphasis is placed on developing language functions, pronunciation, and listening skills, and improving social and intercultural communication skills. The lessons instruct students in reading skills vocabulary development, critical thinking skills, and the use of resources.

Pipefitting I-A  
PFPB 1013

This course consists of 80 hours per semester including labs. Course topics will include: Orientation to the Pipefitting Craft; Basic Safety; Ladders and Scaffolds; Introduction to Hand Tools; Pipefitting Hand Tools; Introduction to Power Tools; Pipefitting Power Tools; and Introduction to Basic Rigging.

Pipefitting II-A  
WLDG 1035

This course consists of 80 hours per semester including labs. Course topics will include: Piping Systems; Drawings and Detail Sheets; Identifying and Installing Valves; Pipefitting Trade Math; and Threaded Pipe Fabrication.

Pipefitting III-A  
PFPB 2041

This course consists of 80 hours per semester including labs. Course topics will include: Introduction to Basic Rigging; Rigging Practices; Standards and Specifications; Advanced Trade Math; Pipe Off Sets (PF Math Guide); and Motorized Equipment Two.

Pipefitting IV-A  
PFPB 2043

This course consists of 80 hours per semester including labs.
Piping Isometric

This class defines an Isometric Drawing, it incorporates commercial drawings, mechanical pipe and plumbing details and shows how to draw in an isometric format. Emphasis is stressed on how to utilize isometrics in Construction day to day operations, including planning of material take offs, scheduling manpower, equipment and etc.

Plumbing I-A

This course consists of 80 hours per semester including labs. The course topics are: Basic Safety; Plumbing Safety; Introduction to Plumbing Profession; Introduction to Hand Tools; Introduction to Power Tools; Tools of the Plumbing Trade; Introduction to Construction Math; Introduction to Plumbing Math; Copper Tube & Fittings and Cast Iron Pipe and Fittings.

Consiste de 80 horas que incluyen Laboratorio por semestre. Este curso cubrirá las siguientes clases: Introducción a la plomería 1; Seguridad básica; Seguridad de la Plomería; Introducción a la profesión de la plomería; Introducción a Herramientas de mano y Harramientas Electricas; Herramientas básicas de la plomería; Introducción a las Matemáticas para la Construcción; Introducción a la matemáticas para los fontaneros; Introducción Basica a Planos; Introducción a los dibujos de la plomería; y pipa y materiales de plomería de plástico.

Plumbing II-A

This course consists of 80 hours per semester including labs. The course topics are: Plumbing Math Two; Reading Commercial Drawings; Structural Penetrations, Insulation, and Fire Stopping; Installing & Testing DWV Piping; Installing Roof, Floor & Area Drains; and Types of Valves.

Plumbing II-A

This course consists of 80 hours per semester including labs. The course topics are: Plumbing Math Two; Reading Commercial Drawings; Structural Penetrations, Insulation, and Fire Stopping; Installing & Testing DWV Piping; Installing Roof, Floor & Area Drains; and Types of Valves.
**Plumbing II-A**  
**PFPB 1043**  
This course consists of 80 hours per semester including labs. The course topics are: Plumbing Math Two; Reading Commercial Drawings; Structural Penetrations, Insulation, and Fire Stopping; Installing & Testing DWV Piping; Installing Roof, Floor & Area Drains; and Types of Valves.

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**Plumbing III-A**  
**PFPB 1053**  
This course consists of 80 hours per semester including labs. The course topics are: Applied Math; Sizing & Protecting the Water Supply System; Potable Water Supply Treatment; and Types of Venting.

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**Plumbing IV-A**  
**PFPB 1055**  
This course consists of 80 hours per semester including labs. The course topics are: Business Principles for Plumbers, Fundamentals of Crew Leadership, Water Pressure Booster & Recirculation System, and Indirect & Special Waste.

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**Plumbing Journeyman Exam Prep**  
**PFPB 2005**  
It is recommended that the student has completed most or all of their required 8000 apprenticeship hours, so that they can schedule their Plumbing Journeyman Exam with the State Plumbing Board in Austin shortly after completing this course.

This seminar provides a review of subjects that are needed to pass the written exam for a plumber’s journeyman license. It also includes hands-on experience for the preparation of the practical section of the exam. This seminar will also include a demonstration on our custom designed house, comparable to the 2-story house used in the State of Texas Plumbing Exam in Austin. Lunch is included.
Plumbing Journeyman Exam Prep  
PFPB 2005

It is recommended that the student has completed most or all of their required 8000 apprenticeship hours, so that they can schedule their Plumbing Journeyman Exam with the State Plumbing Board in Austin shortly after completing this course.

This seminar provides a review of subjects that are needed to pass the written exam for a plumber’s journeyman license. It also includes hands-on experience for the preparation of the practical section of the exam. This seminar will also include a demonstration on our custom designed house, comparable to the 2-story house used in the State of Texas Plumbing Exam in Austin. Lunch is included.

Sheet Metal I-A  
MCHN 1001

This course consists of 80 hours per semester including labs. The course topics are Sheet Metal Layout and Processes; Parallel Line Development; Installation of Ductwork; Installation of Air Distribution Accessories; Introduction to Construction Drawings; Basic Communication Skills; and Basic Employability Skills.

Sheet Metal II-A  
MCHN 1053

This course consists of 80 hours per semester including labs. The course topics are Field Measurements, Calculations, and Fittings; Construction and Sheet Metal Drawings; and Radial Line Development.

Spanish for Construction Sites  
COMG 1011

This is a comprehensive Spanish language program that provides immediate access to functional language skills for non-Spanish-speaking construction site personnel. This course will also cover the many issues involved with effectively supervising Spanish-speaking employees. The language component utilizes phonetic encoding to present the most important Spanish commands, questions, and phrases pertinent to the construction site.

STP 1 Leadership & Motivation  
BMGT 1020

This course will describe the value of effective supervision of workers and improve the construction supervisor’s ability to lead and motivate others. Topics include: The dollar and sense of people in construction: the role of the construction supervisor; Helping people perform better; Motivating and leading others; Positive feedback; Training and orienting crew members; Teams and team building; Leadership skills in action.

STP 2 Communication  
BMGT 1022

The course presents a body of knowledge and skills that today’s construction supervisors need in order to be effective communicators on their job site. Topics include: Effective communication; Learning to listen; Carrying on conversations; Persuasion, negotiation, and confrontation; Communicating with your crew; Putting it in writing; Meetings that work; Electronic communication; and Improving Communication.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>STP 3</td>
<td>Planning &amp; Scheduling</td>
<td>This course will help construction supervisors understand ways in which planning and scheduling saves time and money, while increasing quality in the construction process. Topics include; preparing the project plan, communicating the plan. The Critical path, Computer use in scheduling, using the schedule on the jobsite, updating the construction schedule, the schedule as documentation and using planning and scheduling.</td>
</tr>
<tr>
<td>STP 4</td>
<td>Contract Documents</td>
<td>This course will provide information about contract documents and construction law to help supervisors recognize the roles and responsibilities of all contracted parties to develop and understand of how contract documents can be helpful to solve problems and resolve conflicts and to develop positive relationships between all parties in the construction process. Topics include: Introduction to contract documents and construction law, creating a positive environment through partnering contractual relationships, contract forms and documents; managing general conditions, good documentation practice changes; differing site conditions; time impacts and negotiation of resolutions.</td>
</tr>
<tr>
<td>STP 5</td>
<td>Improving Productivity &amp; Managing Project Cost</td>
<td>This course covers understanding how project estimates are compiled, how to compare actual project costs with those estimated and how to control costs to meet the estimate. This course also details how productivity is measure, how the supervisor plays a major role in increasing jobsite productivity and how a small increase in productivity can have a significant impact on the time and cost of a project. Topics include: Construction estimates; Who controls project costs; Reporting and analyzing actual costs; Planning for cost control; Cost control strategies; Labor cost variances; Working with project partners; Managing risk and loss potentials; Cost control strategies; Post-project evaluations; Benchmarking construction productivity; Improving productivity through pre-planning; New skills for effective supervision; Personnel management; Equipment management for productivity improvement; Jobsite productivity, planning and scheduling; Quantifying lost labor productivity; and Record keeping, control, changes, and defect analysis.</td>
</tr>
<tr>
<td>STP 6</td>
<td>Risk Management &amp; Problem Solving</td>
<td>This course will cover the roles and responsibilities of a construction supervisor in accident prevention and loss control. Topics include: Safety leadership, communication and expectations; Planning for site safety; Site safety management; Site security and protection; Multi-employer jobsite safety; Construction risk management; Safety and human resources; and Regulatory procedures, record keeping and documents.</td>
</tr>
<tr>
<td>Texas Lien &amp; Bond Seminar</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

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### Water Treatment Specialist (8 CEU hrs)  
**EPCT 1015**

This 16 hour course counts towards 8 Texas Commission of Environmental Quality (TCEQ) continuing education credits for those who have already received their WTS license. The course consists of class and lab work, and includes all new and updated information from the industry and governmental bodies. The class is split with 4 hours in the lab and 12 hours in the classroom. Lunch will be provided.

Note: Students must bring a copy of the 10th Edition USC Manual for Cross-Connection Control, as required by TCEQ. Books are available for purchase upon request. Contact the CEF office for book cost and to request a copy PRIOR to the first day of class.

### Welding Construction I-A  
**WLDG 1023**

This course consists of 80 hours per semester including labs. Course topics will include: Basic Safety; Introduction to Construction Math; Introduction to Hand Tools; Introduction to Power Tools; Basic Communication Skills; Basic Employability Skills; Oxyfuel Cutting; SMAW- Equipment and Set Up; Welding Quality; Base Metal Preparation; SMAW-Beads and Fillet Welds; SMAW - Groove Welds with Backing; Plasma Arc Cutting and SMAW-Open Root Groove Welds- Plate.

*MUST BE ENROLLED IN WELDING CONSTRUCTION I-A & I-B*

### Welding Construction I-B  
**WLDG 1007**

This course consists of 80 hours per semester including labs. Course topics will include: Basic Safety; Introduction to Construction Math; Introduction to Construction Drawings; Introduction to Basic Rigging; Introduction to Material Handling; Oxyfuel Cutting; Welding Safety; Joint Fit-Up and Alignment; SMAW-Electrodes; SMAW - Beads and Fillet Welds; SMAW - Groove Welds with Backing; Air Carbon Arc Cutting and Gouging and SMAW - Open Root Groove Welds - Plate.

*MUST BE ENROLLED IN WELDING CONSTRUCTION I-A & I-B*

### Welding Construction III-A  
**WLDG 2013**

This course consists of 80 hours per semester including labs. Course topics will include: SMAW-Open Root Pipe Welds; SMAW- Stainless Steel Plate & Pipe Groove Welds; Preheat and Postheating of Metals; GTAW - Plate and GTAW - Carbon Steel Pipe.

*MUST BE ENROLLED IN WELDING CONSTRUCTION III-A & III-B*

### Welding Construction III-B  
**WLDG 2070**

This course consists of 80 hours per semester including labs. Course topics will include: SMAW- Open Root Pipe Welds; SMAW - Stainless Steel Plate and Pipe Groove Welds; Physical Characteristics & Mechanical Properties of Metals; GTAW - Equipment and Filler Metals; GTAW - Plate; and GTAW- Carbon Steel Pipe.

*MUST BE ENROLLED IN WELDING CONSTRUCTION III-A & III-B*