

## Corporate Staff

Marcel Veronneau *CEO*  
Janice V. Shannon *President*  
John Stronkowski *Vice President*  
Ellen Longo *Chief Fiscal Officer*

## Administrative Staff

John Stronkowski *Director*  
Ellen Longo *Bursar*  
Karen McGrath *Financial Aid Director*  
Amanda Ambrose *Executive Assistant*  
Audrey Lyons *Attendance Coordinator*  
Lisa Jolly *Bookstore Manager*  
Janice V. Shannon *Admissions/Placement Rep.*

## Instructors

Randol Abelli  
Michael Bouffard  
Frank Cavallo  
Gerald Chartier  
Donald Dest  
Alan Felder  
Allen France  
Daniel Gorman  
Hue Neagle  
Michael Petrocelli  
Hugo Quintana  
Robert Sanford  
John Stronkowski  
Mark Wade  
John Zigadto

## IMTI Locations:

### **Main Campus**

IMTI of Connecticut  
233 Mill Street  
Waterbury, CT 06706  
Phone: 203-753-7910

### **Branch Campus**

IMTI of New York  
43-82 Vernon Boulevard  
Long Island City, NY 11101  
Phone: 718-786-9298

• All photos in catalog are actual students and instructors which were taken on IMTI of Connecticut premises

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Marcel Veronneau:  
IMTI CEO

### **History:**

The Industrial Management & Training Institute is a coeducational technical institute founded in 1985 as Electrical Educators. In 1998 the schools name was changed to its current name and the curriculum was expanded to offer full apprenticeship programs for electricians plumbers, and HVAC mechanics. The institute was approved by the state of Connecticut Commissioner of Higher Education in 1985 and was granted its most recent 5 year approval in October 2004. In 2002 the institute was accredited by the National Center for Construction Education & Research (NCCER). The school received initial accreditation from the ACCSCT in 1989 and was granted its most recent renewal of accreditation in February 2004 for a period of five years. In September 2008 IMTI through accreditation with the NCCER is offering IMTI students the ability to achieve college credits for their IMTI craft training when they enroll with PIMA College.

### **Philosophy:**

IMTI is dedicated to giving men and women the best possible training and education in technical fields that will allow them to meet the job requirements of modern industry. IMTI provides the most up to date courses available and teaches industry's methods through intensive classroom study and practical hands-on training. All IMTI programs are career oriented and our curriculum is an on-going partnership between industry and education.

IMTI prohibits discrimination of race, color, sex, religion, creed, age, and national origin in the admission and recruitment of students, the recruitment of faculty and staff and the operation of its programs and activities.

### **Statement of Mission:**

IMTI has a primary mission to provide up-to-date professional training programs that will prepare our students for gainful employment or advancement in their chosen fields of technology.

### **IMTI Objectives:**

To provide programs that meet the career oriented needs and interests of our students for job demanding occupations.

To establish the importance of theoretical knowledge and practical application used in industry today and in the future.

To encourage our students to join and become active members in associations and organizations of their respective trade and obtain professional licensing when required.

## General Information:

### Physical Facilities –

The 19,800 square foot building allows for the following facilities: Financial Aid Office, library/bookstore, 8 lecture rooms, and 5 laboratories: Plumbing, Electrical, HVAC, computer testing room, and a student lounge. IMTI is handicapped accessible.

### Student Transportation –

IMTI is located just 1 mile south of Waterbury's downtown business district. Located at the intersection of I-84 and Rt. 8, IMTI is easily accessible.

### Class Hours –

Programs meet three nights per week (Mon, Tues, Wed.) from 6pm - 10pm.

### Outside Studies –

The time required for outside studies varies depending on the individual student and the program of study.

### Attendance –

IMTI has a required attendance of 90%. This means that a student must attend a minimum of 90% of each module, level and total program.

### Make Up Work –

The student is responsible to notify their instructor prior to or after any absence in order to receive make up work. All make up work will be performed before or after normal class schedules in the school's library. A student with 90% attendance or above in a module will not be required to make up time. If a student falls below 90% attendance in any module the student will have to make up the entire time shortage and bring his/her attendance to 100% for that module. Make up time should be completed before the end of each module but in no event should extend beyond two weeks after the end of that module. Any student that does not complete a module within the make up time frame will be required to take the entire module over and pay the current tuition rate. In order to be eligible to make up time in a module a student must have at least 50% attendance in that module. **The instructor should have the student sit away from the class with study materials while the exam is being given or when the exam is being reviewed by the rest of the class.**

### Grades and Examinations –

You will be tested and quizzed periodically at the discretion of your instructors. Final examinations are required for each module. Finals are counted as a third of your final average.

## Rules and Regulations:

Students are responsible for knowledge of all regulations as published in the schools catalog, posted on bulletin boards, or announced. A lack of knowledge of regulations does not exempt a student from penalties resulting in nonfulfillment of obligations.

### Student Services –

Guidance begins with the admissions interview and continues throughout the student's attendance at IMTI. The welfare of our students is our primary concern as it is directly related to the students ability to successfully complete the program. In order to assist a student in solving problems that may interfere with their studies, IMTI has appointed the Admissions/Placement Director to act as student advisor. Whether the problem is personal, medical, or academic the student advisor is always available and eager to assist the student.

### Loss of Property –

The Institute assumes no responsibility for loss of student property due to fire, theft or any other cause.

### Class Size –

The size of theory/lab classes averages between 10-15 students per instructor. The maximum class size at IMTI is 20. This allows for a productive and interactive environment for all our students.

### Early Dismissal –

Students requesting an early dismissal must present evidence to the School Director as to the reason for such requests. Only then will a request for Emergency Leave be issued.

### Tardiness –

Tardiness is marked 15 minutes after class start time. Students reporting late to class are charged with late reports which are recorded against their records. After 3 late recordings an absence will be charged. Classes must start on time and unless students have a very good reason for being late, they are required to be in their seat when attendance is taken. We want all students to feel that when they start their course of training, they have been hired for a job, and they should report on time to class as they would any job. Instructors will refuse a student entry into class if he/she frequently reports late to class.

### Academic Standing –

In order to remain in good academic standing a student must maintain a 2.0 grade point average and fulfill all other requirements of IMTI. The institute reserves the right to require withdrawal, at any time, of a student who has failed to give satisfactory evidence of sincerity of purpose in his/her efforts.

### **General Student Conduct –**

It is expected that all students will conduct themselves properly in an adult manner with respect to other students, staff and property of both the school and students. All students will be held responsible for their behavior at all times. Obscenity, vulgarity, use of alcoholic beverages and/or illegal drugs will not be tolerated and will be cause for dismissal. Violation of accepted standards of conduct will be cause for referral to, and appropriate action by, the Director. Whenever, for any reason, students desire to appeal a ruling made by the Director, they will apply for such an appeal to the President of the Institute.

### **Dismissal –**

Students may be dismissed from IMTI for the following reasons:

1. The student is not satisfying the school's minimum academic requirements.
2. The student is not satisfying the school's minimum attendance requirement (90%).
3. The student enters the school under the influence of alcohol or illegal drugs, possess a weapon or is found gambling.
4. The student's actions are harmful to either school staff or student body.
5. The student fails to meet his/her financial obligations to the school as outlined in the school enrollment agreement.

### **Re-entrance Procedure –**

A student who withdraws from school in good standing will be allowed to re-register in the same program. A student who is dismissed from school may be allowed to re-register in the same program after a 90 day waiting period provided the Director or President feels the student has the capacity and sincere intention to complete the program. A student who is re-admitted to the institution after being dismissed will be notified that they will be enrolled on a probationary status. This process applies only to dismissals caused by lack of satisfactory progress and will be approved only one time. It does not apply to voluntary withdrawals. All work successfully completed prior to withdrawal may be granted. Students will be charged the current re-registration fee of \$25 and pay the current tuition rate.

### **Appeal Procedure –**

Students may appeal for one extra probationary period if they can demonstrate that the causes of the previous poor performance report will be eliminated and that they will show improvement during the probationary period. In this case the Director or President may determine that the student is making satisfactory progress towards his/her certificate despite the failure to conform within the minimum cumulative grade standards.

### **Required Completion Time –**

The maximum time frame allowed for completion of a program is 1.5 times the total number of weeks in the program under normal matriculation.

### **Program Changes –**

IMTI reserves the right to modify, withdraw, or add to any course or curriculum offered or to change the order or content of any program with the approval of the Department of Higher Education.

### **Graduation Requirements –**

Each student must complete the required number of modules as described in the curricula for each program with a minimum grade point average of 2.0 and a cumulative attendance of 90% of each module. All financial obligations to the school must be fulfilled before a certificate can be awarded. Upon successful completion of a full-time program a certificate will be awarded.

### **Satisfactory Progress –**

After the first level of a program any student with a grade point average of 1.5 or lower must meet with the school director in order to continue in the program. After the second level any student who is still at 1.5 or below will be placed on academic probation and must bring his/her overall average to 2.0 by the midpoint of the third level in order to complete the program. Any student who fails to bring his/her overall average to 2.0 by the midpoint of the third level will be academically dismissed. Students will receive their academic standing in writing at the completion of each level. In order to be removed from academic probation, a student must achieve grades high enough to yield an overall grade point average of 2.0.

### Advising:

Students are encouraged to bring school and personal problems to the attention of their instructor or the Director. IMTI will attempt to help our students resolve problems that could interfere with their training.

### Definitions:

1 Clock Hour = 50 minutes of instruction.  
Academic Year: An academic year consists of 900 clock hours of instruction.

### Grading System:

All grades are calculated by a numerical system and a corresponding quality point system. In order to successfully complete a module a minimum grade of 2.0 must be maintained. Please note the grading chart below:

90-100	Outstanding	4.0
85-89	Superior	3.5
80-84	Excellent	3.0
75-79	Above Average	2.5
70-74	Average	2.0
65-69	Passing	1.5
60-64	Below Average	1.0
0-59	Failing	0.0
I	Incomplete	
W	Withdrawal	

Students who withdraw prior to the half way point of a module will receive a "W" and no numeric grade will be given. Students who withdraw after the half way point of a module will have the grade of "59" used in the calculation of their grade point average. Incomplete grades will automatically convert to a "59" if the work is not made up in the time specified in the make up work policy. If a student repeats a module the most recent grade will replace the prior grade even if it is lower.



## PROGRAMS:

	Clock Hours	Weeks
<b>HVAC Technician</b>		
Nights	752	62
<b>Electrical Technician</b>		
Nights	753	62
<b>Electronics Systems Technician</b>		
Nights	738	61
<b>Plumbing Technician</b>		
Nights	672	55

### Admission Policy:

IMTI seeks qualified applicants whose goal is a career in the industrial technical fields. **IMTI requires a High School Diploma, GED or equivalent.** Every individual is given the opportunity to apply. We encourage all individuals interested in an outstanding technical education.

### Transfer of Credits:

An applicant who has completed courses at an accredited school or college **may transfer credits** for similar courses at IMTI. Each request will be evaluated on an individual basis by the School Director. **Any student requesting credit for a class must present a transcript to IMTI prior to starting their program. No credit will be given once enrollment is complete.** Students considering continuing their education at or transferring to other institutions, **must not assume** that credits earned at IMTI will be accepted by the receiving institution. Students must contact the registrar of the receiving institution to determine what credits, if any, that institution will accept.

IMTI will accept all previous NCCER modules from accredited training providers. The student must have successfully completed the module and performance test and have at least 90% attendance of each module.

### Steps for Admission:

Familiarize yourself with the description of the program you are interested in and write down any questions you have. When you meet with our admissions representative we will answer all of your questions. Call the Admissions Office to set an appointment to visit IMTI. If you would like to see classes in session or meet with the instructors, tell us when you call so that we can accommodate your request.

Your admissions representative will also evaluate your ability to complete the program and show the proper motivation to proceed with the application process. He/She will also explain the procedure for applying for financial assistance. All other questions on financial assistance must be directed to the Financial Aid Administrator.

You will be given a math aptitude test at the time of your interview. After the testing is complete, you will meet again with the admissions representative who will review your scores and answer any further questions. Your math scores are used to assist the instructors and evaluate your needs.

### **Final Examination Make-Up:**

If a student misses a final examination, he must receive the approval of the school director before arrangements can be made for the make-up.

### **Transcript of Record:**

All student's records are kept in a permanent file. Before a transcript is issued, the school must have written permission by the individual concerned. A student in good financial standing may obtain transcripts of his academic record for a fee of \$2 per transcript.

### **Career Planning:**

Career planning begins when each student chooses a program of study. However, each program offers various career avenues and a common complaint is, "I'm really not sure what career I want". In order to help inform our students and alleviate this uncertainty IMTI students are made aware of important issues to be considered in a career decision:

1. Which technical and licensed fields are expanding.
2. Where other IMTI graduates have been placed successfully.
3. Average starting salaries.
4. Opportunities for advancement with local industries and company benefits.
5. Technical training's role as a stepping stone to an engineering degree.
6. One-on-one discussions with counselors.

### **Student Placement:**

The first position a graduate takes is an extremely important step in developing a successful career path. IMTI dedicates a great amount of time matching a student's interest and abilities with the most desirable job opportunity available. The placement process begins immediately for evening student's who are in need of apprenticeship positions in their

chosen fields. The goal for all evening students is to begin accumulating experience and on the job time towards their apprenticeship the entire time they are enrolled at IMTI. The Admissions/Placement Director reviews resumes and begins, with the student, to find a job that best suits his/her abilities and interests. **IMTI does not guarantee employment but does offer placement assistance to help graduates locate positions in their specialty.**

### **Financial Assistance for Those Who Qualify:**

A meeting with our Financial Aid Office will be scheduled following the submission of your admissions application. Information and assistance filling out all necessary forms for receiving awards will be discussed at this time.

## **IMTI CAN HELP YOU REACH ALL YOUR CAREER GOALS**

**Alumni:** An alumni of over 4500 students from many different courses and seminars who are now in a position to assist you when you graduate.

**Experienced Faculty:** A faculty with substantial industrial experience and background.

**Hands-on Training:** Well equipped labs and shops to give you hands on training to prepare you for work in the field.

**Easy Access:** Convenience of location in Central Connecticut makes it easily accessible by car, bus or train.

**Concentrated Programs:** Most programs can be completed in 60 weeks.

**Placement Assistance:** IMTI offers placement assistance to all graduates.

**Technical Bookstore:** A complete line of technical materials for all trades.

**Licensing Preparation:** A student upon graduating will be entitled to return and take his review course for his journeyman's exam free of charge for the first time he/she takes it. The student must pay for any materials or books needed for the review course.

### **MEMBERSHIPS**

- Building Officials Code Administration
- International Association of Electrical Inspectors
- National Association of Plumbing, Heating & Cooling Contractors
- National Fire Protection Association
- National Safety Council
- American Society for Training & Development

# Tuition and Expenses:

## Tuition:

Tuition and other costs are explained in the enclosed insert which is an integral part of the catalog. Absence from class does not constitute withdrawal or reduce the financial obligation. Tuition does not include books and tools.

## Cancellation and Refund Policies:

When a student is denied access to an IMTI program all advance money is refunded. A student who cancels enrollment before the beginning of class will receive all advanced monies back with the exception of the \$25.00 application fee. All refund and exchanges on books, tools and materials purchased at the CTBI Technical Bookstore are subject to the refund policy of the Bookstore. The percentage of refund to a student is prorated based on the number of school hours remaining in the student's program. The US Dept. of Education Federal Return of Funds Policy may be obtained in the IMTI of CT's Financial Aid Office

## IMTI's Institutional Refund Policy:

\*A student who has completed 1-10% of the program hours will receive a 90% refund less a \$100 administrative fee

\*A student who has completed 11 - 25% of the program hours will receive a 75% refund less a \$100 administrative fee

\*A student who has completed 26 - 50% of the program hours will receive a 50% refund less a \$100 administrative fee

\*A student who completes 51 - 100% of the program hours will not receive a refund. If more than one refund policy should apply the refund would be the one that most benefits the student.

a.) Applicants who have not visited the school prior to enrollment will have the opportunity to withdraw without penalty within three business days following either the regularly scheduled orientation procedures or following a tour of the school's facilities and inspection of equipment, training and services are provided.

b.) All monies paid by the applicant must be refunded if requested within three days after signing the enrollment agreement and making initial payment. An applicant requesting cancellation more than three days after signing an enrollment agreement and making initial payment, but prior to the entering of school is entitled to a refund of monies paid minus a registration fee of 15% of the contract price of the program, but in no event may the school retain more than \$150.

## Withdrawal:

Any student withdrawing from a program is expected to notify IMTI in writing of their intent to withdraw. All refunds will be made within 30 days of the date of determination of withdrawal from the program. When written notice is not given by the student the date of determination of withdrawal will be no more than 14 days from the last date of attendance. The refund calculation will be based on the student's last day of verifiable attendance.

## Payment:

Check or money orders should be made payable to IMTI. Visa, Master Card, Discover, and American Express are also accepted. Company PO's are acceptable upon approval of the school's President.

## Leave of Absence:

If a student is forced to interrupt his/her course for reasons of serious illness, accident, or other circumstances deemed justifiable by the School Director, he/she will be permitted to repeat the phase in whole or part without any additional charge. A leave of absence can be no more than 30 days. After this point a student must withdraw and re-enroll when they are able to return to class on a full-time basis. **Such an interruption would also affect a student's Financial Aid and must be discussed with the Financial Aid office immediately.**

## Books and Supplies:

Textbooks, supplies and equipment are required for each program and may be purchased through Construction Training Bookstore Inc. These items are mandatory and must be purchased by the student.

## Accreditation:

ACCSCCT - Accrediting Commission for Career Schools and Colleges of Technology

## Approvals:

Connecticut Commissioner of Higher Education

Connecticut Department of Education and the Department of Labor Apprenticeship Training

State of Connecticut Approving Agency for Veterans Education Benefits.

Connecticut Worker's Compensation Commission

Connecticut Division of Rehabilitation Services

NCCER - National Center for Construction Education and Research

# Electrical Technician Program

# Electrical



The electrical technician program is specifically designed to meet the needs of companies requiring individuals with skills in residential, commercial and industrial electrical wiring. In addition, the student will attain knowledge of the communication field and burglar/fire alarm systems. As the population creates more demand for electrical service the need for well trained electrical technicians continues to increase. Throughout the program students will receive a combination of theory and practical "hands-on" training. Graduates of the Electrical Program have many entry level career options: Electrical apprentice, residential, commercial or industrial, telecommunications technicians, burglar/fire alarm installation and repair, many students find a career as a cable installer, motor repair service technician or a maintenance electrician for manufacturers and large commercial buildings. Connecticut graduates of IMTI often complete the program to pursue self employment as an Electrical Contractor.

**Evening Program**  
752 hours: 15 months

## Electrical Technician Program

	<u>Name</u>	<u>Hrs</u>
<b>Core Curriculum</b>		
00101-09	Basic Safety	13.0
00102-09	Introduction to Construction Math	10.0
00103-09	Introduction to Hand Tools	10.0
00104-09	Introduction to Power Tools	10.0
00105-09	Introduction to Construction Drawings	10.0
00106-09	Basic Rigging	15.0
00107-09	Basic Communication Skills	7.0
00108-09	Basic Employability Skills	7.0
00109-09	Introduction to Material Handling	5.0
		<b>Total Hours 87.0</b>

### Electrical Level One

26101-08	Orientation to the Trade	3.0
26102-08	Electrical Safety	10.0
26103-08	Introduction to Electrical Circuits	8.0
26104-08	Electrical Theory	8.0
26105-08	Introduction to the NEC	8.0
26106-08	Device Boxes	10.0
26107-08	Hand Bending	10.0
26108-08	Raceways and Fittings	20.0
26109-08	Conductors and Cables	10.0
26110-08	Basic Electrical Construction Drawings	8.0
26111-08	Residential Electric Services	15.0
26112-08	Electrical Test Equipment	5.0
		<b>Total Hours 115.0</b>

### Electrical Level Two

26201-08	Alternating Current	18.0
26202-08	Motors: Theory and Application	20.0
26203-08	Electric Lighting	15.0
26204-08	Conduit Bending	15.0
26205-08	Pull and Junction Boxes	13.0
26206-06	Conductor Installations	10.0
26207-08	Cable Tray	8.0
26208-08	Conductor Terminations and Splices	8.0
26209-08	Grounding and Bonding	15.0
26210-08	Circuit Breakers and Fuses	13.0
26211-08	Control Systems and Fundamental Concepts	13.0
		<b>Total Hours 148.0</b>

# Electrical

## Electrical Technician Program continued

### Evening Program 752 hours: 15 months

<u>Name</u>	<u>Hrs</u>
<b>Electrical Level Three</b>	
26301-08 Load Calculations - Branch and Feeder Circuits	18.0
26302-08 Conductor Selection and Calculations	15.0
26303-08 Practical Applications of Lighting	13.0
26304-08 Hazardous Locations	15.0
26305-08 Overcurrent Protection	25.0
26306-08 Distribution Equipment	13.0
26307-08 Transformers	13.0
26308-08 Commercial Electrical Services	10.0
26309-08 Motor Calculations	13.0
26310-08 Voice, Data and Video	10.0
26311-08 Motor Controls	13.0

**Total Hours 158.0**

<b>Electrical Level Four</b>	
26401-08 Load Calculations - Feeders and Services	20.0
26402-08 Health Care Facilities	10.0
26403-08 Standby and Emergency Systems	10.0
26404-08 Basic Electronic Theory	10.0
26405-08 Fire Alarm Systems	15.0
26406-08 Specialty Transformers	10.0
26407-08 Advanced Controls	20.0
26408-08 HVAC Controls	15.0
26409-08 Heat Tracing and Freeze Protection	10.0
26410-08 Motor Operation and Maintenance	10.0
26411-08 Medium-Voltage Terminations and Splices	10.0
26412-08 Special Locations	20.0
26413-08 Introductory Skills for the Crew Leader	10.0

**Total Hours 170.0**

<b>Electrical Advanced Classes</b>	
33208-05 Wire & Cable Terminations	20.0
33209-05 Introduction to Codes & Standards	10.0
33210-05 Computer Applications	24.0
33211-05 Advanced Test Equipment	20.0

**Total Hours 74.0**



# Electronic

## Electronic Systems Technician



The Electronic Systems Technician program was designed to meet the growing demand for electronic services requiring the training of new technicians and existing electricians in the installation of low voltage electronic technologies. The program provides extensive training in burglar alarm systems, video, wireless, audio, nurse call and signaling systems, TV and broadband systems, access control system, media management systems, telecommunication systems and fire alarms. Graduates of this program will be prepared for entry level positions within the electronic service industry. **This program is specifically designed to meet the needs of companies requiring tradesmen with skills in residential, commercial and industrial electrical/low voltage wiring.**

**Evening Program  
741 hours: 15 months**

### Electronic Systems Technician

	<u>Name</u>	<u>Hrs</u>
<b>Core Curriculum</b>		
00101-09	Basic Safety	13.0
00102-09	Introduction to Construction Math	10.0
00103-09	Introduction to Hand Tools	10.0
00104-09	Introduction to Power Tools	10.0
00105-09	Introduction to Construction Drawings	10.0
00106-09	Basic Rigging	15.0
00107-09	Basic Communication Skills	7.0
00108-09	Basic Employability Skills	7.0
00109-09	Introduction to Material Handling	5.0
		<b>Total Hours 87.0</b>

#### Electronic Systems Level One

33101-04	Introduction to the Trade	10.0
33102-04	Construction Materials and Methods	18.0
33103-04	Pathways and Spaces	15.0
33104-04	Fasteners and Anchors	5.0
33105-04	Job-Site Safety	13.0
33106-04	Craft-Related Mathematics	10.0
33107-04	Hand Bending of Conduit	8.0
33108-04	Low-Voltage Cabling	20.0
		<b>Total Hours 99.0</b>

#### Electronic Systems Level Two

33201-05	DC Circuit Theory	12.0
33202-05	AC Circuits	15.0
33203-05	Semiconductors and Integrated Circuits	10.0
33204-05	Basic Test Equipment	10.0
33205-05	Power Quality and Grounding	20.0
33206-05	Introduction to Electrical Blueprints	8.0
33207-05	Switching Devices and Timers	13.0
33208-05	Wire and Cable Terminations	20.0
33209-05	Introduction to Codes and Standards	10.0
33210-05	Computer Applications	20.0
33211-05	Advanced Test Equipment	20.0
		<b>Total Hours 159.0</b>

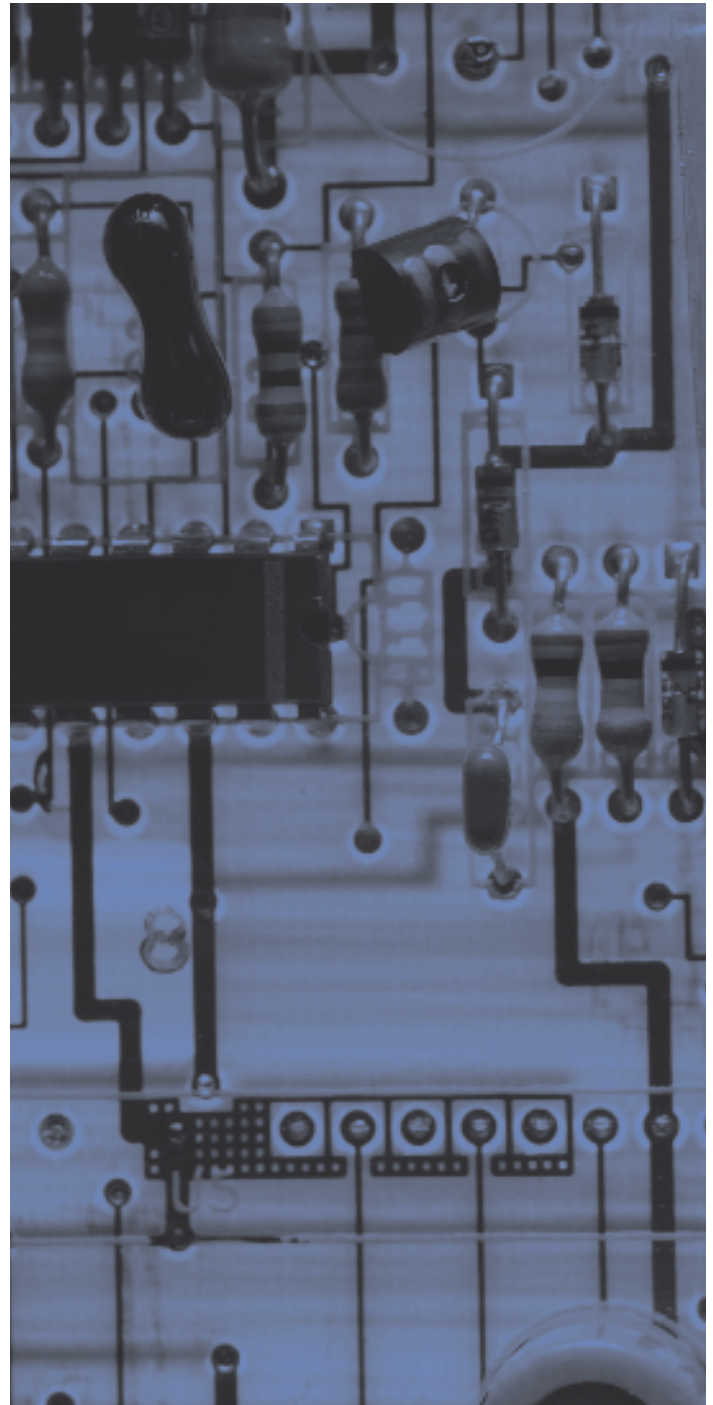
## Electronic Systems Technician

# Electronic

**Evening Program**  
**741 hours: 15 months**

<u>Name</u>	<u>Hrs</u>
<b>Electronic Systems Level Three</b>	
33301-04 Cable Selection	15.0
33302-04 Buses and Networks	25.0
33303-04 Fiber Optics	20.0
33304-04 Video Systems	15.0
33305-04 Wireless Communication	15.0
33306-04 Site Survey, Project Planning, and Documentation	15.0
33307-04 Maintenance and Repair	15.0
33308-04 Introductory Skills for the Crew Leader	16.0
33309-04 Rack Systems	15.0
<b>Total Hours</b>	<b>151.0</b>

<b>Electronic Systems Level Four</b>	
33401-03 Fire Alarm Systems	40.0
33402-03 Intrusion Detection Systems	30.0
33403-03 Audio Systems	40.0
33404-03 Overview of Nurse Call and Signaling Systems	10.0
33405-03 CCTV Systems	20.0
33406-03 Broadband Systems	30.0
33407-03 Access Control Systems	25.0
33408-03 Systems Integration	20.0
33409-03 System Commissioning and User Training	10.0
33410-03 Media Management Systems	10.0
33411-06 Telecommunications Systems	10.0
<b>Total Hours</b>	<b>245.0</b>



# HVAC Technician Program

# H V A C



The HVAC Technician program is structured to provide the technician with the skills, knowledge and techniques necessary for employment as an apprentice in the refrigeration, heating and air conditioning service industries. IMTI comprehensive program of theory combined with extensive "hands on" training impress upon the student the importance of accepting individual responsibility for the proper diagnosis and repair of various units. Focus on low voltage electrical and electronic systems gives our students the knowledge they need to wire low voltage HVAC systems. IMTI of Connecticut graduates will have learned the technical skills for an entry level apprenticeship position as a general service person installing or servicing heating, air conditioning and refrigeration systems. Other career options include maintaining and monitoring major installations in: hospitals, large offices and industrial buildings, or manufacturing HVAC equipment as a field technician or troubleshooter. Many graduates at IMTI complete the program to pursue self-employment as an HVAC Contractor.

**Evening Program**  
**753 hours: 15 months**

## HVAC Technician Program

	<u>Name</u>	<u>Hrs</u>
<b>Core Curriculum</b>		
00101-09	Basic Safety	13.0
00102-09	Introduction to Construction Math	10.0
00103-09	Introduction to Hand Tools	10.0
00104-09	Introduction to Power Tools	10.0
00105-09	Introduction to Construction Drawings	10.0
00106-09	Basic Rigging	15.0
00107-09	Basic Communication Skills	7.0
00108-09	Basic Employability Skills	7.0
00109-09	Introduction to Material Handling	5.0
	<b>Total Hours</b>	<b>87.0</b>

### HVAC Level One

03101-07	Introduction to HVAC	8.0
03102-07	Trade Mathematics	10.0
03103-07	Copper and Plastic Piping Practices	5.0
03104-07	Soldering and Brazing	8.0
03105-07	Ferrous Metal Piping Practices	5.0
03106-07	Basic Electricity	13.0
03107-07	Introduction to Cooling	30.0
03108-07	Introduction to Heating	15.0
03109-07	Air Distribution Systems	10.0
	<b>Total Hours</b>	<b>104.0</b>

### HVAC Level Two

03201-07	Commercial Airside Systems	13.0
03202-07	Chimneys, Vents, and Flues	5.0
03203-07	Introduction to Hydronic Systems	10.0
03204-07	Air Quality Equipment	5.0
03205-07	Leak Detection, Evacuation, Recovery, and Charging	20.0
03206-07	Alternating Current	8.0
03207-07	Basic Electronics	5.0
03208-07	Introduction to Control Circuit Troubleshooting	30.0
03209-07	Troubleshooting Gas Heating	13.0
03210-07	Troubleshooting Cooling	20.0
03211-07	Heat Pumps	20.0
03212-07	Basic Installation and Maintenance Practices	18.0
03213-07	Sheet Metal Duct Systems	5.0
03214-07	Fiberglass and Flexible Duct Systems	5.0
	<b>Total Hours</b>	<b>177.0</b>

## HVAC Technician Program continued

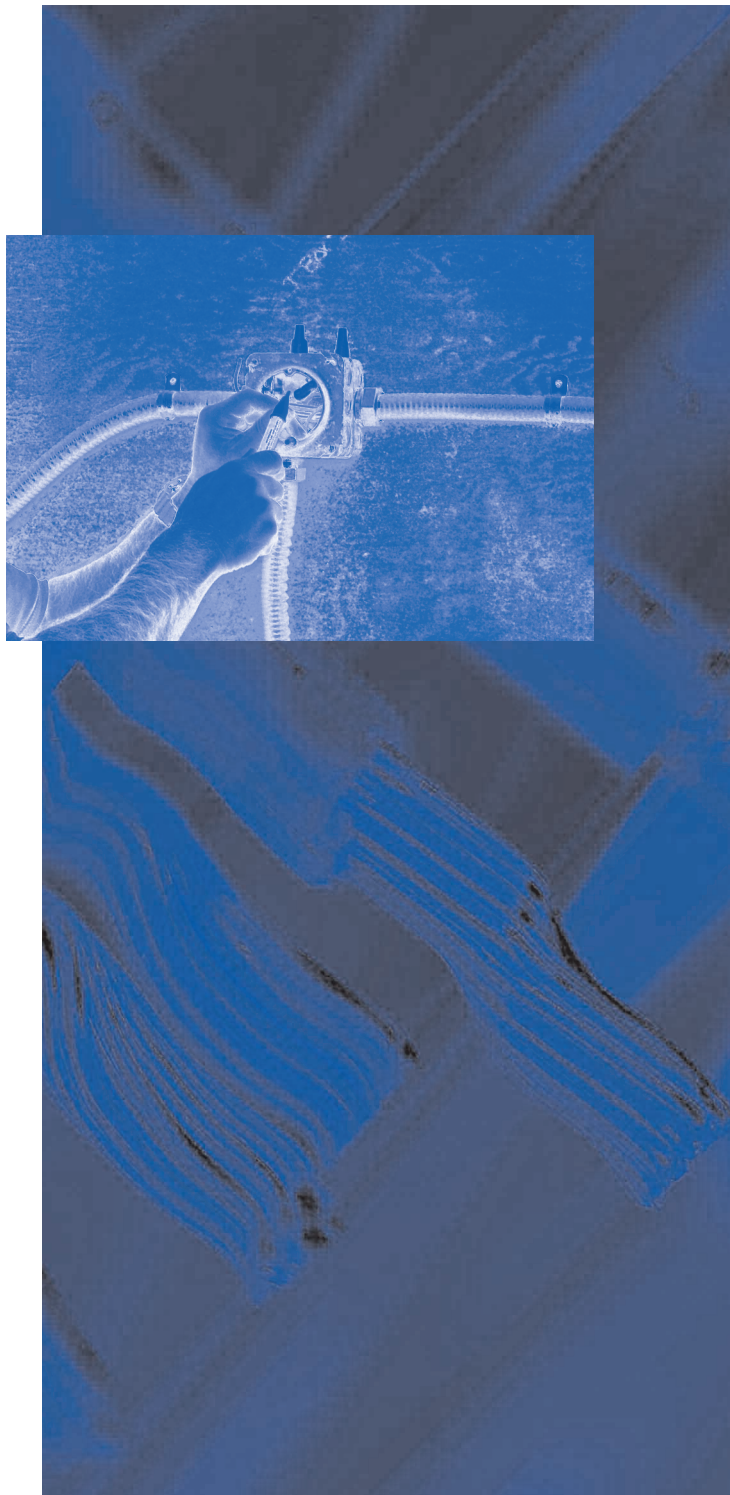
# H V A C

### Evening Program 753 hours: 15 months

<u>Name</u>	<u>Hrs</u>
<b>HVAC Level Three</b>	
03301-08 Refrigerants and Oils	10.0
03302-08 Compressors	15.0
03303-08 Metering Devices	8.0
03304-08 Retail Refrigeration Systems	20.0
03305-08 Commercial Hydronic Systems	13.0
03306-08 Steam Systems	10.0
03307-08 Planned Maintenance	20.0
03308-08 Water Treatments	10.0
03309-08 Troubleshooting Electronic Controls	8.0
03310-08 Troubleshooting Oil Heating	10.0
03311-08 Troubleshooting Heat Pumps	13.0
03312-08 Troubleshooting Accessories	10.0
<b>Total Hours</b>	<b>147.0</b>

<b>HVAC Level Four</b>	
03401-09 Construction Drawing & Specifications	25.0
03402-09 Air System Balancing	20.0
03403-09 Indoor Air Quality	15.0
03404-09 Energy Conservation Equipment	10.0
03405-09 Building Management Systems	18.0
03406-09 System Start-Up and Shut-Down	23.0
03407-09 Heating and Cooling System Design	25.0
03408-09 Commercial and Industrial Refrigeration	23.0
03409-09 Alternative Heating and Cooling Equipment	10.0
26408-05 HVAC Controls	16.0
214 EPA Science	20.0
<b>Total Hours</b>	<b>205.0</b>

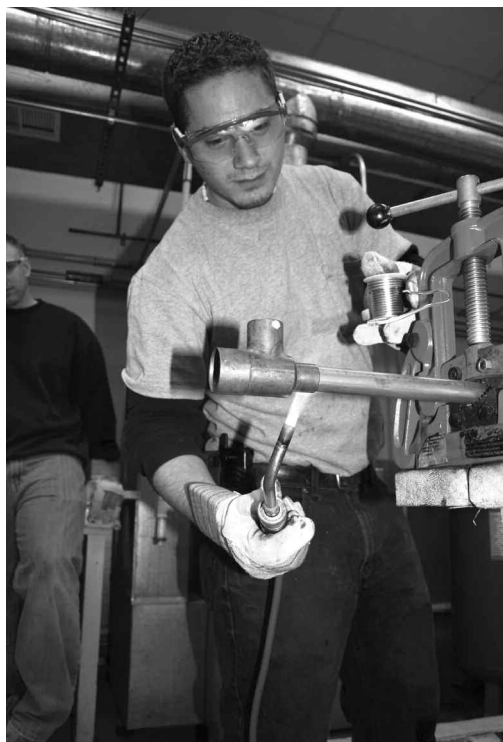
<b>Sheetmetal</b>	
04101-08 Introduction to the Sheet Metal Trade	5.0
04102-08 Tools of the Trade	5.0
04103-08 Introduction to Sheet Metal Layout and Processes	8.0
04106-08 Installation of Ductwork	15.0
<b>Total Hours</b>	<b>33.0</b>



# Plumbing Technician Program

# Plumbing

Evening Program  
672 hours: 14 months



The Plumbing Technician Program is designed to give the technician the skills to install, fit, repair, and maintain residential, commercial, and industrial plumbing. The student is taught to properly finish a job while maintaining the highest sanitary standards possible. Throughout the program students will receive a combination of theory and practical "hands-on" training.

There are three distinct plumbing systems that work together to achieve the desired result in a sanitary and safe manner. These systems are: the supply water brought into the building and piped through the system under pressure; the fixtures – lavatories, bathtubs, toilets, drinking fountains, washing machines, etc... and the drain – water leaving the system usually by means of gravity.

Graduates of the Plumbing Technician program will have learned the necessary skills for an entry level apprenticeship position in residential, commercial, and industrial plumbing applications. Many IMTI graduates complete the program to pursue self-employment as a plumbing contractor.

## Plumbing Technician Program

Name	Hrs
<b>Core Curriculum</b>	
00101-09 Basic Safety	13.0
00102-09 Introduction to Construction Math	10.0
00103-09 Introduction to Hand Tools	10.0
00104-09 Introduction to Power Tools	10.0
00105-09 Introduction to Construction Drawings	10.0
00106-09 Basic Rigging	15.0
00107-09 Basic Communication Skills	7.0
00108-09 Basic Employability Skills	7.0
00109-09 Introduction to Material Handling	5.0
<b>Total Hours 87.0</b>	
<b>Plumbing Level One</b>	
02101-05 Introduction / Plumbing Profession	5.0
02102-05 Plumbing Safety	20.0
02103-05 Plumbing Tools	8.0
02104-05 Introduction to Plumbing Math	8.0
02105-05 Introduction to Plumbing Drawings	13.0
02106-05 Plastic Pipe and Fittings	10.0
02107-05 Copper Pipe and Fittings	10.0
02108-05 Cast-Iron Pipe and Fittings	13.0
02109-05 Carbon Steel Pipe and Fittings	10.0
02110-05 Corrugated Stainless Steel Tubing	3.0
02111-05 Fixtures and Faucets	5.0
02112-05 Introduction to Drain, Waste, and Vent (DWV) Systems	10.0
02113-05 Introduction to Water Distribution Systems	10.0
<b>Total Hours 125.0</b>	
<b>Plumbing Level Two</b>	
02201-05 Plumbing Math Two	15.0
02202-05 Reading Commercial Drawings	20.0
02203-05 Hangers, Supports, Structural Penetrations, and Fire Stopping	10.0
02204-05 Installing and Testing DWV Piping	25.0
02205-05 Installing Roof, Floor and Area Drains	5.0
02206-05 Types of Valves	5.0
02207-05 Installing and Testing Water Supply Piping	20.0
02208-05 Installing Fixtures, Valves, and Faucets	20.0
02209-05 Introduction to Electricity	15.0
02210-05 Installing Water Heaters	5.0
02211-05 Fuel Gas Systems	20.0
02212-05 Servicing Fixtures, Valves, and Faucets	5.0
<b>Total Hours 165.0</b>	

## Plumbing Technician Program continued

# Plumbing

### Evening Program 672 hours: 14 months

<u>Name</u>	<u>Hrs</u>
<b>Plumbing Level Three</b>	
02301-06 Applied Math	18.0
02302-06 Sizing Water Supply Piping	18.0
02303-06 Potable Water Supply Treatment	15.0
02304-06 Backflow Preventers	20.0
02305-06 Types of Venting	20.0
02306-06 Sizing DWV and Storm Systems	20.0
02307-06 Sewage Pumps and Sump Pumps	18.0
02308-06 Corrosive-Resistant Waste Piping	8.0
02309-06 Compressed Air	10.0
<b>Total Hours 147.0</b>	

<b>Plumbing Level Four</b>	
02401-06 Business Principles for Plumbers	15.0
02402-06 Introductory Skills for the Crew Leader	16.0
02403-06 Water Pressure Booster and Recirculation Systems	18.0
02404-06 Indirect and Special Waste	13.0
02405-06 Hydronic and Solar Heating Systems	15.0
02406-06 Codes	8.0
02407-06 Servicing Piping Systems, Fixtures, and Appliances	20.0
02408-06 Private Water Supply Systems	10.0
02409-06 Private Waste Disposal Systems	10.0
02410-06 Swimming Pools and Hot Tubs	13.0
02411-06 Plumbing for Mobile Homes and Mobile Home Parks	10.0
<b>Total Hours 148.0</b>	



Thursday January 1  
 Monday January 19  
 Monday February 16  
 Monday May 25  
 Saturday July 4  
 Monday September 7  
 Wednesday November 11  
 Wednesday November 25 - 27  
 Wednesday Dec 23 - Jan 1  
*(classes resume 1/4/10)*

New Years Day  
 Birthday of Martin Luther King  
 Presidents' Day  
 Memorial Day  
 Independence Day  
 Labor Day  
 Veteran's Day  
 Thanksgiving  
 Christmas/New Year Break

Friday January 1  
 Monday January 18  
 Monday February 15  
 Monday May 24  
 Sunday July 4  
 Monday September 6  
 Thursday November 11  
 Wednesday November 24 - 26  
 Wednesday Dec 22 - Jan 1  
*(classes resume 1/3/11)*

## Core Curriculum

**00101-09: Basic Safety – 13.0 hours**  
 Complies with OSHA-10 training requirements. Explains the safety obligations of workers, supervisors, and managers to ensure a safe workplace. Discusses the causes and results of accidents and the impact of accident costs. Reviews the role of company policies and OSHA regulations. Introduces common job-site hazards and identifies proper protections. Defines safe work procedures, proper use of personal protective equipment, and working with hazardous chemicals. Identifies other potential construction hazards, including hazardous material exposures, welding and cutting hazards, and confined spaces.

**00102-09: Introduction to Construction Math – 10.0 hours**  
 Reviews basic mathematical functions such as adding, subtracting, dividing, and multiplying whole numbers, fractions, and decimals, and explains their applications to the construction trades. Explains how to use and read various length measurement tools, including standard and metric rulers and tape measures, and the architect's and engineer's scales. Explains decimal-fraction conversions and the metric system, using practical examples. Also reviews basic geometry as applied to common shapes and forms.

**00103-09: Introduction to Hand Tools – 10.0 hours**  
 Introduces trainees to hand tools that are widely used in the construction industry, such as hammers, saws, levels, pullers, and clamps. Explains the specific applications of each tool and shows how to use them properly. Also discusses important safety and maintenance issues related to hand tools.

**00104-09: Introduction to Power Tools – 10.0 hours**  
 Provides detailed descriptions of commonly used power tools, such as drills, saws, grinders, and sanders. Reviews applications, proper use, safety, and maintenance. Many illustrate show power tools used in on-the-job settings.

**00105-09: Introduction to Construction Drawings – 10.0 hours**  
 Familiarizes trainees with basic terms for construction drawings, components, and symbols. Explains the different types of drawings (civil, architectural, structural, mechanical, plumbing/piping, electrical, and fire protection) and instructs trainees on how to interpret and use drawing dimension. Four oversized drawings are included.

**00106-09: Basic Rigging – 15.0 hours**  
 Explains how ropes, chains, hoists, loaders, and cranes are used to move material and equipment from one location to another on a job site. Describes inspection techniques and load-handlings safety practices. Also reviews American National Standards Institute (ANSI) hand signals.

**00107-09: Basic Communication Skills – 7.0 hours**  
 Provides trainees with techniques for communicating effectively with co-workers and supervisors. Includes practical examples that emphasize the importance of verbal and written information and instructions on the job. Also discusses effective telephone and e-mail communication skills.

**00108-09: Basic Employability Skills – 7.0 hours**  
 Identifies the roles of individuals and companies in the construction industry. Introduces trainees to critical thinking and problem-solving skills and computer systems and their industry applications. Also reviews effective relationship skills, effective self-presentation, and key workplace issues such as sexual harassment, stress, and substance abuse.

**00109-09: Introduction to Material Handling – 5.0 hours**  
 Recognizes hazards associated with materials handling and explains proper materials handling techniques and procedures. Also introduces materials handling equipment, and identifies appropriate equipment for common job-site tasks.

## **Electrical Technician Program**

### *Electrical Level One*

#### **26101-08: Orientation to the Electrical Trade – 3.0 hours**

Covers safety rules and regulations for electricians. Trainees learn the necessary precautions to take for various electrical hazards found on the job. Also teaches the OSHA-mandated lockout/tagout procedure.

#### **26102-08: Electrical Safety – 10.0 hours**

Covers safety rules and regulations for electricians. Teaches the necessary precautions to take for various electrical hazards found on the job. Also covers the OSHA-mandated lockout/tagout procedure.

#### **26103-08: Introduction to Electrical Circuits – 7.5 hours**

Offers a general introduction to the electrical concepts used in Ohm's law applied to DC series circuits. Includes atomic theory, electromotive force, resistance, and electric power equations.

#### **26104-08: Electrical Theory One – 8.0 hours**

Introduces series, parallel, and series-parallel circuits. Covers resistive circuits, Kirchoff's voltage and current laws, and circuit analysis.

#### **26105-05: Introduction to the National Electrical code® – 8.0 hours**

Provides a navigational road map for using the NEC®. Introduces the layout of the NEC® and the types of information found within the code book. Allows trainees to practice finding information using an easy-to-follow procedure.

#### **26106-08: Device Boxes – 10.0 hours**

Covers the hardware and systems used by an electrician to mount and support boxes, receptacles, and other electrical components. Covers NEC® fill and pull requirements for device, pull, and junction boxes under 100 cubic inches.

#### **26107-08: Hand Bending – 10.0 hours**

Provides an introduction to conduit bending and installation. Covers the techniques for using hand-operated and step conduit benders, as well as cutting, reaming, and threading conduit.

#### **26108-08: Raceways, Boxes, and Fittings – 20.0 hours**

Introduces the types and applications of raceways, wireways, and ducts. Stresses the appropriate NEC® requirements.

#### **26109-08: Conductors and Cables – 10.0 hours**

Focuses on the types and applications of conductors and covers proper wiring techniques. Stresses the appropriate NEC® requirements.

#### **26110-08: Basic Electrical Construction Drawings – 8.0 hours**

Focuses on electrical prints, drawings, and symbols. Teaches the types of information that can be found on schematics, one-lines, and wiring diagrams.

#### **26111-08: Residential Electrical Services – 15.0 hours**

Covers the electrical devices and wiring techniques common to commercial and industrial construction and maintenance. The appropriate NEC requirements are stressed.

#### **26112-05: Electrical Test Equipment – 5.0 hours**

Focuses on proper selection, inspection, and use of common electrical test equipment, including voltage testers, clamp-on ammeters, ohmmeters, multimeters, phase/motor rotation testers, and data recording equipment. Also covers safety precautions and meter category ratings.

## **Electrical Technician Program**

### *Electrical Level Two*

#### **26201-08: Alternating Current – 18.0 hours**

Focuses on forces that are characteristic of alternating-current systems and the application of Ohm's law to AC circuits.

#### **26202-08: Motors: Theory and Application – 20.0 hours**

Covers AC and DC motors, including the main components, circuits, and connections.

#### **26203-08: Electric Lighting – 15.0 hours**

Introduces the basic principles of human vision and the characteristics of light. Focuses on the handling and installation of various types of lamps and lighting fixtures.

#### **26204-08: Conduit Bending – 15.0 hours**

Covers all types of bends in all sizes of conduit up to 6 inches. Focuses on mechanical, hydraulic, and electrical benders.

#### **26205-05: Pull and Junction Boxes – 13.0 hours**

Driven by the NEC®. Explains how to select and size pull boxes, junction boxes, and handholes.

#### **26206-08: Conductor Installations – 10.0 hours**

Covers the transportation, storage, and setup of cable reels; methods of rigging; and procedures for complete cable pulls in raceways and cable trays.

**26207-08: Cable Tray – 8.0 hours**

Focuses on NEC® installation requirements for cable tray, including cable installations.

**26208-08: Conductor Terminations and Splices – 8.0 hours**

Describes methods of terminating and splicing conductors of all types and sizes, including preparing and taping conductors.

**26209-05: Grounding and Bonding – 15.0 hours**

Focuses on the purpose of grounding and bonding electrical systems. Thoroughly covers NEC® requirements.

**26210-08: Circuit Breakers and Fuses - 13.0 hours**

Describes fuses and circuit breakers along with their practical applications. Also covers sizing.

**26211-05: Control Systems and Fundamental Concepts Contactors and Relays – 13.0 hours**

Gives basic descriptions of various types of contactors and relays along with their practical applications.

## Electrical Technician Program

### *Electrical Level Three*

**26301-08: Load Calculations – Branch and Feeder Circuits – 18.0 hours**

Explains how to calculate branch circuit and feeder loads for various residential and commercial applications.

**26302-08: Conductor Selection and Calculations – 15.0 hours**

Covers the various factors involved in conductor selection, including insulation types, current-carrying capacity, temperature ratings, and voltage drop.

**26303-08: Practical Applications of Lightings – 13.0 hours**

Covers specific types of incandescent, fluorescent, and HID lamps, as well as ballasts, troubleshooting, and various types of lighting controls.

**26304-08: Hazardous Locations – 13.0 hours**

Covers the NEC® requirements for equipment installed in various hazardous locations.

**26305-08: Overcurrent Protection – 25.0 hours**

Explains how to size and select circuit breakers and fuses for various applications. Also covers short circuit calculations and troubleshooting.

**26306-08: Distribution Equipment – 13.0 hours**

Discusses switchboards and switchgear, including installation, grounding, and maintenance requirements.

**26307-08: Transformers – 13.0 hours**

Discusses transformer types, construction, connections, protection, and grounding.

**26308-08: Commercial Electrical Services – 10.0 hours**

Covers the components, installation considerations, and NEC® requirements for various commercial services.

**26309-08: Motor Calculations – 13.0 hours**

Covers calculations required to size conductors and over-current protection for motor applications.

**26310-05: Voice, Data, and Video – 10.0 hours**

Covers installation, termination, and testing of various voice, data, and video cabling systems.

**26311-08: Motor Controls– 13.0 hours**

Provides information on selecting, sizing, and installing motor controllers. Also covers control circuit pilot devices and basic relay logic.

## Electrical Technician Program

### *Electrical Level Four*

**26401-08: Load Calculations – Feeders and Services – 20.0 hours**

Topics include basic calculation procedures for commercial and residential applications.

**26402-08: Health Care Facilities – 10.0 hours**

Covers the installation of electric circuits in health care facilities, including the requirements for life safety and critical circuits.

**26403-08: Standby and Emergency Systems – 10.0 hours**

Explains the NEC® requirements for electric generators and storage batteries.

**26404-08: Basic Electronic Theory – 10.0 hours**

Explains the function and operation of basic electronic devices, including semiconductors, diodes, rectifiers, and transistors.

**26405-08: Fire Alarm System – 15.0 hours**

Covers fire alarm control units, Digital Alarm Communicator Systems (DACs), wiring for alarm initiating and notification devices, and alarm system maintenance.

### **26406-08: Specialty Transformers – 10.0 hours**

Covers various types of transformers and their applications. Also provides information on selecting, sizing, and installing these devices.

### **26407-08: Advanced Motor Controls– 20.0 hours**

Discusses applications and operating principles of solid-state controls, reduced-voltage starters, and adjustable frequency drives. Also covers basic troubleshooting procedures.

### **26408-08: HVAC Controls – 15.0 hours**

Provides a basic overview of HVAC systems and their controls. Also covers electrical troubleshooting and NEC® requirements.

### **26409-08: Heat Tracing and Freeze Protection – 10.0 hours**

Covers various heat tracing systems along with their applications and installation requirements.

### **26410-08: Motor Operation and Maintenance – 10.0 hours**

Covers motor cleaning, testing, and preventive maintenance. Also describes basic troubleshooting procedures.

### **26411-08: Medium-Voltage Terminations and Splices – 10.0 hours**

Offers an overview of the NEC® and cable manufacturers' requirements for medium-voltage terminations and splices.

### **26412-08: Special Locations – 20.0 hours**

Describes the NEC® requirements for selecting and installing equipment, enclosures, and devices in various special locations including places of assembly, theaters, carnivals, agricultural buildings, marinas, temporary installations, wired partitions and swimming pools.

### **26413-08: Introductory Skills for The Crew Leader – 10.0 hours**

Teaches the basic leadership skills required to supervise personnel. Discusses principles of project planning, scheduling, estimating, management, and presents several case studies for student participation.

## **Advanced Electrical Classes**

### **33208-05: Wire and Cable Terminations - 20.0 hours**

Provides information and detailed instructions for selecting, installing, and testing connectors and other terminating devices on the various cables used in low-voltage work, including telecommunications, video and audio, and fiber optics.

### **33209-05: Introduction to Codes and Standards - 10.0 hours**

Describes the scope and content of the major codes and standards that apply to the telecommunications, life safety, security, and other low-voltage systems. Emphasis is placed on familiarization with and use of the National Electrical Code (NEC®).

### **33210-05: Computer Applications - 20.0 hours**

Provides an introduction to computer hardware and software, as well as the types and uses of computer networks. Explains many terms used in conjunction with computers and computer networks. Also introduces the trainee to computer troubleshooting.

## **Electronic Systems Technician** *Electronic Systems One*

### **33101-04: Introduction to the Trade – 10.0 hours**

Provides an overview of the alarm, telecommunications, and entertainment electronics industries from a technician's perspective. Also introduces the elements of professional conduct and trainees' responsibilities to themselves and their employers, customers, and fellow workers. Briefly covers the aspects of an apprenticeship program.

### **33102-04 Construction Materials and Methods – 18.0 hours**

Gives the trainees an overview of the materials and techniques used in constructing and finishing all forms of residential and commercial buildings, including wood and metal frame, brick and block, post and beam, poured and prefabricated concrete, and structural steel. Covers the various drills, bits, and techniques used to drill through various construction materials. Includes coverage of fire- and sound-rated walls and suspended ceilings.

### **33103-04 Pathways and Spaces – 15.0 hours**

Introduces the many types of conduits and wireways used in low-voltage applications, along with their supporting hardware. Provides an overview of telecommunications cable pathways from the source to the destination, including maintenance holes, ducts, equipment rooms, and telecommunications closets.

### **33104-04 Fasteners and Anchors – 5.0 hours**

Covers the hardware and systems used by a low-voltage technician to mount and support boxes, receptacles, and other electrical components. Trainees learn the various types of anchors and supports, their applications, and how to install them safely.

### **33105-04 Job-Site Safety – 13.0 hours**

Covers safety rules and regulations for electricians. Trainees learn the necessary precautions to take for various electrical hazards found on the job. Also teaches the OSHA-mandated lockout/tagout procedure.

### **33106-04 Craft-Related Mathematics – 10.0 hours**

Expands on the knowledge gained in the Core Curriculum module, Introduction to Construction Math. Emphasis is placed on the metric system, including how to convert between corresponding English and metric system units. Also covered are the use of scientific notation, powers and roots, and the basic concepts of algebra, geo-metry, and right-angle trigonometry.

### **33107-04 Hand Bending of Conduit – 8.0 hours**

Provides an introduction to conduit bending and installation. Covers the techniques for using hand-operated and step conduit benders, as well as cutting, reaming, and threading conduit.

### **33108-04 Low-Voltage Cabling – 20.0 hours**

Covers the makeup, identification, and applications of various types of conductors and cables used in telecommunications and security systems. Describes the tools, materials, and procedures for pulling cables through conduit and raceways.

## **Electronic Systems Technician** *Electronic Systems Two*

### **33201-05 DC Circuit Theory – 12.0 hours**

Offers a general introduction to the electrical concepts used in Ohm's law as applied to DC series circuits. Includes atomic theory, electromotive force, resistance, and electrical power equations. Introduces series, parallel, and series-parallel DC circuits. Covers Kirchoff's voltage and current laws and circuit analysis.

### **33202-05 AC Circuits – 15.0 hours**

Provides an introduction to AC theory, circuits, and components including inductors, capacitors, and transformers. Covers the calculation of reactance and impedance in RL, RC, and LC, and RLC circuits using math and vector analysis.

### **33203-05 Semiconductors and Integrated Circuits – 10.0 hours**

Provides an introduction to the principles of electronics and semiconductor theory, components, and applications.

### **33204-05 Basic Test Equipment – 10.0 hours**

Covers selection, inspection, use, and maintenance of the analog and digital meters used in the installation and check-out of electronic systems.

### **33205-05 Power Quality and Grounding – 20.0 hours**

Covers grounding and bonding of electrical systems. NEC® regulations pertaining to grounding and bonding are thoroughly covered. Equipment and devices used for grounding and bonding, including their methods of installation, are covered. Also introduced in this module is an explanation of power quality, along with the causes and effects of poor power quality. Equipment and devices used to maintain good power quality are covered.

### **33206-05 Introduction to Electrical Blueprints – 8.0 hours**

Introduces electrical prints, drawings, and symbols. Trainees learn the types of information they can find on schematics, one-line drawings, and wiring diagrams.

### **33207-05 Switching Devices and Timers – 13.0 hours**

Presents the principles of operation and describes the different types and configurations of switches, relays, timers, and photoelectric devices. Guidelines for the selection of appropriate devices using specification sheets are also covered.

### **33208-05 Wire and Cable Terminations – 20.0 hours**

Provides information and detailed instructions for selecting, installing, and testing connectors and other terminating devices on the various cables used in low-voltage work, including telecommunications, video and audio, and fiber optics.

### **33209-05 Introduction to Codes and Standards – 10.0 hours**

Describes the scope and content of the major codes and standards that apply to the telecommunications, life safety, security, and other low-voltage systems. Emphasis is placed on familiarization with and use of the National Electrical Code (NEC®).

### **33210-05 Computer Applications – 20.0 hours**

Provides an introduction to computer hardware and software, as well as the types and uses of computer networks. Explains many terms used in conjunction with computers and computer networks. Also introduces the trainee to computer troubleshooting.

### **33211-05 Advanced Test Equipment – 20.0 hours**

Covers test devices such as oscilloscopes, signal generators, meggers, wattmeters, frequency meters, cable testers, and RF analyzers used in troubleshooting cabling systems.

## **Electronic Systems Technician** *Electronic Systems Three*

### **33301-04 Cable Selection – 15.0 hours**

Provides an overview of the types of cable used for various low-voltage installations. Also covers the methods used to select the proper size and type of cable for a typical installation.

### **33302-04 Buses and Networks – 25.0 hours**

Provides information on connecting computers and components, including various methods for connecting computers in a network, connecting controls and equipment in a control system, and information on how data is transferred between the nodes in a network.

### **33303-04 Fiber Optics – 20.0 hours**

Introduces the types of equipment and methods used in fiber-optic cable installation.

### **33304-04 Video Systems – 15.0 hours**

Introduces the types of equipment used in various video systems. It also describes the operation of the various types of video systems.

### **33305-04 Wireless Communication – 15.0 hours**

Introduces the operating principles and equipment used in common types of radio frequency (RF) and infrared (IR) wireless communication systems. The systems covered include RF communication systems, IR-controlled systems, power line carrier (PLC) systems, RF and IR wireless computer networks, and satellite communication systems. The equipment used for testing and troubleshooting wireless communication systems is also covered.

### **33306-04 Site Survey, Project Planning, and Documentation – 15.0 hours**

Covers the tasks involved in planning a job from start to finish, including how to perform site surveys for both new and retrofit construction projects. The different kinds of drawings, specifications, and other documents commonly used while performing these tasks are also covered.

### **33307-04 Maintenance and Repair – 15.0 hours**

Introduces the background information and the tasks involved in the maintenance and repair of low-voltage systems and equipment. A systematic approach to system and component-level troubleshooting is covered, as are the methods of identifying common types of repairs. Background information and general guidelines pertaining to the various tasks involved with preventive maintenance are also given.

### **33308-04 Introductory Skills for the Crew Leader – 16.0 hours**

Teaches the basic skills required to supervise personnel. Discusses principles of project planning and management and presents several case studies for student participation.

### **33309-04 Rack Systems – 15.0 hours**

Describes rack systems and best practices for assembling electronic system enclosures including power sequencing, grounding, weight distribution, and heat dissipation. Explains electrical power distribution and load calculations for equipment housed within racks.

## **Electronic Systems Technician** *Electronic Systems Four*

### **33401-03 Fire Alarm Systems – 40.0 hours**

Covers the basics of fire alarm systems, including devices, circuits, system design and installation guidelines, power requirements, control panel programming, testing, and troubleshooting. Explores integration of fire alarms with other systems. Examines both residential and commercial fire alarm applications. Emphasizes NEC® codes.

### **33402-03 Intrusion Detection Systems – 30.0 hours**

Introduces intrusion detection security systems. Describes devices such as sensors, notification, control panels, and programming. Covers system design and installation guidelines, wiring, testing, and troubleshooting. Emphasizes codes and standards.

### **33403-03 Audio Systems – 40.0 hours**

Introduces and explains audio system components including input sources, amplifiers, signal processing equipment, and output equipment. Power requirements, cabling options, system configuration, and basic design considerations are described. Common test equipment used for installation and troubleshooting is reviewed.

### **33404-03 Overview of Nurse Call and Signaling Systems – 10.0 hours**

Presents an overview of nurse call and signaling systems as found in hospitals and other health-care facilities. Covers basic emergency call and duress system requirements based on facility type. Installation requirements based on UL and other building code specifications are identified.

### **33405-03 CCTV Systems – 20.0 hours**

The installation and configuration of closed circuit TV systems for small, medium, and large facilities are described. Various equipment including cameras, lenses, remote-positioning, video recording, and transmission media are introduced and explained. The roles of the internet and digital technologies are covered. Test and troubleshooting equipment is introduced.

### **33406-03 Broadband Systems – 30.0 hours**

The major elements of head-end design for specialized television systems including CATV, SMATV, and MATV systems are described. Receivers, modulators, amplification, and distribution devices are explained. Proper signal levels, cable attenuation, insertion loss, and acceptable carrier-to-noise levels are identified and explained. Common test equipment and troubleshooting procedures are covered.

### **33407-03: Access Control Systems – 25.0 hours**

Introduces access control systems including applications, door locking systems, readers, biometrics, and controllers. Emphasizes installation practices as well as building and electrical codes.

### **33408-03: Systems Integration – 20.0 hours**

Presents concepts for connecting two or more stand-alone systems together. Emphasizes how to improve the capabilities of each system. Describes the best practices for interoperability and system performance. Various interconnection options and integration protocols are discussed. High-tech building automation systems are emphasized.

### **33409-03: System Commissioning and User Training – 10.0 hours**

Covers the basics of final testing and closeout procedures and how to build these activities into your projects. Describes customer satisfaction levels and expectations and how to meet them during the cut-over phase of any project. Focuses on industry best practices and user required training.

### **33410-03: Media Management Systems – 10.0 hours**

Explains the basic principles behind shared media resources and their access via a computer network or hardwired application. Describes media types for both analog and digital platforms. Explores cabling options including fiber-optic interfaces.

### **33411-06 Telecommunications Systems – 10.0 hours**

Describes the history and current use of basic subscriber systems. Also covers PBX systems used in business applications and Central office services used to interface to the public switched telephone network (PSIN).

## **HVAC Technician Program** *HVAC Level One*

### **03101-07: Introduction to HVAC – 8.0 hours**

Covers the basic principles of heating, ventilating and air conditioning, career opportunities in HVAC, training, and apprenticeship programs.

### **03102-07: Trade Mathematics – 10.0 hours**

Explains how to solve problems involving the measurement of lines, area, volume, weights, angles, pressure, vacuum, and temperature. Also introduces scientific notation, powers, roots, basic algebra and geometry.

### **03103-07: Copper and Plastic Piping Practices – 5.0 hours**

Covers the selection, preparation, joining, and support of copper and plastic piping and fittings.

### **03104-07: Soldering and Brazing – 8.0 hours**

Covers tools, materials, and safety precautions and depicts step-by-step procedures for soldering and brazing piping.

### **03105-07: Ferrous Metal Piping Practices – 5.0 hours**

Covers various types of iron and steel pipe and fittings, and provides step-by-step instructions for cutting, threading, and joining ferrous piping.

### **03106-07: Basic Electricity – 13.0 hours**

Teaches power generation and distribution, electrical components, DC circuits, and electrical safety.

### **03107-07: Introduction to Cooling – 30.0 hours**

Covers the basic principles of heat transfer, refrigeration, and pressure-temperature relationships and describes the components and accessories used in air conditioning systems.

### **03108-07: Introduction to Heating – 15.0 hours**

Covers heating fundamentals, types and designs of furnaces and their components, and basic procedures for installing and servicing furnaces.

### **03109-07: Air Distribution Systems – 10.0 hours**

Describes air distribution systems and their components, air flow measurement, ductwork installation principles, and the use of instruments for measuring temperature, humidity, pressure, and velocity.

## **HVAC Technician Program** *HVAC Level Two*

### **03201-07: Commercial Airside Systems – 13.0 hours**

Describes the systems, equipment, and operating sequences used in a variety of commercial airside system configurations, such as constant volume single-zone and multi-zone, VVT, VAV, and dual-duct VAV.

**03202-07: Chimneys, Vents, and Flues – 5.0 hours**

Describes the principles of furnace venting of fossil-fuel furnaces and the proper methods for selecting and installing vent systems for gas-fired heating equipment.

**03203-07: Introduction to Hydronic Systems – 10.0 hours**

Introduces hot water heating systems, focusing on safe operation of the low-pressure boilers and piping systems commonly used in residential applications.

**03204-07: Air Quality Equipment – 5.0 hours**

Covers the basic principles, processes, and devices used to control humidity and air clean-lines, as well as devices used to conserve energy in HVAC systems.

**03205-07: Leak Detection, Evacuation, Recovery, and Charging – 20.0 hours**

Covers the basic refrigerant handling and equipment servicing procedures to service HVAC systems in an environmentally safe manner.

**03206-07: Alternating Current – 8.0 hours**

Covers transformers, single-phase and three-phase power distribution, capacitors, the theory and operation of induction motors, and the instruments and techniques used in testing AC circuits and components. Also reviews electrical safety.

**03207-07: Basic Electronics – 5.0 hours**

Explains the theory of solid-state electronics, as well as the operation, use, and testing of the various electronic components used in HVAC equipment. Includes an introduction to computers.

**03208-07: Introduction to Control Circuit Troubleshooting – 30.0 hours**

Covers the operation, testing, and adjustment of conventional and electronic thermostats, as well as the operation of common electrical, electronic, and pneumatic circuits used to control HVAC systems. Also explains how to analyze circuit diagrams for electronic and microprocessor-based controls used in comfort heating and cooling equipment and how to troubleshoot systems that use these controls.

**03209-07: Troubleshooting Gas Heating – 13.0 hours**

Covers tools, instruments, and techniques used in troubleshooting gas heating appliances, including how to isolate and correct faults.

**03210-07: Troubleshooting Cooling – 20.0 hours**

Covers the basic techniques and equipment used in troubleshooting cooling equipment, focusing on analyzing system temperatures and pressures in order to isolate faults.

**03211-07: Heat Pumps – 20.0 hours**

Covers the principles of reverse cycle heating, describes the operation of the various types of heat pumps, and describes how to analyze heat pump control circuits. Includes heat pump installation and service procedures.

**03212-07: Basic Installation and Maintenance Practices – 18.0 hours**

Covers the application and installation of various types of fasteners, gaskets, seals, and lubricants, as well as the installation and adjustment of different types of belt drives, bearings, and couplings. Includes job documentation and customer relations.

**03213-07: Sheet Metal Duct Systems – 5.0 hours**

Covers layout, fabrication, installation, and insulating sheet metal ductwork. Also includes selection and installation of registers, diffusers, dampers, and other duct accessories.

**03214-07: Fiberglass and Flexible Duct Systems – 5.0 hours**

Covers the layout, fabrication, installation, and joining of fiberglass ductwork and fittings. Describes the proper methods for attaching and supporting flex duct.

## **HVAC Technician Program**

### *HVAC Level Three*

**03301-08: Refrigerants and Oils – 10.0 hours**

Covers characteristics and applications of the current generation of refrigerants, including both pure and blended refrigerants. Also provides extensive coverage of lubricating oils used in refrigeration systems.

**03302-08: Compressors - 15.0 hours**

Explains the operating principles of the different types of compressors used in comfort air conditioning and refrigeration systems, along with basic installation, service, and repair procedures for these compressors.

**03303-08: Metering Devices- 8.0 hours**

Covers the operating principles, applications, installation, and adjustment of the various types of fixed and adjustable expansion devices used in air conditioning equipment.

**03304-08: Retail Refrigeration Systems - 20.0 hours**

Introduces the product refrigeration components and systems, such as the reach-in coolers and freezers commonly used in markets.

**03305-08: Commercial Hydronic Systems – 13.0 hours**

Covers the various types of boilers, components, and piping systems used in commercial heating applications. Also introduces chilled water systems and their components.

**03306-08: Steam Systems – 10.0 hours**

Covers operating principles, piping systems, components, and preventive maintenance requirements of steam systems and steam traps.

**03307-08: Planned Maintenance – 20.0 hours**

Describes the purpose of planned maintenance and outlines the procedures for servicing gas and oil furnaces, electric heating equipment, cooling equipment, and heat pumps.

**03308-08: Water Treatment – 10.0 hours**

Covers the kinds of water problems encountered in heating and cooling systems and identifies various water treatment methods and equipment.

**03309-08: Troubleshooting Electronic Controls – 8.0 hours**

Explains how to analyze circuit diagrams for electronic and microprocessor-based controls used in comfort heating and cooling equipment and how to troubleshoot systems that use these controls.

**03310-08: Troubleshooting Oil Heating – 10.0 hours**

Covers how to identify the common causes of problems in oil furnaces and offers hands-on experience in isolating and correcting oil furnace malfunctions.

**03311-08: Troubleshooting Heat Pumps – 13.0 hours**

Reviews heat pump operation and heat pump control circuits, including how to isolate and correct faults in the heating, cooling, auxiliary heat, and defrost functions of heat pumps.

**03312-08: Troubleshooting Accessories – 10.0 hours**

Provides hands-on lab sessions on how to troubleshoot humidifiers, electronic air cleaners, economizers, zone controls, and heat recovery ventilators.

## **HVAC Technician Program**

### *HVAC Level Four*

**03401-09: Construction Drawings and Specifications – 25.0 hours**

Covers how to interpret the various drawings used in commercial construction, including mechanical drawings, specifications, shop drawings, and as-builts and to perform takeoff procedures for equipment, fittings, ductwork and other components.

**03402-09: Air System Balancing – 20.0 hours**

Covers air properties and gas laws, as well as the use of psychrometric charts. It covers the tools, instruments, and methods used in balancing an air distribution system.

**03403-09: Indoor Air Quality - 15.0 hours**

Defines the issues associated with indoor air quality and its affect on the health and comfort of building occupants. Provides guidelines for performing an IAQ survey and covers the equipment and methods used to monitor and control indoor air quality.

**03404-09: Energy Conservation Equipment – 10.0 hours**

Covers the various heat recovery/reclaim devices, along with other energy recovery equipment used to reduce energy consumption in HVAC systems.

**03405-09: Building Management Systems – 18.0 hours**

Explains how computers and microprocessors are used to manage zoned HVAC systems. This module has been updated to reflect new system architecture, advances in network protocols and systems controllers, and communication via Internet and wireless.

**03406-09: System Start-Up and Shut-Down – 23.0 hours**

Covers procedures for the startup of hot water, steam heating, chilled water, and forced-air distribution systems. Emphasis is on startup after initial equipment installation or after an extended period of shutdown. Includes procedures for preparing these systems for extended shutdown.

**03407-09:****Heating and Cooling System Design – 25.0 hours**

Identifies and explains the factors that affect heating and cooling loads, describes the process by which heating and cooling loads are calculated, and shows how load calculations are used in the selection of heating and cooling equipment. Covers types of duct systems and their selection, sizing, and installation requirements.

**26408-09: Commercial and Industrial Refrigeration – 23.0 hours**

This module expands the study of product and process refrigeration begun in Level 3. It deals with the type of systems used in cold storage and food processing facilities, as well as transportation refrigeration.

**26409-09: Alternative Heating and Cooling Equipment – 10.0 hours**

Covers the variety of alternative devices that are used to reduce energy consumption, including wood, coal, and pellet-fired systems, waste-oil heaters, geothermal heat pumps, solar heating, in-floor radiant heating, and direct-fired makeup units.

**26408-05: HVAC Controls – 16.0 hours**

Provides a basic overview of HVAC systems and their controls. Stresses electrical troubleshooting and NEC requirements.

## **214: EPA Science - 20.0 hours**

This course will enable the student to apply the scientific principles of EPA science in their daily work including that vapor-compression refrigeration cycle and common service equipment and procedures. The student will prepare for and take the EPA refrigerant certification test. All students who pass the independent exam will receive the EPA Certification Card from ESCO

## **Sheet Metal Modules**

### **04101-08: Introduction to the Sheet Metal Trade – 5.0 hours**

Summarizes the history and development of the sheet metal trade, explains the benefits of apprenticeship training, and identifies career opportunities in the trade.

### **04102-08: Tools of the Trade – 5.0 hours**

Describes the hand and power tools used in the sheet metal trade, including layout tools and cutting, bending, and forming machines. Includes safety and maintenance guidelines.

### **04103-08: Introduction to Sheet Metal Layout and Processes – 8.0 hours**

Introduces parallel line development, radial line development, and triangulation. Covers selection and use of layout, hand, and machine tools. Discusses how to transfer patterns, and how to cut, form, and assemble parts.

### **04106-08: Installation of Ductwork – 15.0 hours**

Addresses ductwork assembly, use of different types of sealants, using lifts, and installation of ductwork. Describes the types of fasteners (screws, nuts, bolts, and rivets), and supports used in an air distribution system. Discusses proper spacing of hangers, load ratings, and installation of hangers and support systems.

## **Plumbing Technician Program** *Plumbing Level One*

### **02101-05: Introduction to the Plumbing Profession – 5.0 hours**

Introduces the trainees to the many career options available in today's plumbing profession. Provides a history of plumbing and also discusses the current technology, industries, and associations that make up the modern plumbing profession. Also reviews human relations and safety skills.

### **02102-05: Plumbing Safety – 20.0 hours**

Discusses the causes of accidents and their consequences and repercussions in terms of delays, increased expenses, injury, and loss of life. Reviews the types and proper use of personal protective equipment (PPE). Instructs trainees in

the use of critical safety information conveyed in hazard communication (HazCom), safety signs, signals, lock-out/tagout, and emergency response. Covers confined-space safety, and reviews safety issues related to hand and power tools.

### **02103-05: Plumbing Tools – 8.0 hours**

Instructs trainees in the care and use of the different types of hand and power tools they will use on the job. Gives trainees the information they need to select the appropriate skills for different tasks, and reviews tool maintenance.

### **02104-05: Introduction to Plumbing Math – 8.0 hours**

Reviews basic math concepts, such as whole numbers, fractions, decimals, and squares, and demonstrates how they apply to on-the-job situations. Teaches trainees how to measure pipe using fitting tables and framing squares and how to calculate 45-degree offsets.

### **02105-05: Introduction to Plumbing Drawings – 13.0 hours**

Introduces trainees to the different types of plumbing drawings they will encounter on the job and discusses how to interpret and apply them when laying out and installing plumbing systems. Discusses the symbols used in plumbing and mechanical drawings and reviews isometric, oblique orthographic, as well as schematic drawings. Requires trainees to render plumbing drawings and to recognize how code requirements apply to plumbing drawings.

### **02106-05: Plastic Pipe and Fittings – 10.0 hours**

Introduces trainees to the different types of plastic pipe and fittings used in plumbing applications, including ABS, PVC, CPVC, PEX, and PB. Describes how to measure, cut join and support plastic pipe according to manufacture's instructions and applicable codes. Also discusses pressure testing of plastic pipe once installed.

### **02107-05: Copper Pipe and Fittings – 10.0 hours**

Discusses sizing, labeling, and applications of copper pipe and fittings and reviews the types of valves that can be used on copper pipe systems. Explains proper methods for cutting, joining and installing copper pipe. Also addresses insulation, pressure testing, seismic codes, and handling and storage requirements

### **02108-05: Cast-Iron Pipe and Fittings – 13.0 hours**

Introduces trainees to hub-and spigot and no-hubcast-iron pipe and fittings and their applications in DWV systems. Reviews material properties, storage and handling requirements, and fittings and valves. Covers joining methods and installation and testing.

**02109-05: Carbon Steel Pipe and Fittings – 10.0 hours**

Discusses threading, labeling and sizing of carbon steel pipe and reviews the differences between domestic and imported pipe. Also covers the proper techniques for measuring, cutting, threading, joining and hanging carbon steel pipe.

**02110-05: Corrugated Stainless Steel Tubing – 3.0 hours**

Reviews flexible plastic-coated steel tubing. Discusses piping systems components and the various connection and installation options. Also review applicable safety and code requirements.

**02111-05: Fixtures and Faucets – 5.0 hours**

Discusses the proper applications of code-approved fixtures and faucets in plumbing installations. Reviews the different types of fixtures and faucets and the materials used in them. Also covers storage, handling, and code requirements.

**02112-05: Introduction to Drain, Waste, and Vent (DWV) Systems – 10.0 hours**

Explains how DWV systems remove waste safely and effectively. Discusses how system components, such as pipe, drains, traps, and vents, work. Reviews drain and vent sizing, grade, and waste treatment. Also discusses how building sewers and sewer drains connect the DWV system to the public sewer system.

**02113-05: Introduction to Water Distribution Systems – 10.0 hours**

Identifies the major components of water distribution systems and describes their functions. Reviews water sources and treatment methods and covers supply and distribution for the different types of systems that trainees will install on the job.

## **Plumbing Technician Program**

### ***Plumbing Level Two***

**02201-05: Plumbing Math Two – 15.0 hours**

Explains the Pythagorean theorem and reviews methods for finding angles. Discusses the techniques used to calculate simple and rolling offsets, as well as offsets, as well as offsets on parallel runs of pipe.

**02202-05: Reading Commercial Drawings – 20.0 hours**

Teaches trainees how to interpret and use civil architectural, structural, mechanical, plumbing systems. Covers how to create and use isometric drawings, material takeoffs.

**02203-05: Hangers, Supports, Structural Penetrations, and Fire Stopping – 10.0 hours**

Introduces trainees to methods for attaching and running DWV and water supply piping in relation to structural elements, including pipe hangers and supports, modifications to structural members and fire-stopping.

**02204-05: Installing and Testing DWV Piping – 25.0 hours**

Explains how to locate, install, connect and test a complete drain waste, and vent (DWV) system.

**02205-05: Installing Roof, Floor and Area Drains – 5.0 hours**

Covers the proper techniques for locating, installing, and connecting roof floor, and area drains according to code. Also discusses waterproof membranes and flashing, drain components and proper drain applications.

**02206-05: Types of Valves – 5.0 hours**

Reviews the many types of valves, their components, and valve applications. Also covers valve repair and replacement.

**02207-05: Installing and Testing Water Supply Piping – 20.0 hours**

Explores the proper techniques for locating, installing and testing complete water supply systems, including piping, meters, water heaters, water softeners and hose bibs. Reviews common code requirements for water supply systems.

**02208-05: Installing Fixtures, Valves, and Faucets – 20.0 hours**

Covers the installation of basic plumbing fixtures, including bathtubs, shower stalls, lavatories, sinks, water closets and urinals. Also reviews the installation of associated valves, faucets and components.

**02209-05: Introduction to Electricity – 15.0 hours**

Introduces trainees to the principles of electricity, including voltage, current, resistance and power. Includes important electrical formulas, circuitry and common plumbing-related electrical applications.

**02210-05: Installing Water Heaters – 5.0 hours**

Discusses gas-fired, electric, solar, instantaneous, and indirect water heaters, components, and applications. Reviews proper installation and testing techniques and covers the latest federal guidelines that apply to water heaters.

**02211-05: Fuel Gas Systems – 20.0 hours**

Introduces the techniques for safe handling of natural gas, liquified petroleum gas, and fuel oil. Reviews fuel gas and fuel oil applications, systems installation, and testing.

**02212-05: Servicing of Fixtures, Valves and Faucets – 5.0 hours**

Covers the troubleshooting and repair of fixtures, valves, and faucets in accordance with code and safety guidelines.

## **Plumbing Technician Program** *Plumbing Level Three*

**02301-06: Applied Math – 18.0 hours**

Introduces trainees to math concepts they will use on the job. Including weights and measures, area and volume, temperature, pressure and force, Also reviews the six simple machines: inclined planes, levers, pulleys, wedges, screws and wheels and axles.

**02302-06: Sizing Water Supply Piping – 18.0 hours**

Teaches techniques for sizing water supply systems, including calculating system requirements and demand, developed lengths, and pressure drops. Also reviews the factors that can reduce efficiency of water supply piping.

**02303-06: Potable Water Supply Treatment - 15.0 hours**

Explains how to disinfect, filter and soften water supply systems. Discusses how to troubleshoot water supply problems, flush out visible contaminants from a plumbing system, and disinfect a potable water plumbing system

**02304-06: Backflow Preventers - 20.0 hours**

Introduces the different types of backflow prevention devices and discusses how they work, where they are used and how they are installed.

**02305-06: Types of Venting - 20.0 hours**

Reviews the different types of vents that can be installed in DWV system and how they work. Also teaches design and installation techniques.

**02306-06: Sizing DWV and Storm Systems – 20 hours**

Explains how to calculate drainage fixture units for waste systems. Reviews how to size drain, waste and vent (DWV) systems; storm drainage systems; and roof storage and drainage systems.

**02307-06: Sewage Pumps and Sump Pumps – 18 hours**

Discusses the installation, diagnosis and repair of pumps, controls, and sumps in sewage and storm water removal systems.

**02308-06: Corrosive-Resistant Waste Piping – 8 hours**

Discusses corrosive wastes and reviews related safety issues and hazard communication. Discusses how to determine when corrosive-resistant waste piping needs to be installed, as well as how to correctly select and properly connect different types of piping.

**02309-06: Compressed Air – 10 hours**

Explains the principles of compressed air systems and describes their components and accessories. Reviews installation and periodic servicing of air compressor systems.

## **Plumbing Technician Program** *Plumbing Level Four*

**02401-06: Business Principles for Plumbers – 15.0 hours**

Introduces trainees to concepts and practices that are essential for competitive, successful plumbing businesses. Covers basic business accounting and project estimating, as well as techniques for cost control and task organization.

**02402-06: Introductory Skills for the Crew Leader – 16.0 hours**

Introduces trainees to the knowledge and skills required for team leadership. Covers practical information about today's construction industry; basic leadership skills; safety responsibilities of a supervisor; and a detailed survey of project control techniques.

**02403-06: Water Pressure Booster and Recirculation Systems – 18.0 hours**

Builds on trainees previous experience with pumps, storage tanks, controls, and pipes and fittings by teaching them to assemble those components into systems that boost water pressure and provide hot water.

**02404-06: Indirect and Special Waste – 13.0 hours**

Explains the code requirements and installation procedures for systems that protect against contamination from indirect and special wastes.

**02405-06: Hydronic and Solar Heating Systems – 15.0 hours**

Introduces the basic types of hydronic and solar heating systems and their components. Reviews hydronic and solar heating system layout and installation. Also discusses methods inhibiting corrosion in solar heating systems.

**02406-06: Codes – 8.0 hours**

Discusses the different types of codes used by plumbers across the country and explains how those codes are written, adopted, modified, and implemented.

**02407-06: Servicing Piping Systems, Fixtures, and Appliances – 20.0 hours**

Explains how to diagnose and repair water supply and drainage piping, water heaters, and other appliances and fixtures. Describes the effects of corrosion, freezing, and hard water on plumbing systems.

#### **02408-06: Private Water Supply Systems – 10.0 hours**

Explains the operation of pumps and well components. Reviews the qualities of good wells and how to assemble and disassemble pumps and components.

#### **02409-06: Private Waste Disposal Systems – 10.0 hours**

Describes the types of private sewage systems, discusses the maintenance and replacement of these systems, and explains how to determine the local code requirements for these systems. Covers percolation tests and sewage system planning and layout.

#### **02410-06: Swimming Pools and Hot Tubs – 13.0 hours**

Introduces trainees to plumbing systems in swimming pools, hot tubs, and spas. Trainees will learn how to install and troubleshoot water supply systems and drains.

#### **02411-06: Plumbing Mobile Homes and Mobile Home Parks – 10.0 hours**

Describes the location and layout of plumbing systems for mobile home and travel trailer parks. Reviews how to design and lay out a system, how to connect water and sewer lines to a mobile home, and how to estimate materials and costs for the park.

## **Resolving Student Concerns**

The administration and faculty of Industrial Management and Training Institute are interested in seeing that every student enrolled receives the education and training that is outlined in this catalog. Students should follow the steps outlined below if they do not have their concerns addressed by the School Advisor:

1. Make an appointment to meet with the Director.
2. Be prepared to present to the Director a written list of specific concerns which you feel need to be resolved.
3. If you feel that the school has not satisfactorily answered or resolved School Calendar your concerns within 15 working days you should file an inquiry or complaint with the CT. Department of Higher Education - 61 Woodland Street, Hartford, CT 06105 Tel: (860) 947-1816.
4. Once a complaint has been made with the Department of Higher Education IMTI will make a response in writing to the State within twenty days. A copy of the response will be mailed to the student. A response will be made to the accrediting commission within 10 days and a copy sent to the student.
5. After a complaint has been resolved the student and the Director will sign a statement of complaint resolution.

### **STUDENT COMPLAINT/GRIEVANCE PROCEDURE**

Schools accredited by the Accrediting Commission of Career Schools and Colleges of Technology must have a procedure and operational plan for handling student complaints. If a student does not feel that the school has adequately addressed a complaint or concern, the student may consider contacting the Accrediting Commission. All complaints considered by the Commission must be in written form, with permission from the complainant(s) for the Commission to forward the complaint to the school for a response. The complainant(s) will be kept informed as to the status of the complaint as well as the final resolution by the Commission. Please direct all inquiries to:

Accrediting Commission of Career Schools  
and Colleges of Technology  
2101 Wilson Boulevard  
Suite 302  
Arlington, VA 22201  
(703) 247-4212

A copy of the Commission's Complaint Form is available at the school and may be obtained by contacting the School Director.



## IMTI Directions

Directions To Industrial Management & Training Institute: East - Take I-84 to exit 22. Turn right at light; left at next light; left at the bottom of hill. IMTI is the only building on the right. West - Take I-84 to exit 22. Turn left at the light; left at the 3rd light; left at the next light; left at the bottom of the hill. IMTI is the is th only building on the right.

Detach and mail to IMTI, 233 Mill Street, Waterbury, CT 06706:

### Application For Admission:

I hereby make application to enroll in Industrial Management & Training Institute, Inc. in accordance with the conditions and terms of this application form, and the rules and regulations in the current catalog. Please complete all items.

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_  
Address: \_\_\_\_\_ City: \_\_\_\_\_ St: \_\_\_\_\_ Zip: \_\_\_\_\_  
S.S.#: \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Date of Birth: \_\_\_\_/\_\_\_\_/\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_  
E-Mail: \_\_\_\_\_  
Citizenship Status: U.S. Citizen \_\_\_\_\_ Other \_\_\_\_\_ Alien #: \_\_\_\_\_

#### Program Desired

Electrical \_\_\_\_\_  
Electronics \_\_\_\_\_  
HVAC \_\_\_\_\_  
Plumbing \_\_\_\_\_  
Program Start Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

#### Evening Division

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Are you being sponsored by a State Agency? Yes \_\_\_\_\_ No \_\_\_\_\_ If yes, which Agency? \_\_\_\_\_  
Counselor: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_  
Are you being sponsored by your employer? \_\_\_\_\_  
If yes, employer name? \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_ - \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Are you interested in meeting with the Financial Aid Dept.? Yes \_\_\_\_\_ No \_\_\_\_\_  
High School Graduate? Yes \_\_\_\_\_ No \_\_\_\_\_ Year Graduated? \_\_\_\_\_  
High School Attended \_\_\_\_\_  
Did you receive your GED? Yes \_\_\_\_\_ No \_\_\_\_\_ Year Received? \_\_\_\_\_ State that awarded GED? \_\_\_\_\_  
Do you presently have a job? Yes \_\_\_\_\_ No \_\_\_\_\_ Full time \_\_\_\_\_ Part time \_\_\_\_\_  
Are you currently working in the field? \_\_\_\_\_  
If yes, employer name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

In connection with my application with the school, I understand that a consumer report which may contain public records information is being requested. This report may include the following types of information: names and dates of previous employers, credit information, etc. I further understand that such report may contain public record information concerning my credit, bankruptcy proceeding, etc. from federal, state and other agencies which maintain such records. I have reviewed and accept the terms and conditions in this catalog; I agree to set forth payment when due and as later billed; I agree to comply with all the rules and regulations as printed in this catalog, or other rules and regulations of IMTI.

Date: \_\_\_\_\_ Signature: \_\_\_\_\_  
Date: \_\_\_\_\_ Parent Signature (if applicant is under 18): \_\_\_\_\_



