

Electrical Systems Technology Magnet Apprenticeship Program



In 1976, the North East Independent School District opened an electrical trades program, taught by Mr. Jack Tigrett, at MacArthur High School. This was at a time when skilled electrical tradesmen were needed due to the demands of the construction industry; a demand which still exists today. For the next several years the program continued to grow. In 1984, a vacancy occurred in the program and Perry Callaway, who just happened to be a licensed Journeyman Electrician, was hired. His mission was to provide students with the skills and knowledge to go to college to become an Electrical Engineer or continue their training in an adult apprenticeship program.

In 2001, due to Mr. Callaway's tenacity, the program was registered with the U.S. Department of Labor Apprenticeship Training. This was the first electrical program in San Antonio to meet the requirements to be recognized as an apprenticeship training program. The significance of this meant that the students in the electrical trades program could earn on-the-job-training hours by working in the summers of their junior and senior years. These hours would count towards the 8,000 hours required to take the State Journeyman Electrical Test.

In 2002, the Electrical Trades Program became the Electrical Systems Technology Magnet Apprenticeship Program. This designation meant that students at any high school in NEISD could apply to become a student in the program. Perry Callaway was selected as the Director of the Electrical Systems Technology Magnet Apprenticeship Program. Under his leadership, two exceptional teachers, Eduardo Del Toro and Raul Vasquez, both licensed Journeymen Electricians, were hired. They have a combined experience of

over 19 years in the electrical field. Mr. Del Toro was a former student of the Electrical program at MacArthur High School. He contributes his successes to the technical education he received during his 4 years at high school. Both, Mr. Del Toro and Mr. Vasquez are instructors at the Independent Electrical Contractors (IEC) Adult Apprenticeship School in the evenings. Mr. Vasquez serves on both the National Electrical Code Writing sub committee and the IEC National Writing Curriculum committee. He was recently chosen as the National IEC Instructor of the Year for the second year in a row.

In 2012 and for the last 27 years, the Electrical program has competed in SkillsUSA competitions at the District, State and National levels. At these competitions the students are able to apply their technical skills they have learned in the classroom and lab to a real world scenario. They also compete in events such as: job interview, technical related math, leadership and technical information contests. Participating in these competitions provide students an opportunity to demonstrate the knowledge they have acquired.

Programs, such as, the Electrical Systems Technology Magnet Apprenticeship Program, requires capital to operate. Capital to purchase such things as: educational materials, electrical tools and equipment, as well as funds to help support student travel and lodging to attend competitive events. If you would like to become a sponsor and join others who have and still are helping the program to continue to be successful, please contact current Director, Steve Albert, at 650-1100 ext. 397 or email him at salber@neisd.net. With your support we can continue to grow and expand our program and remain a leader in the education of our future Electricians and Electrical Engineers.



STEVE ALBERT
 Electrical Program Director



EDUARDO DEL TORO
 Electrical Program Instructor



RAUL VASQUEZ
 Electrical Program Instructor

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Bronze	\$50.00
Silver	\$100.00
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Lifetime (Yearly Donation Pledge)	\$1000.00

THE 2012 SkillsUSA STUDENT STATE CONTENDERS!



Hunter Bakel

Grade: 12th

Electrical Skill Level:
4th Year Electrical Student-Motor Control

District Winning Category (s):

Residential Wiring Skills
Residential Electrical Project
Commercial Electrical Project X2
Best of Show Over-all Runner Up for Commercial Electrical Project

Electrical Projects:

1) **Theme:** Solar Powered Electrical Equipment
2) **Cost:** \$900 Mostly donated
3) **Man Hours:** 90 Hours

1) **Theme:** Residential "Man Cave" Theater Room
2) **Cost:** \$1700 Mostly donated
3) **Man Hours:** 125 Hours

1) **Theme:** Commercial Baking Oven
2) **Cost:** \$250 Mostly Mac Electrical program's Materials
3) **Man Hours:** 65 Hours

Prior competition experience:

4 Years Running SkillsUSA Residential Wiring District Champ
2 Years Running SkillsUSA Residential Wiring State Champ
3rd Place SkillsUSA Residential Wiring National Winner

Other Community Service or Extracurricular Activities:

Habitat For Humanity
National Honors Society

Future plans after graduation:

Already enrolled at UTSA for a degree in Electrical Engineering.
After College, I will attend IEC to become a Master Electrician

What does competing at the State Level in Electrical mean to you?

Competition at State is a chance for me to test my abilities I have learned in the electrical program against other competitors from around the State. I have always enjoyed this opportunity in the past three years I have gone. There is always something new and the people I get to meet are awesome.



Tyler Davis

Grade: 12th

Electrical Skill Level:
2 Years in Motor Control

District Winning Category (s):

2010 Residential Project
2011 Residential Project
2011 Motor Control

If an electrical project was a winning category, enter details:

1) **Theme:** 2011 Residential
2) **Cost:** Donated
3) **Man Hours:** 6 Hours

1) **Theme:** 2010 Residential
2) **Cost:** Around 40 Dollars
3) **Man Hours:** 22 Hours

Prior competition experience:

I learned about Electrical through the program I was put in my Junior year.

Other Community Service or Extracurricular Activities:

Habitat for Humanity (2010 & 2011)

Future plans after graduation:

I plan to attend college for electrical engineering and mechanical engineering. After that, hopefully starting at IEC in an apprenticeship program.

What does competing at the State Level in Electrical mean to you?

It's an exciting experience that is a blast and a lot of fun. Just being around the people who know the same things as you and even meeting new people from around Texas at the competition. It's also a great way to push yourself to try harder and compete more in things you may not be the best at...



Tyler Templer

Grade: 12th

Electrical Skill Level:
4th Year Motor Control

District Winning Category (s):
3rd Place Motor Control Wire Off

Prior competition experience:

2nd Place Residential Wire Off
4th Place Motor Control

Other Community Service or Extracurricular Activities:

Habitat for Humanity -Volunteer 3 Years in a Row

Future plans after graduation:

I want to attend IEC to start my career in the Electrical field.

What does competing at the State Level in Electrical mean to you?

This competition is another chance for me to test my knowledge & skills in this valuable trade.



Gabriel Yzaguirre

Grade: 11th

Electrical Skill Level:
Electrical III

District Winning Category (s):
1st place motor control wire off,
Advanced to State with commercial exhibit.

If an electrical project was a winning category, enter details:

1) **Theme:** A house powered by solar energy
2) **Cost:** \$800
3) **Man Hours:** 90

Prior competition experience:

Habitat for Humanity, 3 years in the program, my partner and I were the first to bring solar energy into competition.

Other Community Service or Extracurricular Activities:

I am also a part time employee for Bill Millers. I enjoy playing occasional video games, relaxing with family and going out to eat.

Future plans after graduation:

I plan to attend IEC and earn my Journeyman's license. Later on in life, I would like to earn my Master Electrician's license. I plan on working my way up and being a foreman and supervisor.

What does competing at the State Level in Electrical mean to you?

Competing at State level means a new experience to me. We all go to a new city and meet new people and go to new places. The competition there is all people who have earned it, so we all get competitive and try our hardest. Advancing to Nationals is not handed to anyone. I have not yet been to Nationals but I am working my hardest and hope to go this year.



Matthew Swaim

Grade: 9th

Electrical Skill Level:
1st year Electrical Student - Intro

District Winning Category (s):
NEC Code Testing

If an electrical project was a winning category, enter details:

1) **Theme:** NEC Code Testing
2) **Cost:**
3) **Man Hours:** 1 1/2 Hours

Other Community Service or Extracurricular Activities:

Habitat for Humanity

Future plans after graduation:

Become a Master Electrician

What does competing at the State Level in Electrical mean to you?

Competing at State gives me a chance to see everything that I have accomplished up to this point and it proves to me that all of the effort that I put into studying the NEC Code book has paid off. And I will strive to win 1st place.

THE 2012 SkillsUSA STUDENT STATE CONTENDERS!



Paul Zuskind

Grade: 10th

Electrical Skill Level:

Second Year Enrolled Electrical Apprenticeship Installment

District Winning Category (s):

Commercial Wiring Project
Residential Wiring Skills Competition, 2nd place

If an electrical project was a winning category, enter details:

- 1) Theme: Solar Panel Unit, Mobile
- 2) Cost: \$300 excluding loaned Items
- 3) Man Hours: 100+ Hours

Prior competition experience:

Residential Wiring Project

Other Community Service or Extracurricular Activities:

Habitat for Humanity Housing Wiring
Church Service

Future plans after graduation:

Aeronautic Engineering
Electrical Engineering

What does competing at the State Level in Electrical mean to you?

Competing at the State level in electrical will allow myself to compare my work against others who are greatly skilled; therefore, allowing me to rank myself among many other great competitors. It also gives me the opportunity to find faults on my own abilities and fix them as to better myself as well as my wiring capabilities. The State level also tells me that my skills greatly excel above many in the electrical field and prides myself in the work I do.



Nicholas Serratoz

Grade: 10th

Electrical Skill Level:

2nd year

District Winning Category (s):

NEC Code Test

Other Community Service or Extracurricular Activities:

Soccer, Volunteer at NE Baptist Hospital

Future plans after graduation:

Paramedic Firefighter

What does competing at the State Level in Electrical mean to you?

It means a lot, because I now have a bigger responsibility but with bigger rewards, so I hope to take my school upon my shoulders and make them proud.



Jesus Madera

Grade: 10th

Electrical Skill Level:

Two years in the MacArthur Electrical Program. I can do conduit bending, residential wiring, and commercial wiring.

District Winning Category (s):

Residential Wiring Project.

If an electrical project was a winning category, enter details:

- 1) Theme: Residential Wiring Project.
- 2) Cost: \$250. Some of the items were donated.
- 3) Man Hours: 30 hours.

Prior competition experience:

MacArthur Electrical Program.

Other Community Service or Extracurricular Activities:

I did Habitat for Humanity two years in a row

Future plans after graduation:

I plan to go to UTSA for Electrical Engineering.

What does competing at the State Level in Electrical mean to you?

For me, competing at the State level in Electrical means a lot because it's a great opportunity to see and learn how other schools are being taught.



Jonah Morales

Grade: 9th

Electrical Skill Level:

Electrical I

District Winning Category (s):

Electrical Project

If an electrical project was a winning category, enter details:

- 1) Theme: Residential
- 2) Cost: \$30
- 3) Man Hours: 20 Hours

Prior competition experience:

First Year in SkillsUSA
3 Practice Competitions as an Underclassman
2 Practice Competitions as an Upperclassman

Future plans after graduation:

I want to acquire a Master Electrician license. Next I want to open a HVAC & Electrical company with my father, who has a Master HVAC license.

What does competing at the State Level in Electrical mean to you?

Competing at the State level shows me that you will be rewarded for hard work and determination. Knowing that I've earned the opportunity to go to State, instead of having it handed to me, makes it so much better.



Stephan Gillenwater

Grade: 11th

Electrical Skill Level:

Electrical 1

District Winning Category (s):

Residential Wiring Project - Best of Show

If an electrical project was a winning category, enter details:

- 1) Theme: Residential
- 2) Cost: \$500
- 3) Man Hours: 20

Prior competition experience:

1st place at 2011 District competition.
1st place at 2011 State competition.
Best of Show 2012 District competition.

Other Community Service or Extracurricular Activities:

Habitat for Humanity 2011 & 2012

Future plans after graduation:

I would like to Enter the electrical field after I graduate.

What does competing at the State Level in Electrical mean to you?

It means a lot because as a Junior I can compete against the Seniors and its cool competing against them.



Uvaldo Plata

Grade: 12th

Electrical Skill Level:

4 years of Commercial, Industrial and Motor Control.

District Winning Category (s):

Superior in State

If an electrical project was a winning category, enter details:

- 1) Theme: Industrial
- 2) Cost: \$90
- 3) Man Hours: 42

Prior competition experience:

State Level

Other Community Service or Extracurricular Activities:

Habitat for Humanity
Electrical Apprentice for Southwest Electrical Contractors.

Future plans after graduation:

Electrical Engineering

What does competing at the State Level in Electrical mean to you?

It shows how much I've achieved to get here.

THE 2012 SkillsUSA STUDENT STATE CONTENDERS!



David Kissinger

Grade: 10th

Electrical Skill Level:
Introduction Level

District Winning Category (s):
Team Project
Residential Wire Off

If an electrical project was a winning category, enter details:

- 1) Theme:** Residential Wiring - Team
- 2) Cost:** \$250
- 3) Man Hours:** 7 hours

Other Community Service or Extracurricular Activities:

San Antonio Stock Show and Rodeo
Habitat for Humanity

Future plans after graduation:

Attend a 4-year college as well as 4 years to IEC to become a Journeyman Electrician and eventually a Master Electrician.

What does competing at the State Level in Electrical mean to you?

The State competitions help me to strive to do my best and to prove that I am a good worker. Plus I try my hardest at everything I do and to make State is an accomplishment because it shows me my work is noticed and appreciated. Going to State means a lot to me because it proves I can do many things.



Michael Ybarra

Grade: 11th

Electrical Skill Level:
Electrical III

District Winning Category (s):
National Electrical Code Test

Prior competition experience:

National Electrical Code Test at District and State levels; 1st place in District competition twice, silver medal at State level.

Other Community Service or Extracurricular Activities:

Track and Field, heavily involved with SkillsUSA, community service with church, architectural design, drawing.

Future plans after graduation:

Attend trade school to learn more construction and electrical skills.

What does competing at the State Level in Electrical mean to you?

Competing at the State level shows that I'm serious about what I do in electrical and that I like the work enough to take it to a competitive level.



Nathan Warren

Grade: 10th

Electrical Skill Level:
Introduction Level

District Winning Category (s):
Residential Wiring Project - Team

If an electrical project was a winning category, enter details:

- 1) Theme:** Residential Wiring Project - Team
- 2) Cost:** \$250
- 3) Man Hours:** 7

Other Community Service or Extracurricular Activities:

1. San Antonio Stock Show and Rodeo volunteer.
2. Boy Scouts of America (Assistant Senior Patrol Leader)
3. Volunteer with the Saint Marks Catholic Church.

Future plans after graduation:

1. Go to a 4 year college
2. Enter into Law Enforcement and become a Journeyman Electrician.

What does competing at the State Level in Electrical mean to you?

I always have and always will do my best on everything that I do, even if I do not accomplish it as well as planned. Advancing to State is a great feeling of accomplishment. I am proud to represent my family, my school and myself and do as well as possible. I plan to continue to do the best I can and advance to State in all of the categories I may enter into.



Nathan Schramm Tibbit

Grade: 9th

Electrical Skill Level:
Electrical I

District Winning Category (s):
Electrical Project

If an electrical project was a winning category, enter details:

- 1) Theme:** Residential
- 2) Cost:** \$30 (Used School Supplies)
- 3) Man Hours:** 15

Prior competition experience:

Local Competitions with school
Habitat for Humanity

Other Community Service or Extracurricular Activities:

Habitat for Humanity
Helping a friend who has cancer

Future plans after graduation:

I want to be an electrician to support me through college. And if I like it enough, continue it as my career.

What does competing at the State Level in Electrical mean to you?

All of my hard work in class paid off. Now I get the opportunity to compete at a higher level.



Jesse Villa

Grade: 10th

Electrical Skill Level:
2nd year in the Electrical program (Licensed Apprentice).

District Winning Category (s):
Residential Wiring Project

If an electrical project was a winning category, enter details:

1st place in residential wiring project

1) Theme: Residential Wiring Project

2) Cost: \$250

3) Man Hours: 22 hrs

Prior competition experience:

This is my first competition.

Other Community Service or Extracurricular Activities:

I am interested in art; it is a favorite hobby of mine.

Future plans after graduation:

After my graduation from MacArthur High School, I plan to work in the electrical field.

What does competing at the State Level in Electrical mean to you?

Competing at State is amazing and a great experience. I am very proud of myself to witness my project advance to State.



George Mendez

Grade: 12th

Electrical Skill Level:
4 years of Commercial, Industrial & Motor Control

District Winning Category (s):
Superior in State

If an electrical project was a winning category, enter details:

- 1) Theme:** Solar
- 2) Cost:** \$800
- 3) Man Hours:** 120 Hours

Prior competition experience:

State Level

Other Community Service or Extracurricular Activities:

Habitat for Humanity

Future plans after graduation:

Master Electrician

What does competing at the State Level in Electrical mean to you?

It shows all the hard work I've achieved to get here.

Meet Former Mac Student and 2000's SkillsUSA Residential Wiring National Champion, James Garcia.



HS Graduation Year: 2000
College Attended: Texas A&M University – College Station
College Graduation Year: 2004
Degree: B.S. in Electrical Engineering
Licensed Professional Engineer
Current Employer: Williams – Midstream
Current Occupation: Project Manager – E & C East Compression

How did the MacArthur Program help you succeed?

The Electrical Trades Program helped build the confidence I needed in myself to succeed. High school was not an easy trek at times and my freshman year was the hardest. Although I didn't do well my first year in academics, I excelled in the trades program. I took the challenge to be the best in the program I could possibly be. After my first internship/coop with Tim Smoot Electric, I realized how hard the real "Working" world could be without a fallback plan. That experience shaped my outlook and made me appreciate those men and women who work in the industry on a daily basis. I continued on with the program throughout high school and working summers at Tim Smoot and DeWinne Electric. I powered through the final three years of high school motivated to further my education, to become the first in my family to graduate college and become an Electrical Engineer from Texas A&M.

If you had to do it all over again, what would you have done differently?

As cliché as it may seem; I wouldn't change a thing. Everything in life happens for a reason and the underlying purpose is to LEARN! Without challenges in life, a person can never find their true potential. Many of my challenges fueled me to never turn back, take things in stride and carry on with my head held high. The largest reason for this was because of the good Lord. I've been blessed to know hard work with my hands and exercising hard work with my mind. I give thanks everyday for this.

Advice you would give to students and parents trying to decide whether or not to get into the electrical trade.

Do it!

Parents, please allow this opportunity for your children. There is so much to learn from this program. The values taught go beyond books; they bleed to the core of what this country needs today and for our future. The children will learn the value, first hand, of the sacrifices you've made to provide for them. On the plus side, it will give them a skill to go out and get a job when they are lounging around the house!

Students, this opportunity is one that WILL change your perspective in life. Especially for those of you who don't have an idea of what to do after high school. College is not for everyone, despite what many people say. I've known people who were in the top 10% in high school, dropped out of college and live at home and are unable to find a job. I strongly believe that any vocational experience you can obtain in high school or after will help you be successful in life. From becoming a Journeyman, to a Master Electrician and owning your own business, or an Engineer, anything is possible. It's all up to you.

From an industry perspective, talented electrical and instrumentation labor is hard to come across. There are not many industrial electricians in some of the areas we operate. Automation Technicians are even scarce and Electrical Engineers who have a working knowledge of how to design systems is PRACTICALLY even more rare. Because of this, salaries are higher, even in some high unemployment regions of the U.S.

The key is motivation and mobility. Don't let barriers hold you back. A State line is only an imagery line, don't be afraid to cross it and explore new opportunities.

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Electrical Systems Technology
Magnet Apprenticeship Program

More Former Electrical Students Sound Off on the Electrical Program at Mac.



Tony Dupont

HS Graduation Year: 1989
Current Employer: Hill Country Electric Supply
Current Occupation: Outside Sales

How did the MacArthur Electrical Program help you succeed?

It helped me get a jump-start on a great career path. While other students were taking electives that probably did little to steer them in a career path, I was already developing the necessary skills to work in the electrical industry. I felt the program gave me a head start.

If you had to do it all over again, what would you have done differently? I probably would not have made any significant changes. I have always made an effort to make thoughtful decisions and am satisfied with the career path I have chosen.

What advice would you give to students and parents trying to decide whether or not to get into the electrical trade? The first question to ask your self is "Do I have an interest in the electrical trade?" If so, the MacArthur Electrical Program is a great way to test your interest. It is also important to look at the demand for the different careers in the electrical trade. What are the job opportunities? What are the educational requirements? What are the pay scales? What electrical career path will I be most interested in?



Jeff Campbell

Year You Graduated From Mac: 1992
College/Trade Schools Attended: Misc. Courses
Licensed Journeyman Electrician? Yes
Master Electrician? Yes
Current Employer: JWC Electric Inc.
Current Occupation: President/Owner

How did the MacArthur Electrical Program help you succeed?

The program helped me figure out what to do in life. Knowing I was not a college type of person, I started my career early in life. The program helped me by learning the basics of electrical, pipe bending, residential, circuits, and so on. This helped me jump start my career ahead of the average person coming into the trade, by becoming a "lead man" on jobs and a Journeyman earlier than most.

If you had to do it all over again, what would you have done differently? Nothing, everything has happened for a reason and I'm happy with the outcome.

What advice would you give to students and parents trying to decide whether or not to get into the electrical trade?

The advice I can give is the same as my electrical teacher Mr. Callaway gave me, the electrical career is not easy, some days will be hot, some days will be cold, some days you will dig (in the heat and cold), some days will be rewarding.

That advice stuck with me to this day, especially the rewarding part. After digging or sweating or freezing on a job, I can always look back or drive by the old jobsite and say I did that!!! I'm the reason the lights are on!!!

After twenty years in this trade and now a business owner, I recommend this to anyone interested in it.

FYI, all days are not bad, there are great days, fun days and learning days.



Brandon Westrup

Year You Graduated From Mac: 1989
College/Trade Schools Attended:
University of Texas at San Antonio
Southern Methodist University

Year Graduated From Either College/Trade School:

UTSA – 1994

SMU – 2004

Degree: BS Electrical Engineering – UTSA
Masters in Business Administration - SMU

Current Employer: General Electric - Energy

Current Occupation: Contract Performance Manager

How did the MacArthur Electrical Program help you succeed?

The electrical program at MacArthur High School helped develop my skills in basic electrical wiring and troubleshooting. It is a firm foundation of typical electrical diagrams with hands on experience, which paved the way for me to understand more complex electrical systems including network communications and automation controls. The hands on experiences I received in the program have also been a sound building block in my career from a project management perspective. The electrical experience I received has helped me in a relational aspect; in that, even though I am no longer an electrician, I continually work with craft labor and electricians.

If you had to do it all over again, what would you have done differently?

There is not much I would have changed at the time I was in the program. At that time, Perry had bought some motor control wiring simulators. I do wish I had spent more time with them. Since then there has been a huge technology boom. Looking forward there needs to be strong focus on communication technology such as fiber optics, wireless networking, and data communications. This is where the growth area is and a huge potential for employment, particularly in communicating to remote devices via cell phone technology. Everyone has a cell phone so that market is saturated. The next big push in wireless technology is data from remote devices and also fiber optics.

What advice would you give to students and parents trying to decide whether or not to get into the electrical trade?

Use your hands and mind and learn a skill. This program enables you to accomplish something and grow from it. Continually strive to better yourself and learn more. Do not stay stagnant, waiting for something to happen for you, make it happen.

These technically gifted students are keeping the Electrical trades alive and well. These are our future leaders in the Electrical Industry and related fields. Show your support and join us by becoming a Sponsor today. Your donation helps support the Electrical Program at Mac and our 2012 District Champs as they move on to State!

Please make checks payable to MacArthur High School Electrical Program and mail to:

**Attn: Eduardo Del Toro
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2923 MacArthur View
San Antonio, TX. 78217**