

## **HVAC Survey Results**

### **Heating, Ventilation and Air Conditioning**

19. Skills or classes that I've found most useful in this program are:

- Classes with labs
- 160
- Ref. 160 is a great beginning course to start learning ref. This class has education me on the fundamental of Ref.
- Skill in How to check control devices (sp?)
- Trouble shooting
- All
- Ask questions and check for other people point of view. Also to ask people that have the experience on special equipment. Review more before making a change.
- Working 'hands on'
- Skills I've found most useful in this program is everything I have learned. All of this is new to me. So everything I learn is very useful to me.
- Heat formulas: sensible, latent and total
- Air quality, piping
- Troubleshooting a system electrically and mechanically
- Controls and troubleshooting
- Thermodynamics theory and basic refrigeration principles.
- All
- All mechanical, air cond., ref., and electrical studies improve way of thinking and common sense.
- Almost everything
- Refrigeration and air conditioning
- The hands on training on the labs most of the classes are helpful.
- A/C 159 and Ref 160
- Pneumatic controls
- Electrical Wiring, symbols. Schematic reading and trouble shooting
- 202, 203, 204, Service 1, Service 2, 161; Actually all classes are useful in their own way
- RFAC 161
- New student. This is the very first subject I took for A/C course.
- Electrical wiring and reading diagrams (wiring) Evacuation. Reclaiming and charging Freon into the system.
- Controls, and compressor, heating
- Understanding Electrical wiring diagrams, system operations
- All.
- All A/C classes
- All HVAC classes
- Most all classes that I'm taking most useful
- The whole program is very good
- 159, 160, 202, 203, 204
- Class 202 and 204 Most HVAC classes; give you good 'hands on' experiences
- Ref 159 & 160 A/C
- Electricity principles. Troubleshooting. Technical definition lab.
- Electricity, A/C cycle, all lab
- Basic electricity for HVAC, the use of multi meters and controls; Different types of refrigeration and air condition equipment
- 159 Ref A/C

- The electrical and other hands on (161) classes that I have taken
- 162 Piping, also basic classes like classes 202, 203, 204
- All of them
- Ref/A/C with Electrical construc.
- The whole program is helping me understand the technical functions of this trade and is helping me advance quickly in the service and parts department.
- All of them
- Troubleshooting and diagnosis
- All of the classes are useful
- HVAC
- The relationship with the teacher that provides you with wisdom
- Everything
- Air conditioning
- English 28 and Math
- Hands on labs
- Electrical, soldering, hands on lab
- Hands on training
- Math skills, air conditioning/Refrigeration classes
- Electrical
- Overview of heating and cooling equipment
- Air conditioned & Ref.
- All of them
- All have been useful to me
- All classes have been useful to me
- The electrical 159, 203, 204
- Class #202, 203, 204, 159, 250
- A/C & Ref
- 157 – it is a very useful class in HVAC
- 202, 203, 159
- All technical information
- Charging, recovering, Trouble shooting, etc.
- Practice
- 202 – 204, 161, 159. Most useful in this program
- Steam plant
- The electrical class and all about A/C
- Electrical Troubleshooting 202, 204, 203 – classes
- Electric Circuit Board
- All the classes
- 1. Soldering 2. Knowledge of electricity 3. Math
- Enthalpy chart, Temperature chart, Load calculations
- I believe that all classes are useful because we all acquire skills we didn't have
- All of them so far
- Trouble shooting
- HVAC
- Identifying the problem of a window unit; maintenance and servicing the unit
- Fourth semester HVAC
- Reading Schematics
- Plumbing & HVAC Electricity
- A/C Electronics 159
- Blueprinting & Fromme (sp?), & Business Law
- Ref/A/C
- Better understanding and safety
- Class 162 - Piping

- Lengthen knowledge on electrical components; read and understand the function of A/C Ref Construction
- How to use tool; identify schematic; identify ladder diagram
- 159 Ref A/C Fundamental of electric control/lab. 250 IAQ Ref A/C; 204 Ref A/C fundamentals of compression systems. 160 Ref A/C lab
- 2<sup>nd</sup> and 4<sup>th</sup> semester Electrician's skills.
- Troubleshoot the problem.
- 1<sup>st</sup> and 2<sup>nd</sup> semester
- 1<sup>st</sup> and 3<sup>rd</sup> semester
- 2<sup>nd</sup> semester electrical
- All
- Everything I've seen and learned in the HVAC course.
- All skills that I have learned are useful
- Air Conditioning and Refrigeration

20. Skills or classes I've found the least useful I this program are:

- Math
- Math
- Mathematics
- 2<sup>nd</sup> semester/electrical/Mathematics 174
- 2<sup>nd</sup> & 4<sup>th</sup> semester
- 3<sup>rd</sup> and 4<sup>th</sup> semester
- Do not know yet
- Being Bilingual
- 3rd and 1<sup>st</sup> semester
- It would be way better if all the A/C and refrigeration classes include hands-on & lab. I recommend it very strongly
- None so far
- Installing and repairing A/C and Ref
- None
- Don't know yet
- None thus far
- None
- Most of the Math.
- Refrigeration
- Too much lecture on components of manufacturing.
- All o.k. I guess
- HVAC 160 on Saturdays. It's a good program
- Everything has been interesting
- Learn to HVAC
- Learn about electricity how to apply it and troubleshoot.
- Less theory more hands on.
- Stuff I've already learned in past.
- First semester student, can not compare at the moment
- Math, it progresses slowly because I've already learned a lot of the material. Others have not.
- All the classes.
- All HVAC classes are excellent.
- There are no skills in this program that I have found useless.
- Anything I could learn helps me.
- Classes that only lecture.
- Classes 203-204 are useful for me
- Wiring

- None thus far.
- Don't know yet.
- Installing and repairing A/C and Ref.
- None so far
- It would be way better if all the A/C and refrigeration classes include hands on/Lab. I recommend it very strongly
- 3<sup>rd</sup> and 1<sup>st</sup> semester
- Being Bilingual
- Do not know yet.
- 3<sup>rd</sup> and 4<sup>th</sup> semester
- 2<sup>nd</sup> and 4<sup>th</sup> semester
- 2<sup>nd</sup> semester/Electrical/Mathematics 174
- Instructor
- Mathematics.
- Math
- Math
- N/A, but we need a better instructor for Math

21. What subjects in the HVAC curriculum do you believe are not being addressed?

- Real events that often occur on the job. "hands-on"
- Working with old compressor.
- Compressor rebuild
- I'm not in the field, so I wouldn't know.
- Pump down system on equipment; soldering on pipes or different types of gives use of pipes if it PBC
- None
- A/C Fundamentals. I asked for extra credit and did not give everything I learned in that class was through a personal tutor.
- Anything
- Not taken enough classes to make comment.
- All
- Need more hands on lab classes
- Night student needs more hands on training if they're not in the field.
- More into gas Furnaces
- Troubleshooting
- I think in this case it is good course
- More hands on
- They are all being addressed
- Computer controls
- Don't Know
- How to change a belt in a belt-drive compressor
- The most important classes have been addressed.
- I haven't been coming to Trade-Tech for that long.
- DDC system
- Water treatment for cooling towers and closed loops. Duct design and sizing.
- Not enough lab
- Cascade systems
- Practice
- All subjects are being addressed is luck of hands on training and lab classes that are needed.
- Did not know.
- Everything is being said
- Trouble shooting of commercial systems

- Tools to do our hands on projects.
- Not familiar with program yet.
- I wouldn't know until I get into the field.
- None
- Nuematic controls in details
- Can not compare at the moment
- Everything is addressed very well
- Lab
- A/C and DC, and also principles of magnetism to understand transformer motors.
- Everything that I know of or can think of is being covered.
- Water treatment
- More commercial and industrial refrigeration equipment; ice machines
- Introduction to and familiarization with right suite \_\_\_\_\_ calculation and duct design software.
- I believe the subjects in the HVAC are being addressed in an orderly fashion. Step by step. Starting from the basics.
- I'm leaving so can't answer it.
- More of the real world equipment.
- No opinion
- None
- Meeting and also Government codes made those possible the EAP test.
- We need more hands on
- Electrical
- None
- None
- Piping class
- Installation of Ref and A/C system (lab)
- Did not find any so far.
- More hands on
- More hands on
- All the subjects are not addressed as they should be. Only half
- DDC Controls
- None
- None

22. Which subjects in the HVAC curriculum should be expanded for more detail and better understanding?

- Electricity classes
- A/C Electric and Refrigeration theory more hands on
- Ice machines and their operations
- All the classes need to be better in more detail
- Chapter three refrigeration and refrigerants
- Electrical controls
- I believe the system is working
- Piping class; more hands on
- The schometric chart
- Trouble Shooting, I believe, should be expanded. I think trouble shooting is important so we have some ideal what to look for.
- No opinion
- The student worker to gain some experience.
- All the school
- High powered control systems

- Not taken enough classes to make comment.
- 204
- Hands on training
- 204 and 159
- For night students need more hands on like the day students.
- Schematic reading
- No
- Share guidelines
- All of them
- Modern and newer HVAC control
- Evacuating and recovery
- None
- Nothing, they are all fine
- The refrigeration cycle
- None
- Controls like times and the wining
- Don't know
- More handouts
- The class 1 and 9 electrical computers, should be teaching in a better way
- The hands on training courses with better working equipment
- All the subjects that do not include lab/hands on such as 203, 204, 250.
- Heat loads and heat losses
- No comments
- 202, 203, 204, 250 Ref. A/C classes need lab/hands on
- Thee use of lab equipment
- More lab
- The lab classes and hands on training
- More labs and practices
- Electrical need more hands on
- Motor control
- Servicing, piping, motor control
- DDC controls, commercial system controls, VAV trouble shooting and adjustments
- Lab
- Don't know yet.
- Troubleshooting equipment
- Schematic reading and trouble shooting
- Everything
- Motor lab practices
- The labs should be expanded more
- More practical
- Indoor and outdoor air quality
- The program that you have for electricity. Should be included in HVAC
- Nothing
- All
- All of them
- #159 controls should be well explained.
- The subjects in the HVAC is expanding everyday as we make progress.
- Diagrams of electrical
- Hands on training
- A better understanding of never equipment. Also more of hands on classes. Teaching different types of systems. More important, people need to ask more questions in troubleshooting.
- Pneumatic

- Piping and Recovery, reaction methods
- Small Hemmetic and A/C on track homes module. Install of A/C and heating unit in homes.
- I don't know
- Electrical classes should be taught for 3 semesters continually
- None
- Class 159. We would like to have better teaching
- All subjects are interesting only if they could expand like lab work
- Piping class; hands on; classes with lecture and laboratory
- 204 Ref A/C needs to have hands on/ lab
- Mathematics for HVAC
- Lab and hands on projects
- Electric/Mechanical Electric
- Mechanical/Electric
- All subjects
- Electrical/DDC controls
- None

23. Do you feel you can start earning money on the side doing HVAC jobs while attending LATTC? Why?

- No, not enough field experience learned here to work alone.
- Not yet. This is my first semester
- Yes, I work in the field
- Yes, the classes are very useful
- Not yet, probably after the fourth semester.
- No
- Yes, because I have the skills to work on air conditioning.
- If I had a certificate I would because it would give hands on training, and some extra cash.
- Yes, because I have a very good understanding on how to troubleshoot timers, compressor and how to change filters.
- No, because I still need to get more experience
- I don't feel (for myself that I will earn the money right away because I am not in the field.
- After three semesters 12 units or so per semester I feel I'm not prepared. Need more hands on.
- Yes, because school has equipment that is up-to-date
- Because I work in the LATTC as assistant on HVAC
- Yes
- Yes because I can get some experience
- Oh sure, because we practice in the school and in the job
- Yes, if I had the opportunity
- No, not yet. Need to know more to do good work.
- May be in the near future I will. I need more hands on.
- Yes, now I have a very wide knowledge on HVAC
- No, Until I'm more experienced
- Yes, because I have obtained enough knowledge here at LATTC to apply out in the work field
- I did get work made me installer helper and after a while
- Yes, because I have learned how to do service and be a building engineer
- Yes, have some experience, plus learning here
- No
- Yes, because I can get a lot of experience

- Not yet. I prefer to stay in school and learn a little more about HVAC and from 1
- mous on
- Yes, because I know a little bit how to do the job.
- Yes
- No, because I have no tools and don't know enough.
- Not yet. Do not have necessary skills
- Yes! I feel that comfortable in my training so far.
- Yes
- Yes, we know basic things that can get us through
- No, because it's better to complete the program so you can understand all the equipment around you.
- Yes, I learn fast and I am good
- Not right now because I don't know the ins and outs of the trade.
- Yes, because I have a little bit of experience from my country.
- Yes, earn while you learn doing maintenance work
- Yes, because the minimal skill I've learned is sufficient
- Yes, It is good for my working and learning at some time while attending LATTC
- Yes, because we learned basic service and how to do maintenance and change out of: compressors and condensers and charging and recovering and vacuuming and Misc.
- Yes, to gain experience and earn a degree
- Yes, because this is one of the best technical colleges
- Well, first we have to have a little experience and we have to finish the classes
- No, I haven't learned too much about the trade yet.
- No
- No, because I don't have the money to buy the necessary tools and equipment.
- Not yet. May be in the future.
- No.
- No because I have no clue were to start
- Maybe
- Yes, because the schedule of the classes
- No not learned the trade well enough
- After the second semester. I feel on the job training would be good.
- Yes
- Yes, because I can do service and installation
- I feel capable of doing it.
- Yes, because I feel capable of doing a good professional job
- Yes, know how a system is installed and operates
- Yes, repairing friend's equipment
- Yes
- For all experience we are learning
- No need to work for someone with more experience or for a company willing to train for an entry-level position
- Yes, when I take more classes, probably
- Sure, because I can
- No, for instance in my situation I haven't seen and worked on any equipment. So school is all I get and hopefully someone can teach me the hands on portion.
- Yes! Because of my mechanical skills experienced
- Yes
- Yes, it has improved my knowledge.
- Yes, planning to get a part-time job
- Maybe
- Yes, because schedule is flexible

- Better living
- Yes, but it would be easier to finish because you are learning completely new things all the time
- Yes, I feel confident in my skills and feel that the instructors are willing to answer my questions
- learning completely new things all the time
- Yes, I feel confident in my skills and feel that the instructors are willing to answer my questions
- Yes, I feel confident that I have learned enough
- No
- Yes, I'll be able to get the physical experience of HVAC
- Yes, because I would like to learn more about the trade while working and making money
- Yes, by my 4<sup>th</sup> semester I should know a great amount about HVAC, to start as an apprentice
- No, I don't have the confidence to go alone
- Yes
- Yes having more experience and working in the field has helped me to get side jobs with friends and people they know
- No, not enough experience
- No, because they require experience wherever you apply.
- Yes
- Yes, because I learning many things that I can stay using my skills in a company
- Yes
- Yes because I've improved my skills and understanding
- Yes, because the knowledge I gained I will share with my business partner
- No, I have just enrolled in HVAC
- I have no idea
- Not enough preparation
- Not now because I have not learned everything.
- Yes, because the class improve my knowledge
- Not yet I need more knowledge
- I don't believe so, because we don't have a program where we can get experience, like a volunteer job
- Yes, because we learned about the fundamentals
- Yes, because I could be changing air filter/florences and light/transformers
- No
- NO
- I can apply the knowledge I gain fro this program on the field
- No
- Yes. Because we learned the basic knowledge to start work
- Yes. My basic knowledge
- Not I need more hands on good equipment
- Yes, it gave me new skills that are in demand
- I like too when I get job. I feel confident
- I really wouldn't know however if there is any opportunity, I would possibly like to pursue that
- Yes because I will have more knowledge than most technician
- Yes, maybe after 3<sup>rd</sup> semester

24. The best trained HVAC mechanics/installers graduate from LATTC. Do you think you will become one of them? Why?

- Yes, I intend to do my best. And my best is as good as it gets. Dedication.
- Yes I will because of the very knowledgeable instructors.
- Yes, I'm halfway there.
- Yes, the job is a very understanding work
- Positive, because I'll like to make some more money than I make today.
- Yes.
- Yes, because I love to learn about this trade, and also work hard.
- Yes, I'm working on all required classes to obtain my certificate, and as I go through them. I'm getting the knowledge to do a good job.
- Yes, because I'm working part time with one graduate from here.
- Yes, because I'm stuck in a dead-end job.
- Yes, because I'm putting 100% on each class
- I will because I like to work hard and learn my trade. I will do it because I got a very good understanding of the concepts presented to me at LATTC
- I don't think I will be the best, but I will try too.
- I better become one of those individuals
- Yes, I dedicate to the trade sincerely
- If I keep working hard I will.
- Yes, cause L.A. Trade is one of the bet schools.
- Yes, because I bet I can work at the company.
- Yes
- I hope
- Yes, there are great A/C teachers and they give great information to get you through your program.
- Absolutely. LATTC provides a complete training program.
- Yes, I think I will become one of them. Because this college has the best instructors in the city.
- Yes
- Yes, because I've set my mind to learn all I can
- Yes, we have some good instructors here. They have been in the field for many years.
- Yes. I study the books and handouts every week.
- Yes, because this is what I like to do. Yes, I will. I'm going to have all the skill required to become one of them.
- Yes, we have a good program here.
- Yes.
- Yes, the program does provide sufficient skills and training
- Of course. My name is David Bernal. I can't fail.
- Yes.
- Maybe, I don't know yet.
- Yes, because the teachers are great and stay on top of you.
- Yes, I take my time and make sure I understand everything.
- Yes because I only want to be the best. #1.
- Yes because I am understanding the basics they are addressing.
- Yes, because the teaching is thorough
- Yes. The program in the LATTC is complete and increased my skills.
- Yes, because I am very interested I this field and I know I could be successful.
- Yes, because I'm smart and motivated to start my career and be the best.
- Yes, because that is my priority in the future
- Yes, because this college, still has good teachers.

- Yes, because it's interesting and it can teach me several other trades of construction that I'd like to acquire.
- Not sure, because my brain is saturated of theory and in order to become a good technician I need to put hands on all type of equipment existing in school.
- Yes, because I have focused and understand what the instructors are teaching and they've provided me a lot of information.
- Maybe
- No, I'm changing my major
- No comment
- Yes, because I need to get a job
- Yes, good will power.
- Yes, because many of installers that I know graduated here.
- Yes, I don't like starting anything without finishing it completely.
- Yes, I feel I can't reach my goal with the learning I received from this program
- Yes, because I'll be one of them.
- Yes. Because I'm giving it all I have
- Yes, I think I can
- I am. I love my job
- Yes, have prior experience working for a company
- Yes – thanks to the instructors and my ability to learn.
- Yes, LATTC started for the world ahead.
- Yes, for my preparation
- Yes, If I would be serious with my studies.
- Yes, I have a desire to continue to learn
- I hope, maybe with all the theory the actual work would easily be easy.
- Yes! Because of my fully loaded knowledge that I've learned.
- Yes, I currently work in the HVAC industry. And the classroom/textbook education is a tremendous boost.
- Yes, because coming and learning
- Yes, I'm planning to complete the evening program.
- Yes, because of the training
- Yes, because I'm training with one of them.
- Yes, because I have known some people who graduate here.
- Someday, I will be one of them.
- I want to be certificated, to find a job.
- Yes, if I wanted to I could come out of this school because this stuff comes easy to me and the teachers are great.
- Yes, see #23
- Yes, I have soaked enough
- No. I don't think I'm the best at anything, there's always room for improvement and not enough hands-on training
- Yes, that's why I came to LATTC to learn about HVAC and get a job in that field
- Yes. I would be one of them.
- Yes. That is a trade that is going to be putting food on my table. This is something I am interested in and will make it a career.
- I hope to be better.
- Yes
- Not sure because we need better tools and more hands-on. World is changing and need newer technology to do these jobs
- Yes. I am willing to learn.
- Yes, because of my persistence
- Yes, am qualified
- Yes, because I want to become one of them.
- Yes.

- Yes, I've now what it take
  - I hope so
  - Yes. If I will be trained and take more HVAC subjects.
  - I really don't know
  - I am willing to learn
  - I'm going to be the best.
  - Yes. Why not
  - Yes, because LATTC has good teachers
  - I don't know
  - Yes, I could use everything I learn from LATTC
  - Yes, I do believe if I'm spending my money and my time I will make an effort to get as much out of class.
  - Not sure.
  - I think I could become one of them, but with a teacher that will show you how to do it.
  - I will pursue a HVAC technician degree.
  - Yes, because the program from LATTC
  - The last two semesters were the best in my knowledge.
  - Yes. At least two years of basic training. More knowledge than entry-level position.
  - I wish.
  - Yes, I feel I had the top notch training
  - I hope so.
  - If I dedicate myself and try hard there's no reason why not.
- Yes, because I'm interested in the industry.
- Yes, because I'm having a great training.

25. How did you hear about the HVAC program?

- My uncle
- By the catalog
- My job consists of it.
- Co-worker
- I was just looking for an interesting class to study, just like this.
- Other Techs
- Walked in.
- Friend
- A friend of mine told me about it.
- I was watching t.v. one night and a group of guys had graduated from the HVAC program
- I have been coming to Trade-Tech for a long time
- I didn't, I found the HVAC program by looking into the school catalog
- Friend
- People recommended me.
- Through school ads.
- By friends
- Through a friend
- From my friend.
- Father
- My brother graduated in 1994, now he's a journeyman and works for the County.
- Through the LATTC catalog
- Walk in - in person
- Friends
- Friend

- A guy at work works on our refrigerator from Hussmen said to go to Trade-Tech
- I read it on the internet
- By a friend
- Through the Local 40 apprentice board
- Through a friend
- One person from this school whom to my old school to talk about LATTC
- Friends
- Friend
- Internet
- Friend
- Looked my self and asked.
- Internet
- Catalog and friends
- I was watching installers put one in my house.
- My brother-in-law
- Talking to air conditioning techs in Las Vegas and deciding to look into the field.
- I heard my brother
- From a friend
- I just asked
- Cioffi recommended this program
- I took the ECONM (electrical) program also.
- I checked it out on the internet.
- I walked in
- Through a friend
- By a friend
- From another school. WVOC (West Valley Occup. Center?)
- School
- On my operating and maintenance Engineering class at LATTC
- By a friend
- From my Dad
- Friend
- My friend
- Through a friend
- At work
- Catalog
- From a friend
- Previously attended electrical program
- By a friend
- Heard of HVAC program from a coworker that was certified by LATTC
- By a friend
- Drive by, looked in school curriculum
- From friend
- I used to work for a HVAC company before and I liked it.
- I found by myself
- Previous Calif. Engineer
- Worked in the area, word of mouth
- Catalog
- From attending LATTC night program
- Throughout school
- Recommended by friends
- School catalog
- I heard the HVAC program from a service technician

- Relatives and friend
- Other students
- Friends
- From I co-worker that attended LATTC
- From a friend
- By a friend
- A friend who came here
- From the instructor they encouraged us to take the HVAC if you want to be a good mechanic
- At work
- Lots of my family member went though school here and recommended it.
- Former student
- Work
- I just stopped by and signed up
- I found out about HVAC from a coworker
- Old friend
- Through family
- I just look for it in my area.
- Friend
- Through job. They recommended me to the program.
- Friend
- Through a counselor
- From Friend
- From my company
- Friend
- Here
- From a business associate who attended Trade-Tech
- Through friends who graduated from LATTC
- I've come to LATTC for a few years but I am very disappointed with this program
- School catalog
- From a homie
- About friends
- From my boss
- By LATTC
- Friend
- I've been coming to school for a long time
- By a friend/co-worker
- Here at Trade-Tech
- From same students who already took HVAC class.
- By my friends
- Word of mouth
- I saw advertisement
- Friend
- Friends
- Friend/ and passing by the school, looking at the schedule and choosing this trade.
- I just wanted to learn something and I heard this program was great.

