(Houston South-belt/Ellington campus)

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TRUE AND CORRECT STATEMENT

I hereby certify that the statements and information in this catalog are true and correct to the best of my knowledge and belief.

Rebecca Stout
SIGNED BY DIRECTOR

APPROVAL

National Technical Institute (NTI) has been approved and regulated by Texas Workforce Commission Career Schools and Colleges since March 26, 2016. The South-Belt/Ellington Campus has been approved since October 21, 2025

HISTORY

Texas School of Continuing Education and Recruitment (TSCER) started in 2015 and began offering classes in March 2016. In April 2021 TSCER was sold to Service Education Holdings, Inc. (SEH). SEH is committed to helping educate students in Nevada, Arizona and Texas in the skilled trades; especially in HVAC, Plumbing and Electrical. SEH is managed by three individuals. In 2022 the school's name was changed to National Technical Institute (NTI). In 2023 the school moved from Sugar Land, TX to Houston, TX. In October of 2025 an additional campus (South-belt/Ellington) was opened in Houston, Texas.

DESCRIPTION OF AVAILABLE SPACE, FACILITIES AND EQUIPMENT

NTI completed a build-out in 2025 for the institution. The campus is approximately 14,848 square feet. The campus includes offices, 6 classrooms, an expansive lab space for all program labs, dedicated student breakroom, and restrooms. NTI is well furnished with furniture, lab equipment, and meeting environments. Computers with internet connection are available for students, and staff to access learning resources and student services.

The building is well maintained with ample vehicle parking (to include handicap specific locations) and 24/7 video monitoring. NTI is an easy commute located near a major transportation hub including buses and park-n-ride major transportation routes.

OWNER

Texas School of Continuing Education and Recruitment, LLC, dba National Technical Institute, is owned by Service Education Holdings Inc.

CORPORATE OFFICERS

Ryan Woodward- Chief Executive Officer, President,
Treasurer David Lee- Chief Revenue Officer, Vice President
Rick Jackson- Chief Operating Officer

MANGEMENT, STAFF AND INSTRUCTORS

Rebecca Stout- Campus Director
Dexter Bethers- Director of Admissions-
Giovanita Bell- Director of First
Impressions
Michelle Yovan- Admissions Representative
Angel Diaz- Admissions Representative
Isis Quiroz- Admissions Representative
Susan Zuniga- Admissions Representative

Dee Akpa- Student finance representative
David Martinez- Electrical Instructor, 30+ years of trade field experience
Stephen Inman- Plumbing Instructor, 10+ years of trade field experience
Frederick Johnson, HVAC Instructor, 5+ years trade field experience
Frank McPherson, Plumbing Instructor, 30+ years trade field experience
Justin Kutra, Plumbing Instructor, 5+ years trade field experience
Juan Ledezma, Electrical Instructor,
Mike Pinelle, HVAC Instructor,

HOURS OF OPERATION

The school classrooms and labs are open from 8:00 am to 10:00 pm Monday through Thursday, and from 9:00 am to 4:00 pm on Fridays. Saturday hours are dependent on the schedule of weekend courses. Typically, 8:00 am to 1:00 pm but may run later. On weekdays when there is no evening classes scheduled, the campus will close at 6pm.

Administrative offices are generally open from 9:00 am to 6:00 pm, Monday through Thursday, and from 9:00 am to 4:00 pm on Fridays. Saturday hours are dependent on need and typically by appointment
*School facilities and equipment are available for student use during the hours of operation but must be scheduled with the instructor or campus director

SCHOOL HOLIDAYS CALENDAR FOR 2026 – 2027*

Campus Observed Holiday's	2026	2027
Veteran's Day	11/11	11/11
Spring Break	N/A	To Be Determined
Memorial Day	5/25	5/24
Summer Break	6/29-7/4	6/28-7/3
Labor Day	9/7	9/6
Thanksgiving	11/26-27	11/23-24
Winter Break	12/21/25-1/02/27	12/20/27-1/4/28

Schedules subject to change

ADMISSION REQUIREMENTS

You must register for the program of choice before the first day of class.

Individuals applying are required to:

a. Complete an interview process with an Admissions representative.
b. *Must be at least 17 years of age or older prior to graduation.
c. *GED or high school diploma OR documentation of passing The Wonderlic Ability to Benefit (ATB) examination with a 200-minimum score in Verbal Skills and a 210-minimum score in Quantitative Skills.

*Students 17 years of age may require written permission from their legal guardian.

*The Wonderlic Ability to Benefit (ATB) examination includes an English test & a math test. Upon admission is at no charge to the student. If the student retakes the exam, there will be a $6.00 charge for each section.

CREDIT FOR PREVIOUS EDUCATION, TRAINING, OR EXPERIENCE

Prior educational courses will be evaluated for possible transfer credit. Official transcripts, course descriptions and program catalog from previously attended HVAC, Plumbing and/or Electrical educational institutions are required to produce an evaluation. All necessary documentation must be received, and evaluation completed prior to starting the program. Evaluation of previous training for students receiving VA Educational Benefits is required. All post-secondary training and education is required to be submitted, including military transcripts.

Director of NTI and/or the SCO school credentialing officer will review previous credential credits / experience and based on review will determine whether credit is transferable.

Student Conduct Code

Students are expected to follow all school rules. A student will be immediately expelled for fighting, stealing, intentional destruction of school property, and harassment of any kind directed to staff, faculty, or peers. Any student found not complying with school rules (listed below) will be disciplined as follows:

a. 1st offense: written warning
b. 2nd offense: expelled from the program and institution

School Rules

- No smoking in the building. Smoking is allowed during breaks and in designated areas outside.
- No chewing tobacco or gum is allowed in classrooms or labs.
- Students must clean up after themselves in the classrooms, labs, and all other campus areas.
- Treat everyone with respect
- Students are strictly prohibited from being under the influence of alcohol, drugs and/or controlled substances, including marijuana, regardless of its legal status
- Academic dishonesty, including plagiarism, cheating, or falsification of records is not tolerated.
- A student must comply with the directives of school faculty and staff to maintain safety and the wellbeing of each student.
- No weapons allowed, including but not limited to, knives or guns.
    - "PURSUANT TO SECTION 30.06, PENAL CODE (TRESPASS BY LICENSE HOLDER WITH A CONCEALED HANDGUN), A PERSON LICENSED UNDER SUBCHAPTER H, CHAPTER 411, GOVERNMENT CODE (HANDGUN LICENSING LAW), MAY NOT ENTER THIS PROPERTY WITH A CONCEALED HANDGUN."
    - "PURSUANT TO SECTION 30.07, PENAL CODE (TRESPASS BY LICENSE HOLDER WITH AN OPENLY CARRIED HANDGUN), A PERSON LICENSED UNDER SUBCHAPTER H, CHAPTER 411, GOVERNMENT CODE (HANDGUN LICENSING LAW), MAY NOT ENTER THIS PROPERTY WITH A HANDGUN THAT IS CARRIED OPENLY."
- No tampering with academic records or information

Dress code

- Closed toe shoes are required (work shoes or tennis shoes)
- Long pants are required (work pants or jeans, no shorts of any kind, no sweatpants)

- T-shirts, shirts with sleeves, no tank tops. (long sleeves and sweatshirts are permitted)
    - No profanity or suggestive T-shirts allowed
    - Sweatshirts should not have hanging ribbons, ties, belts, that may get caught in equipment
- Safety glasses must be worn in the lab; you will be issued one pair of safety glasses. (corrective lenses acceptable)
- Safety gloves should be worn as instructed by your teacher. You will be issued one pair.

REQUIREMENTS FOR GRADUATION

To successfully graduate from our courses students must:

- Be present a minimum of 80% in labs and have completed all required lecture videos (Hybrid programs only)
- Must pass with 80% or above GPA.
- Must pass the ESCO EPA 608 Certification exam (HVAC Programs only)
- Current tuition requirements if applicable
- Have provided all admission required documentation.

ACTIVITIES REQUIRED FOR PARTICIPATING IN EPA 608 UNIVERSAL EXAM

National Technical Institute will allow any current student and alumni to participate in EPA 608 Universal Certification Proctored Exams provided the following conditions are met:

- Students must meet Academic and Attendance Standards prior to taking the EPA exam. (See requirements for Graduation)
- Students must be in good standing with documents and financial requirements as listed in the catalog and/or as determined by Student Finance Coach.
- Exams are only available to HVAC/I enrolled students.

NOTE: There is an additional cost of $25.00 if a retake is necessary.

SCHOOL PLACEMENT ASSISTANCE POLICY

- NTI assists with employment opportunities by:
- Providing resume templates and assistance with preparing resumes
- Soft skill interview discussions to help during interview processes.
- Notifying students of job leads from local companies.

In addition, students can discuss employment opportunities with faculty to help identify job opportunities with their contacts. After graduating, students will be asked to provide their employment information along with copies of their apprentice cards in their field of study to NTI.

GRADING POLICY

Grades will be provided to students at the halfway point and at the end of each subject in the course. NTI uses average grade points as they accumulate through each section of study to assess student performance. A percentage grade will be provided for written reports, tests, and skill demonstrations. Grade percentage will then be translated into a letter grade and grade points for comparative

performance evaluation. In the event a student must retake a subject, the most current test grade or course grade will be utilized. NTI is committed to providing each student with the best training experience while emphasizing individual attention.

Grades will be determined using the following scale:

- 91% - 100% tests, quizzes and skills performance = A (4 Points)
- 81% - 90% tests, quizzes and performance of skills = B (3 Points)
- 71% - 80% tests, quizzes and performance of skills = C (2 Points)
- 61% - 70% tests, quizzes and performance of skills = D (1 Point)
- 0% - 60% tests, quizzes and performance of skills = F (0 Points)
  Incomplete = I (0 Points)
- Withdrawal = W (0 Points)

Will Use Grade Point – GPA Method to qualify students by taking regular tests and practicing labs. To qualify for a certificate, students must score 80% or better in each program

SATISFACTORY PROGRESS AND ACADEMIC PROBATION

To satisfactorily complete any academic course students must:

1. Be present in 80% of training classes and labs.
2. Students are in no violation of school discipline policies.

Satisfactory Academic Progress: NTI monitors very closely the Satisfactory Academic Progress (SAP) for all students enrolled in any program.

- SAP applies to all students regardless of how they fund their education with NTI.
- SAP progress will be monitored twice before completion of the program. The first evaluation period will be approximately 29% of the program completion mark. The final evaluation period will be at approximately 67% of the program completion mark.
- Students are required to make quantitative progress towards program completion.
- To maintain a quantitative SAP, a student must maintain a minimum cumulative academic average of 80%.
- Students are also required to make qualitative progress towards program completion.
- To maintain qualitative SAP, a student must maintain a minimum cumulative program attendance of 80%. If a student drops below the cumulative quantitative and/ or qualitative minimum, they will be placed on SAP probation and given 3 weeks to bring their cumulative average above the minimum standard. If the student remains below the cumulative average after the SAP probation period, they will be withdrawn from the program. If a student desires to restart, they will fall under the Readmission Policy.

ATTENDANCE

NTI is an attendance recording institution and requires a student to attend 80% or greater of all classes. Dropping below 80% attendance level will result in termination from the program.

- A student that is late for class will be recorded in 15-minute increments, beginning the minute they are late. For example, if a student arrives 39 minutes late, 45 minutes will be deducted from the hours attended for that 4-hour class and that student will be awarded 3 hours and 15 minutes of attendance.

- Early Out's from class will be handled the same way as being late for class. Early Out will be deducted from

the clock hours for that 4-hour class and calculated in 15-minute increments. For example, if a student leaves 39 minutes early, 45 minutes will be deducted from the hours attended for that 4-hour class and that student will be awarded 3 hours and 15 minutes attended hours.

- For the traditional modality, a student can miss up to 9 days and still graduate from the program if their academic grade is above 80%. On the 10th day, they will be automatically withdrawn from the program. Also, any student who misses 4 consecutive days in this modality will be automatically withdrawn from the program.

- For the fusion modality, a student can miss up to 3 days and still graduate from the program if their academic grade is above 80%. On the 4th day, they will be automatically withdrawn from the program. Also, any student who misses 3 consecutive days in this modality will be automatically withdrawn from the program

- **Readmission Policy**: Any student that has left their program of study for any reason (excluding expulsion due to violating the Student Conduct Code found in this catalog) will only be readmitted through the readmission policy.

  In accordance with Title 40, Texas Administrative Code, §807.243(d), students terminated for violation of the attendance policy may not reenter before the start of the next grading period of the subject they were enrolled in at the time of their termination. This provision does not circumvent approved refund policy. Students entering after being terminated for violation of attendance must complete a personal interview with the school Director at the time of their application for readmission.

  Students who are withdrawn or suspended due to non-payment may request readmittance once the student is current on financial obligations. Because prior non-payment indicates a risk of repeated interruption to training, NTI may require documentation demonstrating the student's ability to meet future financial obligations before approving a return. Readmittance is not guaranteed and is subject to approval by the Campus Director and Student Finance.

  Readmittance is not guaranteed and is subject to approval by the Campus Director and Student Finance.

- **Make-Up Policy:** There are no make-up classes at NTI. If you miss a day, you miss that material covered for the day.
- **Leave of absence (LOA):** LOA's are not permitted at NTI.

- **Dismissed or Terminated Students**: Dismissed or terminated students will be presented with a written letter of explanation for their action. The letter will be given in person or sent via certified mail to the address listed in their file.
- Only one transfer will be allowed per student from one cohort to another.

- **Class Size:** Maximum Class size is 20 students
- **Federal funding** is not available. Third-party financing is available.

STUDENT GRIEVANCES

Students are encouraged to follow the chain of command and speak directly to the instructors about any issues in the classroom. If the issue cannot be resolved with the instructor, the campus director should be notified in writing as soon as possible. The Director will review and respond within 72 hours (about 3 days) of the complaint being lodged, providing an adequate solution. If the issue requires escalation, the leadership team will be brought in to help resolve the issue.

If you are still not satisfied you can contact:

Texas Workforce Commission
Career Schools and Colleges, Room 26T
101 East 15th Street Austin, Texas
78778-0001
Contact: 512.936.3100
www.texasworkforce.org/careerschools

School Transcript's & Student Records

An official transcript is maintained for each student. The transcript provides a complete record of all courses, grades, and credits earned. If you are not current on any outstanding balance, the school will not release the certificate of completion or official transcript and will not allow the student to participate in the graduation ceremony. However, there are two exceptions to this policy:

- Transcripts may be released for a student to document eligibility to sit for a licensing, certification, or registry exam.
- The transcript must be released to a potential employer.

Additionally, all state board applications and accompanying paperwork are provided upon graduation at no charge. Graduates in good standing are provided with one official transcript. Any additional copies of official or unofficial transcripts can be obtained from the school director at no additional charge, by calling (346)345-8705. Please allow 14 days for processing. Official transcripts are only released to third parties and only upon receipt of a written request by the graduate.

The school maintains student record files in two possible ways: a locked file cabinet and an electronic student management records system. Keys to the filing cabinet are only given to authorized personnel. The school maintains student records in an electronic student management records system. This system backs up to the secured cloud and once a month conducts tests for the accuracy of the stored information. Records maintained in the student management records system are accessed through computers that are password protected to minimize the risk of any information being leaked or stolen. VA beneficiary records are maintained for a minimum of 3 years.

CANCELLATION POLICY

A full refund will be made to any student who cancels the enrollment contract within 72 hours (until midnight of the third day excluding Saturdays, Sundays and legal holidays) after the enrollment contract is signed. If the student is not scheduled for three class days during the first week, a full refund will be made to any student who cancels enrollment within the student's first three scheduled class days, except that the school may retain not more than $100 in any administrative fees charged and items of extra expense that are necessary for the portion of the program attended and stated separately on the enrollment agreement.

REFUND POLICY

- The student is not required to pay tuition during the first week of the program.
- Refund computations will be based on scheduled course time of classes through the last documented day of an academically related activity. Leaves of absence, suspensions, and school holidays will not be counted as part of the scheduled classes.
- The effective date of termination for refund purposes will be the earliest of the following:
  - the date of termination, if the student is terminated by the school.
  - the date of receipt of written notice from the student; or
  - the first of the following dates when the student's participation in an academically related activity cannot be documented: at the end of the first week of each academic term, at the end of the first month of each academic term, at the midpoint of each academic term, and at the end of each academic term.
- If tuition and fees are collected in advance of entrance, and if after expiration of the 72- hour cancellation privilege the student does not enter school, not more than $100 in any administrative fees charged shall be retained by the school for the entire residence program or synchronous distance education course.
- If a student enters a residence or synchronous distance education program and withdraws or is otherwise terminated, the school or college may retain not more than $100 in administrative fees charged for the entire program. The minimum refund of the remaining tuition and fees will be the pro rata portion of tuition, fees, and other charges that the number of hours remaining in the portion of the course or program for which the student has been charged after the effective date of termination bears to the total number of hours in the portion of the course or program for which the student has been charged, except that a student may not collect a refund if the student has completed 75 percent or more of the total number of hours in the portion of the program for which the student has been charged on the effective date of termination. (*More simply, the refund is based on the precise number of course hours the student has paid for, but not yet used, at the point of termination, up to the 75% completion mark, after which no refund is due. Career Schools and College for CSC-1040R provides precise* calculation.
- Refunds for items of extra expense to the student, such as books, tools, or other supplies, will be handled separately from refunds of tuition and other academic fees. The student will not be required to purchase instructional supplies, books, and tools until such time as these materials are required. Once these materials are purchased, no refund will be made. For full refunds, the school can withhold costs for these items from the refund if necessary for the part of the program attended and separately stated in the enrollment agreement. Any such items not required for the portion of the program attended must be included in the refund.

- A student who withdraws for a reason unrelated to the student's academic status after the 75 percent completion mark and requests a grade at the time of withdrawal shall be given a grade of "incomplete" and permitted to reenroll in the course or program during the 12- month period following the date the student withdrew without payment of additional tuition for that portion of the course or program.
- A full refund of all tuition and fees is due and refundable in each of the following cases:
  - an enrollee is not accepted by the school.
  - if the course of instruction is discontinued by the school and this prevents the student from completing the course; or
  - If the student's enrollment was procured due to any misrepresentation in advertising, promotional materials of the school, or representations by the owner or representatives of the school.

  A full or partial refund may also be due in other circumstances of program deficiencies or violations of requirements for career schools and colleges.
- Refunds will be issued within 15 calendar days of the effective date of termination for refund purposes.

VA Education Benefit Program Policy Update - Title 38 USC 3679(e)

National Technical Institute does not penalize students using VA Education benefit programs under Chapters 33 and 31 while waiting for payment from the Department of Veterans Affairs providing they submit a certificate of eligibility, a written request to use such entitlement, and any additional information needed
to certify enrollment. Students will continue to have access to classes, libraries, and other institutional facilities as outlined available in our catalog. No late fees will be assessed and student accounts will be considered on hold. Title 38 USC 3679 (e). *Student receiving any VA benefit assumes responsibility if there is a difference between the amount of the student's financial obligation, and the amount of the VA education

REFUND POLICY FOR STUDENTS CALLED TO ACTIVE MILITARY SERVICE

- A student at the school or college who withdraws from the school or college because of the student being called to active duty in a military service of the United States or the Texas National Guard may elect one of the following options for each program in which the student is enrolled:
  - if tuition and fees are collected in advance of the withdrawal, a pro rata refund of any tuition, fees, or other charges paid by the student for the program and a cancellation of any unpaid tuition, fees, or other charges owed by the student for the portion of the program the student does not complete following withdrawal.
  - a grade of incomplete with the designation "withdrawn-military" for the courses in the program, other than courses for which the student has previously received a grade on the student's transcript, and the right to re-enroll in the program, or a substantially equivalent program if that program is no longer available, not later than the first anniversary of the date the student is discharged from active military duty without payment of additional tuition, fees, or other charges for the program other than any previously unpaid balance of the original tuition, fees, and charges for books for the program; or

- the assignment of an appropriate final grade or credit for the courses in the program, but only if the instructor or instructors of the program determine that the student has:
    - ❖ satisfactorily completed at least 90 percent of the required coursework for the program; and
    - ❖ demonstrated sufficient mastery of the program material to receive credit for completing the program.

- The payment of refunds will be totally completed such that the refund instrument has been negotiated or credited into the proper account(s) within 60 days (about 2 months) after the effective date of termination.

2025-2026 Course Calendars

- ❖ Traditional programs meet four days a week for four hours a day.
- ❖ Fusion meets one day a week for four hours a day.
- ❖ Immersion meets one weekend a month (two 10-hour days) for two months.

**** DATE SUBJECT TO CHANGE

HVAC 16-week Fusion

Day	Time	Start Date	End Date
T	S3	12/9/2025	4/7/2026
M	S3	1/26/2026	5/11/2026
R	S3	2/19/2026	6/4/2026
W	S3	3/25/2026	7/15/2026
T	S3	4/28/2026	8/18/2026
M * (f)x1	S3	5/18/2026	9/21/2026
R	S3	6/18/2026	10/8/2026
W	S3	7/29/2026	11/18/2026
T	S3	8/25/2026	12/15/2026
M	S3	9/28/2026	1/18/2027
R	S3	10/29/2026	3/4/2027
s	S1	11/14/2026	3/20/2027

Plumbing 16-week Fusion

Day	Time	Start Date	End Date
R	S3	12/11/2025	4/9/2026
M	S3	1/26/2026	5/11/2026
W	S3	2/18/2026	6/3/2026
T	S3	3/24/2026	7/14/2026
S	S3	4/25/2026	8/15/2026
M	S3	5/18/2026	9/21/2026
W	S3	6/17/2026	10/7/2026
T	S3	7/28/2026	11/10/2026
S	S1	8/29/2026	12/19/2026
m	s3	9/28/2026	1/18/2027
R	S3	10/29/2026	3/4/2027
T	s3	11/17/2026	3/16/2027
		-	-

Electrical 16-Week Fusion

Day	Time	Start Date	End Date
W	S3	12/10/2025	4/8/2026
M	S3	1/26/2026	5/11/2026
S	S1	2/28/2026	6/6/2026
R	S3	2/19/2026	6/4/2026
T	S3	3/24/2026	7/14/2026
W	S3	4/22/2026	8/12/2026
M * (f)x1	S3	5/18/2026	9/21/2026
R	S3	6/18/2026	10/8/2026
T	S3	7/28/2026	11/10/2026
R	S3	8/27/2026	12/17/2026
W	S3	9/30/2026	2/3/2027
M	S3	10/26/2026	2/22/2027
T	s3	11/17/2026	3/16/2027
		-	-

HVAC 12-Week Traditional

Day	Time	Start Date	End Date
M-R	S2	11/24/2025	2/26/2025
M-R	S1	1/19/2026	4/9/2026
M-R	S2	3/9/2026	5/29/2026
M-R	S1	4/27/2026	7/23/2026
M-R	S3*	5/18/2026	8/20/2026
M-R	S2	6/15/2026	9/10/2026
M-R	S1	7/27/2026	10/16/2026
M-R (*f)	S3*	8/31/2026	11/20/2026
M-R	S2	9/28/2026	12/17/2026
M-R (*f)	S1	10/19/2026	1/22/2027

Plumbing 12-Week Traditional

Day	Time	Start Date	End Date
M-R	S2	11/24/2025	2/26/2025
M-R	S1	1/19/2026	4/9/2026
M-R	S2	3/9/2026	5/29/2026
M-R	S1	4/27/2026	7/23/2026
M-R		6/15/2026	9/10/2026
M-R	S1	7/27/2026	10/16/2026
M-R (*f)	S3*	8/31/2026	11/20/2026
M-R	S2	9/28/2026	12/17/2026
M-R (*f)	S1	10/19/2026	1/22/2027

Electrical 12-Week Traditional

Day	Time	Start Date	End Date
M-R	S2	11/24/2025	2/26/2025
M-R	S1	1/19/2026	4/9/2026
M-R	S2	3/9/2026	5/29/2026
M-R	S1	4/27/2026	7/23/2026
M-R	S3*	5/18/2026	8/20/2026
M-R		6/15/2026	9/10/2026
M-R	S1	7/27/2026	10/16/2026
M-R (*f)	S3*	8/31/2026	11/20/2026
M-R	S2	9/28/2026	12/17/2026
M-R (*f)	S1	10/19/2026	1/22/2027

PROGRAMS AND COST

Program Title
Entry Level HVAC/Installation Technician (Traditional Model)

Program Description

Upon successful completion of Entry Level HVAC/Installation Technician (Traditional Model) program, the graduate will be prepared with the necessary skills for entry level employment as a residential HVAC service technician and install helper. Over 70% of this program will be "hands on" with the student taking an active role in wiring, trouble shooting and installing residential HVAC equipment. Students will work on actual residential equipment and have the opportunity to diagnose, evaluate, install and repair actual HVAC unit. Graduates will also prepare for and take the EPA 608 certification test. Graduates may pursue careers as HVAC service technicians, install helpers or assistants, rough-in installer and start-up technicians.

Program Outline

Subject Number	**Subject Title**	**Contact Hours Lecture/Lab/Total Contact Hours**
HVACTM101	Air Conditioning and Refrigeration Fundamentals	10/30/40
HVACTM102	Electrical I – Basic Electrical Theory	6/18/24
HVACTM103	Electrical II – Electrical Application	6/18/24
HVACTM104	Troubleshooting	8/24/32
HVACTM105	Heat Pump Seminar	2/6/8
HVACTM106	Gas Heating Seminar	4/12/16
HVACTM107	Advanced Air Conditioning	8/24/32
HVACTM108	EPA Certification Seminar and Examination	16/0/16
	Total Hours	**60/132/192**

The approximate time required to complete the Entry Level HVAC/Installation Technician (Traditional Model) Program:

- Day Program: 12 weeks/3 months (Monday-Thursday)
- Night Program: 12 weeks/3 month (Monday-Thursday)

Class Size: 24:1

Subject Description

HVACTM101 Air Conditioning & Refrigeration Fundamentals

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 30 hours of lab) 40 contact hours: Refrigeration History, Refrigeration Theory, Thermal Laws, Components of a Refrigeration System, Refrigeration Cycle, Refrigerant Properties, Compressor Types, ARI Standards. Refrigeration Tool Usage, including Gauges, TP Chart, Soldering, Brazing. Safety will be emphasized.

OBJECTIVE: Students will understand the basic refrigeration cycle, the components that are common to refrigeration systems and the physical laws that apply. Upon completion the student will be able to competently Solder and Braze copper refrigeration fittings.

PREREQUISITE: None

HVACTM102 Electrical I - Basic Electrical Theory

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 18 hours of lab) 24 contact hours: Electron Theory, Basic Electrical Math, Ohm's Law, Basic Electrical Circuits, Series and Parallel Circuits, Schematics and Diagrams, Electrical Testing Instruments, Electric Motors and Electrical Safety.

OBJECTIVE:
Students will become familiar with basic electrical theory and fundamentals. The use of electrical testing equipment and basic hand tools will be covered and practiced. Circuit wiring will be studied and practiced in a lab environment.

PREREQUISITE:
Successful completion of HVACTM101.

HVACTM103 Electrical II - Electrical Application

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 18 hours of lab) 24 contact hours:
Industrial Control Circuits, Motor Controls, Starting and Running Circuits and Motor Protection. An emphasis will be placed on understanding and wiring control circuits. Electrical Safety will be emphasized.

OBJECTIVE:
Students will become familiar with electrical components. Each student will build and test circuits used in HVAC equipment and industrial controls. The use of hand tools and electrical test equipment will be studied and practiced in a lab environment.

PREREQUISITE:
Successful completion of HVACTM102.

HVACTM104 Troubleshooting

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 24 hours of lab) 32 contact hours:
Troubleshooting concepts and techniques, review of control circuits, review of refrigeration cycle. Lab practice on commercial and residential package and split units covering a wide variety of HVAC problems.

OBJECTIVE:
To provide students with the knowledge and skills to successfully troubleshoot any type of problem associated with commercial and residential package or split HVAC systems.

PREREQUISITE:
Successful completion of HVACTM103.

HVACTM105 Heat Pump

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 6 hours of lab) 8 contact hours:
Heat Pump Theory, Design and Components and Troubleshooting Heat Pump systems. Safety will be emphasized.

OBJECTIVE:
Students will learn the fundamentals of Heat Pump operation and system components and troubleshooting techniques unique to Heat Pump systems will be covered.
PREREQUISITE: Successful completion of HVACTM104.

HVACTM106 Gas Heating

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 12 hours of lab) 16 contact hours:
Introduction to Gas Heating, Ignition Theory, Combustion Theory, Operational Controls and Safety Controls, Furnace Types. Safety will be emphasized.

OBJECTIVE:
Students will learn the fundamentals of gas heating systems and components. Troubleshooting techniques will be studied and practiced in a lab environment. Safety practices will be covered.

PREREQUISITE:
Successful completion of HVACTM105.

HVACTM107 Advanced Air Conditioning

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 24 hours of lab) 32 contact hours:
Review of Refrigeration Systems, Introduction to Duct Systems and Airflow, Refrigerant Controls, Electrical Controls, Air Conditioning Troubleshooting, Recovery, Evacuation and Recharge, Superheat and Sub-cool. Safety will be emphasized.

OBJECTIVE:
Students will understand the use of test equipment and will comprehend superheat, sub-cooling and airflow, and how to use these key indicators of system performance in the troubleshooting process.

PREREQUISITE:
Successful completion of HVACTM106.

HVACTM108 EPA Certification Seminar & Examination

FORMAT: Lecture STUDY TO INCLUDE (16 hours of lecture) 16 contact hours:
Students will become familiar with the E.P.A. Rule 608 40-CFR, part 82 subpart (f). Students will become familiar with types of certifications, theory on ozone loss, legal requirements regarding use and disposal of refrigerants containing CFC's. Proper recycling techniques, recovery techniques and refrigerant disposal will be covered.

OBJECTIVE:
Students will prepare to complete the EPA 608 Universal Certification exam, which will be given at the end of the EPA course.

NOTE:
ESCO Testing Fee: $25.00; Tuition includes taking the EPA Exam one time; Exam "retake" fee (if necessary) $25.00.

PREREQUISITE:
Successful completion of HVAC107.

Total Contact Hours: 192 Hours
Length of Time for Completion: 12 Weeks/3 Months (Monday-Thursday)
Fee Breakdown:

- **Tuition: $9,995.00**
- **Textbook: $130.00**
- **EPA Test Fee: $25.00**
- **Lab Materials & Tools: $845.00**
- **Total Cost: $10,995.00**

Program Title
Entry Level HVAC/Installation Technician (Fusion Model)

Program Description
Upon successful completion of Entry Level HVAC/Installation Technician (Fusion Model) program, the graduate will be prepared with the necessary skills for entry level employment as a residential HVAC service technician and install helper. More than half of this program will be "hands on" with the student taking an active role in wiring, trouble shooting and installing residential HVAC equipment. Students will work on actual residential equipment and have the opportunity to diagnose, evaluate, install and repair actual HVAC unit. Graduates will also prepare for and take the EPA 608 certification test. Graduates may pursue careers as HVAC service technicians, install helper or assistants, rough-in installer and start-up technicians.

Program Outline

Subject Number	Subject Title	Contact Hours Lecture/Lab/Total Contact Hours
HVACFM101	Air Conditioning and Refrigeration Fundamentals	12/15/27
HVACFM102	Electrical I – Basic Electrical Theory	8/15/23
HVACFM103	Electrical II – Electrical Application	7/10/17
HVACFM104	Troubleshooting	10/12/22
HVACFM105	Heat Pump Seminar	4/12/16
HVACFM106	Gas Heating Seminar	4/4/8
HVACFM107	Advanced Air Conditioning	5/16/21
HVACFM108	EPA Certification Seminar and Examination	10/0/10
	Total Hours	**60/84/144**

The approximate time required to complete the Entry Level HVAC/Installation Technician (Fusion Model) Program:

- Day Program: 16 weeks/4 months
- Night Program: 16 weeks/4 month

Class Size: 24:1

Subject Description

HVACFM101 Air Conditioning & Refrigeration Fundamentals

FORMAT: Lecture and Lab STUDY TO INCLUDE (14 hours of lecture, 12 hours of lab) 26 contact hours: Refrigeration History, Refrigeration Theory, Thermal Laws, Components of a Refrigeration System, Refrigeration Cycle, Refrigerant Properties, Compressor Types, ARI Standards. Refrigeration Tool Usage, including Gauges, TP Chart, Soldering, Brazing. Safety will be emphasized.

OBJECTIVE:
Students will understand the basic refrigeration cycle, the components that are common to refrigeration systems and the physical laws that apply. Upon completion the student will be able to competently Solder and Braze copper refrigeration fittings.

PREREQUISITE:
None

HVACFM102 Electrical I - Basic Electrical Theory

FORMAT: Lecture and Lab STUDY TO INCLUDE (7 hours of lecture, 8 hours of lab) 15 contact hours: Electron Theory, Basic Electrical Math, Ohm's Law, Basic Electrical Circuits, Series and Parallel Circuits, Schematics and Diagrams, Electrical Testing Instruments, Electric Motors and Electrical Safety.

OBJECTIVE: Students will become familiar with basic electrical theory and fundamentals. The use of electrical testing equipment and basic hand tools will be covered and practiced. Circuit wiring will be studied and practiced in a lab environment.

PREREQUISITE:

Successful completion of HVACFM101.

HVACFM103 Electrical II - Electrical Application

FORMAT: Lecture and Lab STUDY TO INCLUDE (7 hours of lecture, 8 hours of lab) 15 contact hours:
Industrial Control Circuits, Motor Controls, Starting and Running Circuits and Motor Protection. An emphasis will be placed on understanding and wiring control circuits. Electrical Safety will be emphasized.

OBJECTIVE:
Students will become familiar with electrical components. Each student will build and test circuits used in HVAC equipment and industrial controls. The use of hand tools and electrical test equipment will be studied and practiced in a lab environment.

PREREQUISITE:
Successful completion of HVACFM102.

HVACFM104 Troubleshooting

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 12 hours of lab) 22 contact hours:
Troubleshooting concepts and techniques, review of control circuits, review of refrigeration cycle. Lab practice on commercial and residential package and split units covering a wide variety of HVAC problems.

OBJECTIVE:
To provide students with the knowledge and skills to successfully troubleshoot any type of problem associated with commercial and residential package or split HVAC systems.

PREREQUISITE:
Successful completion of HVACFM103.

HVAC105 Heat Pump

FORMAT: Lecture and Lab STUDY TO INCLUDE (1 hour of lecture, 4 hours of lab) 5 contact hours:
Heat Pump Theory, Design and Components and Troubleshooting Heat Pump systems. Safety will be emphasized.

OBJECTIVE:
Students will learn the fundamentals of Heat Pump operation and system components, and troubleshooting techniques unique to Heat Pump systems will be covered.

PREREQUISITE:
Successful completion of HVACFM104.

HVACFM106 Gas Heating

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 4 hours of lab) 10 contact hours:
Introduction to Gas Heating, Ignition Theory, Combustion Theory, Operational Controls and Safety Controls, Furnace Types. Safety will be emphasized.

OBJECTIVE:
Students will learn the fundamentals of gas heating systems and components. Troubleshooting techniques will be studied and practiced in a lab environment. Safety practices will be covered.

PREREQUISITE:

Successful completion of HVACFM105.

HVACFM107 Advanced Air Conditioning

FORMAT: Lecture and Lab STUDY TO INCLUDE (5 hours of lecture, 16 hours of lab) 21 contact hours:
Review of Refrigeration Systems, Introduction to Duct Systems and Airflow, Refrigerant Controls, Electrical Controls, Air Conditioning Troubleshooting, Recovery, Evacuation and Recharge, Superheat and Sub-cool. Safety will be emphasized.

OBJECTIVE:
Students will understand the use of test equipment and will comprehend superheat, sub-cooling and airflow, and how to use these key indicators of system performance in the troubleshooting process.

PREREQUISITE:
Successful completion of HVACFM106.

HVACFM108 EPA Certification Seminar & Examination

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 0 hours of lab) 10 contact hours:
Students will become familiar with the E.P.A. Rule 608 40-CFR, part 82 subpart (f). Students will become familiar with types of certifications, theory on ozone loss, legal requirements regarding use and disposal of refrigerants containing CFC's. Proper recycling techniques, recovery techniques and refrigerant disposal will be covered.

OBJECTIVE:
Students will prepare to complete the EPA 608 Universal Certification exam, which will be given during class.

PREREQUISITE:
Successful completion of HVACFM107.

Total Contact Hours: 144 Hours
Length of Time for Completion: 16 Weeks/4 Months
Fee Breakdown:

Tuition:	**$7,995.00**
Textbook & Lecture Videos:	**$130.00**
EPA Test Fee:	**$25.00**
Lab Materials & Tools:	**$745.00**
Total Cost	**$8,895.00**

Program Title
Entry Level HVAC Technician (Immersion Model)

Program Description
Upon successful completion of Entry Level HVAC Technician (Immersion Model) program, the graduate will be prepared with the necessary skills for entry level employment as a residential HVAC service and repair technician. Close to half of this program will be "hands on" with the student taking an active role in wiring, trouble shooting and repairing residential HVAC equipment. Students will work on actual residential equipment and have the opportunity to diagnose, evaluate and repair actual HVAC units. Graduates will also prepare for and take the EPA 608 certification test. Graduates may pursue careers as HVAC service technicians, repair helpers or assistants and start-up technicians.

The Entry Level HVAC (Immersion Model) Program includes video lecture series with hands-on lab classroom hours. Students will complete homework, lectures and quizzes online and attend 40 hours of hands-on class labs for four 10-hour days.
Program Outline

Subject Number	Subject Title	Contact Hours Lecture/Lab/Total Contact Hours
HVACIM101	Air Conditioning and Refrigeration Fundamentals	10/6/16
HVACIM102	Electrical I – Basic Electrical Theory	8/6/14
HVACIM103	Electrical II – Electrical Application	8/6/14
HVACIM104	Troubleshooting	10/10/20
HVACIM105	Heat Pump	2/2/4
HVACIM106	Gas Heating	4/2/6
HVACIM107	Advanced Air Conditioning	8/8/16
HVACIM108	EPA Certification Seminar and Examination	10/0/10
	Total Hours	**60/40/100**

The approximate time required to complete the Entry Level HVAC Technician (Immersion Model) Program:

- Weekend hybrid Program (four 10-hour lab sessions, video lecture series is completed prior to coming on campus for lab sessions): 12 weeks/4 months or sooner

Class Size: 24:1

Subject Description

HVACIM101 Air Conditioning & Refrigeration Fundamentals

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 6 hours of lab) 16 contact hours: Refrigeration History, Refrigeration Theory, Thermal Laws, Components of a Refrigeration System, Refrigeration cycle, Refrigerant Properties, Compressor Types, ARI Standards. Refrigeration Tool Usage, including Gauges, TP Chart, Soldering, Brazing. Safety is emphasized.

OBJECTIVE:
Students will understand the basic refrigeration cycle, the components that are common to refrigeration systems, and the physical laws that apply. Upon completion the student will be able to competently Solder and Braze copper refrigeration fittings.

PREREQUISITE: None

HVACIM102 Electrical I - Basic Electrical Theory

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 6 hours of lab) 14 contact hours: Electron Theory, Basic Electrical Math, Ohm's Law, Basic Electrical Circuits, Series and Parallel Circuits, Schematics and Diagrams, Electrical Testing Instruments, Electric Motors and Electrical Safety.

OBJECTIVE:
Students will become familiar with basic electrical theory and fundamentals. The use of electrical testing equipment and basic hand tools will be covered and practiced. Circuit wiring will be studied and practiced in a lab environment.

PREREQUISITE:
Successful completion of HVACIM101.

HVACIM103 Electrical II - Electrical Application

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 6 hours of lab) 14 contact hours: Control Circuits, Motor Controls, Starting and Running Circuits and Motor Protection. An emphasis will be placed on understanding and wiring control circuits. Electrical Safety will be emphasized.

OBJECTIVE:
Students will become familiar with electrical components. Each student will build and test circuits used in HVAC equipment and controls. The use of hand tools and electrical test equipment will be studied and practiced in a lab environment.
PREREQUISITE:
Successful completion of HVACIM102.

HVACIM104 Troubleshooting

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 10 hours of lab) 20 contact hours:
Troubleshooting concepts and techniques, review of control circuits, review of refrigeration cycle. Lab practice on commercial and residential packages and split units covering a wide variety of HVAC problems.

OBJECTIVE:
To provide students with the knowledge and skills to successfully troubleshoot any type of problem associated with commercial and residential packages or split HVAC systems.

PREREQUISITE:
Successful completion of HVACIM103.

HVACIM105 Heat Pump

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 2 hours of lab) 4 contact hours:
Heat Pump Theory, Design and Components and Troubleshooting Heat Pump systems. Safety is emphasized.

OBJECTIVE: Students will learn the fundamentals of Heat Pump operation and system components, and troubleshooting techniques unique to Heat Pump systems will be covered.

PREREQUISITE:
Successful completion of HVACIM104.

HVACIM106 Gas Heating

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 2 hours of lab) 6 contact hours:
Introduction to Gas Heating, Ignition Theory, Combustion Theory, Operational Controls and Safety Controls, Furnace Types. Safety is emphasized.

OBJECTIVE:
Students will learn the fundamentals of gas heating systems and components. Troubleshooting techniques will be studied and practiced in a lab environment. Safety practices will be covered.

PREREQUISITE:
Successful completion of HVACIM105.

HVACIM107 Advanced Air Conditioning

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 8 hours of lab) 16 contact hours:
Review of Refrigeration Systems, Introduction to Duct Systems and Airflow, Refrigerant Controls, Electrical Controls, Air Conditioning Troubleshooting, Recovery, Evacuation and Recharge, Superheat and Sub-cool. Safety is emphasized.

OBJECTIVE:
Students will understand the use of test equipment and will comprehend superheat, sub-cooling and airflow, and how to use these key indicators of system performance in the troubleshooting process.

PREREQUISITE:
Successful completion of HVACIM106.

HVACIM108 EPA Certification Seminar & Examination

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 0 hours of lab) 10 contact hours:
Students will become familiar with the E.P.A. Rule 608 40-CFR, part 82 of the subpart (f). Students will become familiar with types of certifications, theory on ozone loss, legal requirements regarding use and disposal of refrigerants containing CFCs. Proper recycling techniques, recovery techniques, and refrigerant disposal will be covered.

OBJECTIVE:
Students will prepare to complete the EPA 608 Universal Certification exam, which will be given during the class.

PREREQUISITE:
Successful completion of HVACIM107.

Total Contact Hours: 100 Hours
Length of Time for Completion: 12 weeks (about 4 months) or earlier. 60 Lecture hours completed from home. 40 lab hours completed at campus
Fee Breakdown:

Tuition:	**$5,895.00**
Books/Material:	**$475.00**
EPA Exam:	**$25.00**
Total Cost:	**$6,395.00**

Program Title
Entry Level Electrical Technician (Traditional Model)

Program Description
Upon successful completion of the Entry Level Electrical Technician (Traditional Model) program, a graduate will be prepared with the necessary skills for entry level employment in the residential electrical trade. More than half of this program will be "hands on" with the student taking an active role in acquiring a basic understanding of the materials, tools and processes used by electrical professionals to complete residential electrical jobs. Students will work on actual equipment and tools and can diagnose, evaluate, read blueprints, install and repair electrical fixtures in our residential simulated labs and all up to current National Electrical Code (NEC). Upon successful completion of the Entry Level Electrical Technician (Traditional Model) program, graduates may pursue careers as an entry level electrician, electrician helper, entry level traveling electrician, interior residential electrician; to name a few.

Program Outline

Subject Number	**Subject Title**	**Contact Hours Lecture/Lab/Total Contact Hours**
ETM101	Electrical Career and Trade	4/12/16
ETM102	Electrical Safety	4/12/16
ETM103	Electrical Mathematics and Metric System	3/9/12
ETM104	Electrical Concepts and Theory	7/21/28
ETM105	Introduction to National Electric Codes	3/9/12
ETM106	Grounding – Theory and Safety	3/9/12
ETM107	Electrician Tools and Proper Usage	3/9/12
ETM108	Wiring – Overview	3/9/12
ETM109	Wiring – Devices	3/9/12
ETM110	Wiring – Methods	3/9/12

ETM111	Wiring – Calculations	3/9/12
ETM112	Electrical Industry in Today's Green Technology	5/15/20
ETM113	Electrical Job Search and Soft Skills	4/12/16
	Total Hours	**48/144/192**

The approximate time required to complete the Entry Level Electrical Technician (Traditional Model) Program:

- Day Program: 12 weeks/3 months (Monday-Thursday)
- Night Program: 12 weeks/3 month (Monday-Thursday)

Class Size: 24:1

Subject Description

ETM101 Electrical Career and Trade

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 12 hours of lab) 16 contact hours:
Description of the electrical industry and expectations for this career, various career paths in the trade, upper-level positions and roles, requirements for a Master's License. Value of on-the-job training. Study Techniques.

OBJECTIVE:
Students will become familiar with the electrical industry, various career paths, upper-level positions, and descriptions of roles. Understanding the requirements to eventually obtain a mater plumbers license and the value of on-the-job training. Techniques and methods to study.

PREREQUISITE:
None.

ETM102 Electrical Safety

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 12 hours of lab) 16 contact hours:
Description of the general safety rules in the electrical industry on the job and the public. Understand various health hazards. OSHA regulations. Personal protective equipment (PPE), proper procedures for use of ladder and scaffolding.

OBJECTIVE:
Students will become familiar with the safety related practices used in the electrical industry including health hazards and how current affects the body. Understanding OSHA regulations and other safety rules including lockout and tagout procedures. The three types of personal protective equipment (PPE). The proper procedures for use of ladder and scaffolding.

PREREQUISITE:
Successful completion of ETM101.

ETM103 Electrical Mathematics and Metric System

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 9 hours of lab) 12 contact hours:
Introduction and usage of basic math used in the electrical industry. Introduction to metric system of measurement and how to read and use a tape measure.

OBJECTIVE:
Students will be able to solve math problems using fractions, percentages, and decimals. Perform correct calculations and measurements using measuring tape.

PREREQUISITE:
Successful completion of ETM102.

ETM104 Electrical Concepts and Theory

FORMAT: Lecture and Lab STUDY TO INCLUDE (7 hours of lecture, 21 hours of lab) 28 contact hours:
Introduction to electrical concepts and principles. Principal parts of an atom, law of charges, and the importance of current flow, magnetic terms. Define ampere, volt, ohm and watt. Complete circuit in series, parallel and series parallel and solve circuit values.

OBJECTIVE:
Students will be able to describe the three principal parts of an atom. Understand the laws of charges and describe its importance to current flow. Explain electron current flow and contrast direct and alternating current. Students will be able to explain and define Ohm's Law, using formula charts. Be able to define ampere, volt, ohm and watts. Learn and understand basic additional electrical theory and principles.

PREREQUISITE:
Successful completion of ETM103.

ETM105 Introduction to National Electrical Codes

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 9 hours of lab) 12 contact hours:
Understanding the history of the National Electrical Code, how codes are formed, importance and the intent of the Code. Summarization and how to locate information in thecode book.

OBJECTIVE:
After completing this course, the students will be able to describe the history of the National Electrical Code, explain how codes are formed, the importance and intent of the code, the process of changing codes and how to locate information in the code book.

PREREQUISITE:
Successful completion of ETM104.

ETM106 Grounding—Theory and Safety

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 9 hours of lab) 12 contact hours:
Learning service grounding for a single-family dwelling, learn the consequences of incorrect grounding or lack of ground. Understand GFCI (ground fault circuit interrupter) requirements and application for a single-family dwelling.

OBJECTIVE:
Students will understand grounding and bonding along with the consequences of improper or lack of grounding. Students will also gain knowledge of NEC requirements for bonding wiring devices to outlet boxes and have an understanding of GFCI (ground fault circuit interrupter).

PREREQUISITE:
Successful completion of ETM105.

ETM107 Electrician Tools and Proper Usage

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 9 hours of lab) 12 contact hours:
Introduction and usage of basic tools used in the electrical industry.

OBJECTIVE:
Students will be able to describe and use typical standard tools used in the electrical trade. Including: Basic hand tools, power tools and specialtytools.

PREREQUISITE:
Successful completion of ETM106.

ETM108 Wiring Overview

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 9 hours of lab) 12 contact hours:
Introduction to how specifications are used in making electrical installations. Understanding of symbols and notations used in electrical drawings and explain how they are used. Basic types of fuses and circuit breakers.

OBJECTIVE:
Students will understand how specifications are used in making electrical installations. Understand which symbols and notations are used in electrical drawings and how they are applied to electrical work.

PREREQUISITE:

Successful completion of ETM107.

ETM109 Wiring—Devices

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 9 hours of lab) 12 contact hours:
Introduction to wiring devices: Identify marking on single and duplex receptacles and the operation of each, operation of single pole, three way, and four-way toggle switches. Operation of dimmers, fuse, circuit breaker and GFCI (ground fault circuit interrupter) and AFCI (arc-fault circuit interrupters.

OBJECTIVE:
Students will learn and understand wiring devices which include Receptacles, switches, dimmer controls devices, fuses, circuit breakers, GFCI's and AFCI's.

PREREQUISITE:
Successful completion of ETM108.

ETM110 Wiring—Methods

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 9 hours of lab) 12 contact hours:
Descriptions of NEC requirements for installation of NMC, MC cable, UF cable, and EMT. The correct wiring methods and identification of correct wiring connections for single-pole, three-way, and four-way switching as per NEC requirements.

OBJECTIVE:
Students will learn and understand the NEC requirements for installation of NMC, MC cable, UF cable, and EMT. Understand correct wiring methods and identification of correct wiring connections for single-pole, three-way, and four-way switching as per NEC requirements.

PREREQUISITE:
Successful completion of ETM109.

ETM111 Wiring—Calculations

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 9 hours of lab) 12 contact hours:
How to determine the fundamental NEC requirements for calculating branch-circuit sizing and loading. Perform conduit fill calculations as per NEC requirements. Calculate box fill and choose the correct size box. Describe the proper size conductor and current device for a circuit, given a receptacle or switch.

OBJECTIVE:
Students will learn and understand how to determine the fundamental NEC requirements for calculating branch-circuit sizing and loading, perform conduit fill calculations as per NEC requirements, calculate box fill and choose the correct size box and describe the proper size conductor and over-current device for a circuit, given a receptacle or switch.

PREREQUISITE:
Successful completion of ETM110.

ETM112 Electrical Industry in Today's Green Technology

FORMAT: Lecture and Lab STUDY TO INCLUDE (5 hours of lecture, 15 hours of lab) 20 contact hours:
Introduction to Green Technology, solar and wind technologies, U.S. Green Building Council, Leadership in Energy and Environmental Design's (LEED)Green Building Rating System. Employment opportunities for electricians in green technology.

OBJECTIVE:
Students will be able to define green technology and know the four major goals of this developing technology. Students will have an understanding solar and wind technologies, U.S. Green Building Council, Leadership in Energy and Environmental Design's (LEED). Students will also learn and discover employment opportunities for electricians in green technology.

PREREQUISITE:

Successful completion of ETM111.

ETM113 Electrical Job Search and Soft Skills

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 12 hours of lab) 16 contact hours:
Introduction to different ways of seeking employment in the electrical trades. Understanding the hiring process. Completing the job application and interviewing successfully.

OBJECTIVE:
Students will learn job search techniques, completion of applications, and how to prepare for interviews. Students will also build cover letters and resumes. Practice for interviews. Learn behaviors that will make a positive impression during the job interview.

PREREQUISITE:
Successful completion of ETM112.

Total Contact Hours: 192 Hours
Length of Time for Completion: 16 Weeks/4 Months
Fee Breakdown:

Tuition:	**$9,995.00**
Textbook:	**$155.00**
Lab Materials & Tools:	**$845.00**
Total Cost	**$10,995.00**

Program Title
Entry Level Electrical Technician (Fusion Model)

Program Description
Upon successful completion of the Entry Level Electrical Technician (Fusion Model) program, a graduate will be prepared with the necessary skills for entry level employment in the residential electrical trade. More than half of this program will be "hands on" with the student taking an active role in acquiring a basic understanding of the materials, tools and processes used by electrical professionals to complete residential electrical jobs. Students will work on actual equipment and tools and can diagnose, evaluate, read blueprints, install and repair actual electrical fixtures in our residential simulated labs and all up to current National Electrical Code (NEC). Upon successful completion of the Entry Level Electrical Technician (Fusion Model) program, graduates may pursue careers as entry level electrician, electrician helper, entry level traveling electrician, interior residential electrician, to name a few.

Program Outline

Subject Number	**Subject Title**	**Contact Hours Lecture/Lab/Total Contact Hours**
EFM101	Electrical Career and Trade	6/2/8
EFM102	Electrical Safety	4/5/9
EFM103	Electrical Mathematics and Metric System	7/0/7
EFM104	Electrical Concepts and Theory	12/4/16
EFM105	Introduction to National Electric Codes	8/15/23
EFM106	Grounding – Theory and Safety	8/1/9
EFM107	Electrician Tools and Proper Usage	2/7/9
EFM108	Wiring – Overview	2/7/9
EFM109	Wiring – Devices	2/16/18
EFM110	Wiring – Methods	2/21/23
EFM111	Wiring – Calculations	5/6/11
EFM112	Electrical Industry in Today's Green Technology	1/0/1

EFM113	Electrical Job Search and Soft Skills	1/0/1
	Total Hours	**60/84/144**

The approximate time required to complete the Entry Level Electrical Technician (Fusion Model) Program:

- Day Program: 16 weeks/4 months
- Night Program: 16 weeks/4 month

Class Size: 24:1

EFM101 Electrical Career and Trade

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 2 hours of lab) 8 contact hours:
Description of the electrical industry and expectations for this career, various career paths in the trade, upper-level positions and roles, requirements for a Master's License. Value of on-the-job training. Study Techniques.

OBJECTIVE:
Students will become familiar with the electrical industry, various career paths, upper-level positions, and descriptions of roles. Understanding the requirements to eventually obtain a mater plumbers license and the value of on-the-job training. Techniques and methods to study.

PREREQUISITE:
None.

EFM102 Electrical Safety

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 8 hours of lab) 12 contact hours:
Description of the general safety rules in the electrical industry on the job and the public. Understand various health hazards. OSHA regulations. Personal protective equipment (PPE), proper procedures for use of ladder and scaffolding.

OBJECTIVE:
Students will become familiar with the safety related practices used in the electrical industry including health hazards and how current affects the body. Understanding OSHA regulations and other safety rules including lockout and tagout procedures. The three types of personal protective equipment (PPE). The proper procedures for use of ladder and scaffolding.

PREREQUISITE:
Successful completion of EFM101.

EFM103 Electrical Mathematics and Metric System

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 2 hours of lab) 6 contact hours:
Introduction and usage of basic math used in the electrical industry. Introduction to metric system of measurement and how to read and use a tape measure.

OBJECTIVE:
Students will be able to solve math problems using fractions, percentages, and decimals. Perform correct calculations and measurements using measuring tape.

PREREQUISITE:
Successful completion of EFM102.

EFM104 Electrical Concepts and Theory

FORMAT: Lecture and Lab STUDY TO INCLUDE (12 hours of lecture, 8 hours of lab) 20 contact hours:
Introduction to electrical concepts and principles. Principal parts of an atom, law of charges, and the importance of current flow, magnetic terms. Define ampere, volt, ohm and watt. Complete circuit in series, parallel and series parallel and solve circuit values.

OBJECTIVE:

Students will be able to describe the three principal parts of an atom. Understand the laws of charges and describe its importance to current flow. Explain electron current flow and contrast direct and alternating current. Students will be able to explain and define Ohm's Law, using formula charts. Be able to define ampere, volt, ohm and watts. Learn and understand basic additional electrical theory and principles.

PREREQUISITE:
Successful completion of EFM103.

EFM105 Introduction to National Electrical Codes

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 4 hours of lab) 8 contact hours:
Understanding the history of the National Electrical Code, how codes are formed, importance and the intent of the Code. Summarization and how to locate information in thecode book.

OBJECTIVE:
After completing this course, the students will be able to describe the history of the National Electrical Code, explain how codes are formed, the importance and intent of the code, the process of changing codes and how to locate information in the code book.

PREREQUISITE:
Successful completion of EFM104.

EFM106 Grounding—Theory and Safety

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 4 hours of lab) 8 contact hours:
Learning service grounding for a single-family dwelling, learn the consequences of incorrect grounding or lack of ground. Understand GFCI (ground fault circuit interrupter) requirements and application for a single-family dwelling.

OBJECTIVE:
Students will understand grounding and bonding along with the consequences of improper or lack of grounding. Students will also learn of NEC requirements for bonding wiring devices to outlet boxes and understand GFCI (ground fault circuit interrupter).

PREREQUISITE:
Successful completion of EFM105.

EFM107 Electrician Tools and Proper Usage

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 6 hours of lab) 8 contact hours:
Introduction and usage of basic tools used in the electrical industry.

OBJECTIVE:
Students will be able to describe and use typical standard tools used in the electrical trade. Including: Basic hand tools, power tools and specialtytools.

PREREQUISITE:
Successful completion of EFM106.

EFM108 Wiring Overview

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 6 hours of lab) 8 contact hours:
Introduction to how specifications are used in making electrical installations. Understanding of symbols and notations used in electrical drawings and explain how they are used. Basic types of fuses and circuit breakers.

OBJECTIVE:
Students will understand how specifications are used in making electrical installations. Understand which symbols and notations are used in electrical drawings and how they are applied to electrical work.

PREREQUISITE:
Successful completion of EFM107.

EFM109 Wiring—Devices

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 6 hours of lab) 8 contact hours:
Introduction to wiring devices: Identify marking on single and duplex receptacles and the operation of each, operation of single pole, three way, and four-way toggle switches. Operation of dimmers, fuse, circuit breaker and GFCI (ground fault circuit interrupter) and AFCI (arc-fault circuit interrupters.

OBJECTIVE:
Students will learn and understand wiring devices which include Receptacles, switches, dimmer controls devices, fuses, circuit breakers, GFCI's and AFCI's.

PREREQUISITE:
Successful completion of EFM108.

EFM110 Wiring—Methods

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 6 hours of lab) 8 contact hours:
Descriptions of NEC requirements for installation of NMC, MC cable, UF cable, and EMT. The correct wiring methods and identification of correct wiring connections for single-pole, three-way, and four-way switching as per NEC requirements.

OBJECTIVE:
Students will learn and understand the NEC requirements for installation of NMC, MC cable, UF cable, and EMT. Understand correct wiring methods and identification of correct wiring connections for single-pole, three-way, and four-way switching as per NEC requirements.

PREREQUISITE:
Successful completion of EFM109.

EFM111 Wiring—Calculations

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 4 hours of lab) 8 contact hours:
How to determine the fundamental NEC requirements for calculating branch-circuit sizing and loading. Perform conduit fill calculations as per NEC requirements. Calculate box fill and choose the correct size box. Describe the proper size conductor and current device for a circuit, given a receptacle or switch.

OBJECTIVE:
Students will learn and understand how to determine the fundamental NEC requirements for calculating branch-circuit sizing and loading, perform conduit fill calculations as per NEC requirements, calculate box fill and choose the correct size box and describe the proper size conductor and over-current device for a circuit, given a receptacle or switch.

PREREQUISITE:
Successful completion of EFM110.

EFM112 Electrical Industry in Today's Green Technology

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 6 hours of lab) 12 contact hours:
Introduction to Green Technology, solar and wind technologies, U.S. Green Building Council, Leadership in Energy and Environmental Design's (LEED)Green Building Rating System. Employment opportunities for electricians in green technology.

OBJECTIVE:
Students will be able to define green technology and know the four major goals of this developing technology. Students will have an understanding solar and wind technologies, U.S. Green Building Council, Leadership in Energy and Environmental Design's (LEED). Students will also learn and discover employment opportunities for electricians in green technology.

PREREQUISITE:
Successful completion of EFM111.

EFM113 Electrical Job Search and Soft Skills

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 2 hours of lab) 10 contact hours:
Introduction to different ways of seeking employment in the electrical trades. Understanding the hiring process. Completing the job application and interviewing successfully.

OBJECTIVE:
Students will learn job search techniques, completion of applications, and how to prepare for interviews. Students will also build cover letters and resumes. Practice for interviews. Learn behaviors that will make a positive impression during the job interview.

PREREQUISITE:
Successful completion of EFM112.

Total Contact Hours: 144 Hours
Length of Time for Completion: 16 Weeks/4 Months
Fee Breakdown:

Tuition:	**$7,995.00**
Textbook & lecture videos:	**$155.00**
Lab Materials & Tools:	**$745.00**
Total Cost	**$8,895.00**

Program Title
Entry Level Plumbing Technician (Traditional Model)

Program Description
Upon successful completion of the Entry Level Plumbing Technician (Traditional Model) program, a graduate will be prepared with the necessary skills for entry level employment in the residential and light commercial plumber trade. More than half of this program will be "hands on" with the student taking an active role in acquiring a basic understanding of the materials, tools and processes used by plumbing professionals to complete residential and light-commercial plumbing jobs. Students will work on actual equipment and fixtures and can diagnose, evaluate, read maps, install and repair plumbing parts in our residential simulated labs. Upon successful completion of the Entry Level Plumbing Technician (Traditional Model) program, graduates may pursue careers as entry level residential service and repair plumbers, drain installation technicians, plumbing maintenance technicians and prefab plumber/laborer; to name a few.

Program Outline

Subject Number	**Subject Title**	**Contact Hours Lecture/Lab/Total Contact Hours**
PTM101	What is Plumbing and the History of Plumbing	4/0/4
PTM 102	First Aid and Safety and Ensuring the Health and Safety of the Public	6/18/24
PTM 103	Tools of the Plumbing and Basic Math for Plumbing	8/22/30
PTM 104	Water Supply, Waste Disposal and Sewage Disposal	8/24/32
PTM 105	First Mechanical Properties and Piping Materials Joining Methods for DMB and Pressure Pipe	10/32/42
PTM 106	Plumbing Fixtures and Faucets	6/18/24
PTM 107	Water Heaters	6/18/24
PTM 108	Building Plans and Print Reading	2/4/6
PTM 109	Drawings and Sketching	2/4/6
	Total Hours	**52/140/192**

The approximate time required to complete the Entry Level Plumbing Technician (Traditional Model) Program:

- Day Program: 12 weeks/3 months (Monday-Thursday)
- Night Program: 12 weeks/3 month (Monday-Thursday)

Class Size: 24:1

Subject Description

PTM101 What is Plumbing and the History of Plumbing

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 0 hours of lab) 4 contact hours:
Description of the plumbing industry and expectations in this career, various career paths in the trade, upper-level positions and roles, requirements for a Masters License, and the value of on-the-job training.

OBJECTIVE:
Students will become familiar with the plumbing industry and its history, various career paths, upper-level positions, and descriptions of roles. Understanding the requirements to eventually obtain a mater plumbers license and the value of on-the-job training.

PREREQUISITE:
None

PTM102 First Aid and Safety and Ensuring the Health and Safety of the Public

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 18 hours of lab) 24 contact hours:
Description of the safety-related hazards in the plumbing industry on the job and for the public. Understand various health hazards. Understanding of licenses, permits, and inspection requirements. Safety techniques.

OBJECTIVE:
Students will become familiar with the safety related practices used in the plumbing industry including hazards on the job and for the public along with safety techniques. Also, the student will become aware of codes you will need to adhere to, licenses, permits, and inspections used on the job.

PREREQUISITE:
Successful completion of PTM101.

PTM103 Tools of the Plumbing Trade and Basic Math for Plumbing

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 22 hours of lab) 30 contact hours:
Introduction and usage of basic tools used in the plumbing industry. Basic math used in everyday plumbing.

OBJECTIVE:
Students will be able to describe and use typical standard tools used in the plumbing trade: Including: Torch kits, pipe wrenches, pipe cutters, tape measurers and other common tools. Students will also be taught basic math problem solving principles used in the plumbing trade including Solving problems using fractions, percentages, decimals.

PREREQUISITE:
Successful completion of PTM102.

PTM104 Water Supply, Waste Disposal and Sewage Disposal

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 24 hours of lab) 32 contact hours:
Introduction to Water Supply, Waste and Sewage Disposal. Principal waste hazards, health implications of plumbing.

OBJECTIVE:

Students will be able to describe water hazards such as cross connections, how to prevent back- siphonage problems, and principal waste hazards. Proper usage of fixture traps. Students will also understand water sources such as municipal water supplies, private systems, surface water, gray water etc. Cases of contamination.

PREREQUISITE:
Successful completion of PTM103.

PTM105 First Mechanical Properties and Piping materials and Joining Methods for DMV and Pressure Pipe

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 32 hours of lab) 42 contact hours:
Understanding Mechanical properties such as compression, tension, shear, and stress lines. Learn how to work with beams and columns. How to attach structural loads? Proper use of pipe hangers and support is important.

OBEJCTIVE:
Students will have an understanding and work with vitrified clay pipe, steel pipe, and concrete pipe. Students will perform Solder and Brazing. Usage of copper fittings and tubing. Cast iron cutting and joining and many other mechanical properties.

PREREQUISITE:
Successful completion of PTM104.

PTM106 Plumbing Fixtures and Faucets

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 18 hours of lab) 24 contact hours:
Introduction to standard plumbing fixtures and parts used in everyday plumbing installs in both residential and commercial settings.

OBJECTIVE:
Students will have an understanding and install, fabricate and usage of water closets flush types; flushometer, dual flush, materials and finishes, flushing cycle, water closet rough in, water closet configurations, urinals and flushing methods, bidets, sink types, mounting faucets, water coolers and drinking fountains and more.

PREREQUISITE:
Successful completion of PTM105.

PTM107 Water Heaters

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 18 hours of lab) 24 contact hours:
Introduction to standard installation and repair of electric and gas water heaters.

OBJECTIVE:
Students will perform water heater installation and other heating devices. Students will also learn about jackets and insulation, dip tubes, thermostats for both electric and gas devices, and temperature and relief valves.

PREREQUISITE:
Successful completion of PTM106.

PTM108 Building Plans and Print Reading

FORMAT: Lecture and Lab STUDY TO INCLUDE (2hours of lecture, 4 hours of lab) 6 contact hours:
Introduction to standard planning and project design.

OBJECTIVE:
Students will understand the fundamentals of construction drawing and how to read drawings, and how scales are used in planning.

PREREQUISITE:

Successful completion of PTM107.

PTM109 Drawing and Sketching

FORMAT: Lecture and Lab STUDY TO INCLUDE (2hours of lecture, 4 hours of lab) 6 contact hours:
Introduction to standard drawing terms in the construction industry.

OBJECTIVE:
Students will understand drawing terms, working drawings, freehand sketching, sketching with drawing aids, and symbols for detailed sketching.

PREREQUISITE:
Successful completion of PTM108.

Total Contact Hours: 192 Hours
Length of Time for Completion: 12 Weeks/3 Months (Monday-Thursday)
Fee Breakdown:

Tuition:	**$9,995.00**
Textbook:	**$150.00**
Lab Materials & Tools:	**$845.00**
Total Cost	**$10,995.00**

Program Title
Entry Level Plumbing Technician (Fusion Model)

Program Description
Upon successful completion of the Entry Level Plumbing Technician (Fusion Model) program, a graduate will be prepared with the necessary skills for entry level employment in the residential and light commercial plumber trade. More than half of this program will be "hands on" with the student taking an active role in acquiring a basic understanding of the materials, tools and processes used by plumbing professionals to complete residential and light-commercial plumbing jobs. Students will work on actual equipment and fixtures and can diagnose, evaluate, read maps, install and repair actual plumbing parts in our simulated residential labs. Upon successful completion of the Entry Level Plumbing Technician (Fusion Model) program, graduates may pursue careers as entry level residential service and repair plumbers, drain installation technicians, plumbing maintenance technicians and prefab plumber/laborer; to name a few.

Program Outline

Subject Number	**Subject Title**	**Contact Hours Lecture/Lab/Total Contact Hours**
PFM101	What is Plumbing and the History of Plumbing	4/0/4
PFM102	First Aid and Safety and Ensuring the Health and Safety of the Public	10/7/17
PFM103	Tools of the Plumbing and Basic Math for Plumbing	10/12/22
PFM104	Water Supply, Waste Disposal and Sewage Disposal	8/20/28
PFM105	First Mechanical Properties and Piping Materials Joining Methods for DMB and Pressure Pipe	10/14/24
PFM106	Plumbing Fixtures and Faucets	6/20/26
PFM107	Water Heaters	6/5/11
PFM108	Building Plans and Print Reading	3/3/6
PFM109	Drawings and Sketching	3/3/6
	Total Hours	**60/84/144**

The approximate time required to complete the Entry Level Plumbing Technician (Fusion Model) Program:

- Day Program: 16 weeks 4 months
- Night Program: 16 weeks/4 month

Class Size: 24:1

Subject Description

PFM101 What is Plumbing and the History of Plumbing

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 0 hours of lab) 4 contact hours:
Description of the plumbing industry and expectations for this career, various career paths in the trade, upper-level positions and roles, requirements for a Masters License, and the value of on-the-job training.

OBJECTIVE:
Students will become familiar with the plumbing industry and its history, various career paths, upper-level positions, and descriptions of roles. Understanding the requirements to eventually obtain a mater plumbers license and the value of on-the-job training.

PREREQUISITE:
None

PFM102 First Aid and Safety and Ensuring the Health and Safety of the Public

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 4 hours of lab) 14 contact hours:
Description of the safety-related hazards in the plumbing industry on the job and for the public. Understand various health hazards. Understanding of licenses, permits, and inspection requirements. Safety techniques.

OBJECTIVE:
Students will become familiar with the safety related practices used in the plumbing industry including hazards on the job and for the public along with safety techniques. Also, the student will become aware of codes you will need to adhere to, licenses, permits, and inspections used on the job.

PREREQUISITE:
Successful completion of PFM101.

PFM103 Tools of the Plumbing Trade and Basic Math for Plumbing

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 10 hours of lab) 20 contact hours:
Introduction and usage of basic tools used in the plumbing industry. Basic math used in everyday plumbing.

OBJECTIVE:
Students will be able to describe and use typical standard tools used in the plumbing trade: Including: Torch kits, pipe wrenches, pipe cutters, tape measurers and other common tools. Students will also be taught basic math problem solving principles used in the plumbing trade including Solving problems using fractions, percentages, decimals.

PREREQUISITE:
Successful completion of PFM102.

PFM104 Water Supply, Waste Disposal and Sewage Disposal

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 10 hours of lab) 18 contact hours:
Introduction to Water Supply, Waste and Sewage Disposal. Principal waste hazards, health implications of plumbing.

OBJECTIVE:
Students will be able to describe water hazards such as cross connections, how to prevent back- siphonage problems,

and principal waste hazards. Proper usage of fixture traps. Students will also understand water sources such as municipal water supplies, private systems, surface water, gray water etc. Cases of contamination.

PREREQUISITE:
Successful completion of PFM103.

PFM105 First Mechanical Properties and Piping materials and Joining Methods for DMV and Pressure Pipe

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 14 hours of lab) 24 contact hours:
Understanding Mechanical properties such as compression, tension, shear and stress lines. Learn how to work with beams and columns. How to attach structural loads. Proper use of pipe hangers and support is important.

OBEJCTIVE:
Students will have an understanding and work with vitrified clay pipe, steel pipe, and concrete pipe. Students will perform Solder and Brazing. Usage of copper fittings and tubing. Cast iron cutting and joining and many other mechanical properties.

PREREQUISITE:
Successful completion of PFM104.

PFM106 Plumbing Fixtures and Faucets

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 10 hours of lab) 16 contact hours:
Introduction to standard plumbing fixtures and parts used in everyday plumbing installs in both residential and commercial settings.

OBJECTIVE:
Students will have an understanding and install, fabricate and usage of water closets flush types; flushometer, dual flush, materials and finishes, flushing cycle, water closet rough in, water closet configurations, urinals and flushing methods, bidets, sink types, mounting faucets, water coolers and drinking fountains and more.

PREREQUISITE:
Successful completion of PFM105.

PFM107 Water Heaters

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 10 hours of lab) 16 contact hours:
Introduction to standard installation and repair of electric and gas water heaters.

OBJECTIVE:
Students will perform water heater installation and other heating devices. Students will also learn about jackets and insulation, dip tubes, thermostats for both electric and gas devices, and temperature and relief valves.

PREREQUISITE:
Successful completion of PFM106.

PFM108 Building Plans and Print Reading

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 3 hours of lab) 6 contact hours:
Introduction to standard planning and project design.

OBJECTIVE:
Students will understand the fundamentals of construction drawing and how to read drawings, and how scales are used in planning.

PREREQUISITE:
Successful completion of PFM107.

PFM109 Drawing and Sketching

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 3 hours of lab) 6 contact hours:
Introduction to standard drawing terms in the construction industry.

OBJECTIVE:
Students will understand drawing terms, working drawings, freehand sketching, sketching with drawing aids, and symbols for detailed sketching.

PREREQUISITE:
Successful completion of PFM108.

Total Contact Hours: 144 Hours
Length of Time for Completion: 16 Weeks/4 Months
Fee Breakdown:

Tuition:	**$7,995.00**
Textbook & Lecture Videos:	**$575.00**
Lab Materials & Tools:	**$745.00**
Total Cost	**$8,895.00**

Program Title
Entry Level Plumbing Technician (Immersion Model)

Program Description
Upon successful completion of the Entry Level Plumbing Technician (Immersion Model) program, a graduate will be prepared with the necessary skills for entry level employment in the residential and light commercial plumber trade. Most of this program will be "hands on" with the student taking an active role in acquiring a basic understanding of the materials, tools and processes used by plumbing professionals to complete residential and light-commercial plumbing jobs. Students will work on actual equipment and fixtures and can diagnose, evaluate, read maps, install and repair actual plumbing parts in our simulated residential labs. Upon successful completion of the Entry Level Plumbing Technician (Fusion Model) program, graduates may pursue careers as entry level residential service and repair plumbers, drain installation technicians, plumbing maintenance technicians and prefab plumber/laborer; to name a few.

Program Outline

Subject Number	**Subject Title**	**Contact Hours Lecture/Lab/Total Contact Hours**
PTIM101	What is Plumbing and the History of Plumbing	2/0/2
PFTIM102	First Aid and Safety and Ensuring the Health and Safety of the Public	12/4/16
PTIM103	Tools of the Plumbing and Basic Math for Plumbing	12/4/16
PTIM104	Water Supply, Waste Disposal and Sewage Disposal	10/8/18
PFM105	First Mechanical Properties and Piping Materials Joining Methods for DMB and Pressure Pipe	10/8/18
PTIMM106	Plumbing Fixtures and Faucets	6/12/18
PTIM107	Gas & Electric Water Heaters	4/4/8

PTIMM108	Building Plans and Print Reading	2/0/2
PTIM109	Drawings and Sketching	2/0/2
	Total Hours	**60/40/100**

The approximate time required to complete the Entry Level Plumbing Technician (Immersion Model) Program:

- Weekend hybrid Program (four 10-hour lab sessions, video lecture series is completed prior to coming on campus for lab sessions): 12 weeks/4 months or sooner

Class size: 24:1

Subject Description

PTIM101 What is Plumbing and the History of Plumbing

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 0 hours of lab) 2 contact hours:
Description of the plumbing industry and expectations for this career, various career paths in the trade, upper-level positions and roles, requirements for a Masters License, and the value of on-the-job training.

OBJECTIVE:
Students will become familiar with the plumbing industry and its history, various career paths, upper-level positions, and descriptions of roles. Understanding the requirements to eventually obtain a mater plumbers license and the value of on-the-job training.

PREREQUISITE:
None

PTIM102 First Aid and Safety and Ensuring the Health and Safety of the Public

FORMAT: Lecture and Lab STUDY TO INCLUDE (12 hours of lecture, 4 hours of lab) 16 contact hours:
Description of the safety-related hazards in the plumbing industry on the job and for the public. Understand various health hazards. Understanding of licenses, permits and inspection requirements. Safety techniques.

OBJECTIVE:
Students will become familiar with the safety related practices used in the plumbing industry including hazards on the job and for the public along with safety techniques. Also, the student will become aware of codes you will need to adhere to, licenses, permits and inspections used on the job.

PREREQUISITE:
Successful completion of PTIM101.

PTIM103 Tools of the Plumbing Trade and Basic Math for Plumbing

FORMAT: Lecture and Lab STUDY TO INCLUDE (12 hours of lecture, 4 hours of lab) 16 contact hours:
Introduction and usage of basic tools used in the plumbing industry. Basic math used in everyday plumbing.

OBJECTIVE:
Students will be able to describe and use typical standard tools used in the plumbing trade: Including: Torch kits, pipe wrenches, pipe cutters, tape measurers and other common tools. Students will also be taught basic math problem solving principles used in the plumbing trade including Solving problems using fractions, percentages, decimals.

PREREQUISITE:
Successful completion of PTIM102.

PTIM104 Water Supply, Waste Disposal and Sewage Disposal

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 8 hours of lab) 18 contact hours:
Introduction to Water Supply, Waste and Sewage Disposal. Principal waste hazards, health implications of plumbing.

OBJECTIVE:
Students will be able to describe water hazards such as cross connections, how to prevent back- siphonage problems, and principal waste hazards. Proper usage of fixture traps. Students will also understand water sources such as municipal water supplies, private systems, surface water, gray water etc. Cases of contamination.

PREREQUISITE:
Successful completion of PTIM103.

PTIM105 First Mechanical Properties and Piping materials and Joining Methods for DMV and Pressure Pipe

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 8 hours of lab) 18 contact hours:
Understanding Mechanical properties such as compression, tension, shear and stress lines. Learn how to work with beams and columns. How to attach structural loads? Proper use of pipe hangers and support is important.

OBEJCTIVE:
Students will have an understanding and work with vitrified clay pipe, steel pipe, concrete pipe. Students will perform Solder and Brazing. Usage of copper fittings and tubing. Cast iron cutting and joining and many other mechanical properties.

PREREQUISITE:
Successful completion of PTIM104.

PTIM106 Plumbing Fixtures and Faucets

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 12 hours of lab) 18 contact hours:
Introduction to standard plumbing fixtures and parts used in everyday plumbing installs in both residential and commercial settings.

OBJECTIVE:
Students will have an understanding and install, fabricate and usage of water closets flush types; flushometer, dual flush, materials and finishes, flushing cycle, water closet rough in, water closet configurations, urinals and flushing methods, bidets, sink types, mounting faucets, water coolers and drinking fountains and more.

PREREQUISITE:
Successful completion of PTIM105.

PTIM107 Gas & Electric Water Heaters

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture 4 hours of lab) 8 contact hours:
Introduction to standard installation and repair of electric and gas water heaters.

OBJECTIVE:
Students will perform water heater installation and other heating devices. Students will also learn about jackets and insulation, dip tubes, thermostats for both electric and gas devices, and temperature and relief valves.

PREREQUISITE:
Successful completion of PTIM106.

PTIM108 Building Plans and Print Reading

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 0 hours of lab) 2 contact hours:
Introduction to standard planning and project design.

OBJECTIVE:
Students will understand the fundamentals of construction drawing and how to read drawings, and how scales are used in planning.

PREREQUISITE:
Successful completion of PTIM107.

PFM109 Drawing and Sketching

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 0 hours of lab) 2 contact hours:
Introduction to standard drawing terms in the construction industry.

OBJECTIVE:
Students will understand drawing terms, working drawings, freehand sketching, sketching with drawing aids, and symbols for detailed sketching.

PREREQUISITE:
Successful completion of PTIM108.

Total Contact Hours: 100 Hours
Fee Breakdown:

Tuition:	**$5,895.00**
Books/Materials:	**$500.00**
Total Cost	**$6,395.00**

Program Title
Entry Level Electrical Technician (Immersion Model)

Program Description
Upon successful completion of the Entry Level Electrical Technician (Immersion Model) program, a graduate will be prepared with the necessary skills for entry level employment in the residential electrical trade. More than half of this program will be "hands on" with the student taking an active role in acquiring a basic understanding of the materials, tools and processes used by electrical professionals to complete residential electrical jobs. Students will work on actual equipment and tools and can diagnose, evaluate, read blueprints, install and repair actual electrical fixtures in our residential simulated labs and all up to current National Electrical Code (NEC). Upon successful completion of the Entry Level Electrical Technician (Fusion Model) program, graduates may pursue careers as entry level electrician, electrician helper, entry level traveling electricians, interior residential electrician, to name a few.

Program Outline

Subject Number	**Subject Title**	**Contact Hours Lecture/Lab/Total Contact Hours**
ETIM101	Electrical Career and Trade	2/0/2
ETIM102	Electrical Safety	4/4/8
ETIM103	Electrical Mathematics and Metric System	4/0/4
ETIM104	Electrical Concepts and Theory	10/0/10

ETIM105	Introduction to National Electric Codes	6/0/6
ETIM106	Grounding – Theory and Safety	3/5/8
ETIM107	Electrician Tools and Proper Usage	3/1/4
ETIM108	Wiring – Overview	8/9/17
ETIM109	Wiring – Devices	4/9/13
ETIM110	Wiring – Methods	4/9/13
ETIM111	Wiring – Calculations	4/3/7
ETIM112	Electrical Industry in Today's Green Technology	4/0/4
ETIM113	Electrical Job Search and Soft Skills	4/0/4
	Total Hours	**60/40/100**

The approximate time required to complete the Entry Level Electrical Technician (Immersion Model) Program:

- Weekend hybrid Program (four 10-hour lab sessions, video lecture series is completed prior to coming on campus for lab sessions): 12 weeks/4 months or sooner

Class size: 24:1

ETIM101 Electrical Career and Trade

FORMAT: Lecture and Lab STUDY TO INCLUDE (2 hours of lecture, 0 hours of lab) 2 contact hours:
Description of the electrical industry and expectations for this career, various career paths in the trade, upper-level positions and roles, requirements for a Master's License. Value of on-the-job training. Study Techniques.

OBJECTIVE:
Students will become familiar with the electrical industry, various career paths, upper-level positions, and descriptions of roles. Understanding the requirements to eventually obtain a mater plumbers license and the value of on-the-job training. Techniques and methods to study.

PREREQUISITE:
None.

ETIM102 Electrical Safety

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 4 hours of lab) 8 contact hours:
Description of the general safety rules in the electrical industry on the job and the public. Understand various health hazards. OSHA regulations. Personal protective equipment (PPE), proper procedures for use of ladder and scaffolding.

OBJECTIVE:
Students will become familiar with the safety related practices used in the electrical industry including health hazards and how current affects the body. Understanding OSHA regulations and other safety rules including lockout and tagout procedures. The three types of personal protective equipment (PPE). The proper procedures for use of ladder and scaffolding.

PREREQUISITE:
Successful completion of ETIM101.

ETIM103 Electrical Mathematics and Metric System

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 0 hours of lab) 0 contact hours:
Introduction and usage of basic math used in the electrical industry. Introduction to metric system of measurement and how to read and use a tape measure.

OBJECTIVE:
Students will be able to solve math problems using fractions, percentages, and decimals. Perform correct calculations and measurements using measuring tape.

PREREQUISITE:

Successful completion of ETIM102.

ETIM104 Electrical Concepts and Theory

FORMAT: Lecture and Lab STUDY TO INCLUDE (10 hours of lecture, 0 hours of lab) 10 contact hours:
Introduction to electrical concepts and principles. Principal parts of an atom, law of charges, and the importance of current flow, magnetic terms. Define ampere, volt, ohm and watt. Complete circuit in series, parallel and series parallel and solve circuit values.

OBJECTIVE:
Students will be able to describe the three principal parts of an atom. Understand the laws of charges and describe its importance to current flow. Explain electron current flow and contrast direct and alternating current. Students will be able to explain and define Ohm's Law, using formula charts. Be able to define ampere, volt, ohm and watts. Learn and understand basic additional electrical theory and principles.

PREREQUISITE:
Successful completion of ETIM103.

ETIM105 Introduction to National Electrical Codes

FORMAT: Lecture and Lab STUDY TO INCLUDE (6 hours of lecture, 0 hours of lab) 6 contact hours:
Understanding the history of the National Electrical Code, how codes are formed, importance and the intent of the Code. Summarization and how to locate information in the code book.

OBJECTIVE:
After completing this course, the students will be able to describe the history of the National Electrical Code, explain how codes are formed, the importance and intent of the code, the process of changing codes and how to locate information in the code book.

PREREQUISITE:
Successful completion of ETIM104.

ETIM106 Grounding—Theory and Safety

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 5 hours of lab) 8 contact hours:
Learning service grounding for a single-family dwelling, learn the consequences of incorrect grounding or lack of ground. Understand GFCI (ground fault circuit interrupter) requirements and application for a single-family dwelling.

OBJECTIVE:
Students will understand grounding and bonding along with the consequences of improper or lack of grounding. Students will also learn of NEC requirements for bonding wiring devices to outlet boxes and understand GFCI (ground fault circuit interrupter).

PREREQUISITE:
Successful completion of ETIM105.

ETIM107 Electrician Tools and Proper Usage

FORMAT: Lecture and Lab STUDY TO INCLUDE (3 hours of lecture, 1 hours of lab) 4 contact hours:
Introduction and usage of basic tools used in the electrical industry.

OBJECTIVE:
Students will be able to describe and use typical standard tools used in the electrical trade. Including: Basic hand tools, power tools and specialty tools.

PREREQUISITE:
Successful completion of ETIM106.

ETIM108 Wiring Overview

FORMAT: Lecture and Lab STUDY TO INCLUDE (8 hours of lecture, 9 hours of lab) 17 contact hours:

Introduction to how specifications are used in making electrical installations. Understanding of symbols and notations used in electrical drawings and explain how they are used. Basic types of fuses and circuit breakers.

OBJECTIVE:
Students will understand how specifications are used in making electrical installations. Understand which symbols and notations are used in electrical drawings and how they are applied to electrical work.

PREREQUISITE:
Successful completion of ETIM107.

ETIM109 Wiring—Devices

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 9 hours of lab) 13 contact hours:
Introduction to wiring devices: Identify marking on single and duplex receptacles and the operation of each, operation of single pole, three way, and four-way toggle switches. Operation of dimmers, fuse, circuit breaker and GFCI (ground fault circuit interrupter) and AFCI (arc-fault circuit interrupters.

OBJECTIVE:
Students will learn and understand wiring devices which include Receptacles, switches, dimmer controls devices, fuses, circuit breakers, GFCI's and AFCI's.

PREREQUISITE:
Successful completion of ETIM108.

ETIM110 Wiring—Methods

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 9 hours of lab) 13 contact hours:
Descriptions of NEC requirements for installation of NMC, MC cable, UF cable, and EMT. The correct wiring methods and identification of correct wiring connections for single-pole, three-way, and four-way switching as per NEC requirements.

OBJECTIVE:
Students will learn and understand the NEC requirements for installation of NMC, MC cable, UF cable, and EMT. Understand correct wiring methods and identification of correct wiring connections for single-pole, three-way, and four-way switching as per NEC requirements.

PREREQUISITE:
Successful completion of ETIM109.

ETIM111 Wiring—Calculations

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 3 hours of lab) 7 contact hours:
How to determine the fundamental NEC requirements for calculating branch-circuit sizing and loading. Perform conduit fill calculations as per NEC requirements. Calculate box fill and choose the correct size box. Describe the proper size of conductor and current device for a circuit, given a receptacle or switch.

OBJECTIVE:
Students will learn and understand how to determine the fundamental NEC requirements for calculating branch-circuit sizing and loading, perform conduit fill calculations as per NEC requirements, calculate box fill and choose the correct size box and describe the proper size conductor and over-current device for a circuit, given a receptacle or switch.

PREREQUISITE:
Successful completion of ETIM110.

ETIM112 Electrical Industry in Today's Green Technology

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 0 hours of lab) 4 contact hours:
Introduction to Green Technology, solar and wind technologies, U.S. Green Building Council, Leadership in Energy and Environmental Design's (LEED)Green Building Rating System. Employment opportunities for electricians in green technology.

OBJECTIVE:
Students will be able to define green technology and know the four major goals of this developing technology. Students will have an understanding solar and wind technologies, U.S. Green Building Council, Leadership in Energy and Environmental Design's (LEED). Students will also learn and discover employment opportunities for electricians in green technology.

PREREQUISITE:
Successful completion of ETIM111.

ETIM113 Electrical Job Search and Soft Skills

FORMAT: Lecture and Lab STUDY TO INCLUDE (4 hours of lecture, 0 hours of lab) 4 contact hours:
Introduction to different ways of seeking employment in the electrical trades. Understanding the hiring process. Completing the job application and interviewing successfully.

OBJECTIVE:
Students will learn job search techniques, completion of applications, and how to prepare for interviews. Students will also build cover letters and resumes. Practice for interviews. Learn behaviors that will make a positive impression during the job interview.

PREREQUISITE:
Successful completion of ETIM112.

Total Contact Hours: 100 Hours

Fee Breakdown:

Tuition:	**$5,895.00**
Books/Materials:	**$500.00**
Total Cost	**$6,395.00**