El Camino College Program Contact Information

Idania Reyes
Women in Industry & Technology, Program Manager
Technical Arts Building, Room 104B
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ireyes@elcamino.edu

WomenTechWorld.org

Welcome to the Women's Technician Club!

The national online home for women technicians to connect with each other.

WomenTechWorld.org: You're not alone any more. Check out all of the great resources that WomenTechWorld has to offer female technicians, whether you are a network administrator, an air conditioning and refrigeration technician or a female student in a tech major.

WomenTechTalk: Join the exciting WomenTech e-mail discussion group today! There's finally a great way to meet other women just like you through conversations that take place right in your email. WomenTech Talk serves as a source of support and inspiration for over 500 women and has been in existence since 2000.

E-Jobs: Find employers eager to hire women in traditionally male occupations. E-Jobs offers you an Auto Notify feature which gives you email notices when new jobs meeting your criteria have been posted.

E-Mentoring: It's hard to be a newbie, but it just became a little bit easier. E-Mentors connects female students in technology/trades with women successfully working in male-dominated fields.

The CalWomenTech Project is Funded by The Program for Research on Gender in Science and Engineering from The National Science Foundation - Grant no. 0533564

Be sure to visit us at

http://www.womentechworld.org/ElCamino

Women in Electronics and Computer Hardware Websites

Women in Electrical and Electronic Engineering
http://www.ieee.org/women

Anita Borg Institute for Women in Technology
http://www.anitaborg.org

Latinas in Computing
http://anitaborg.org/initiatives/systers/latinas-email-list

Systers ListServ
http://anitaborg.org/initiatives/systers

CalWomenTech Project
and
El Camino College

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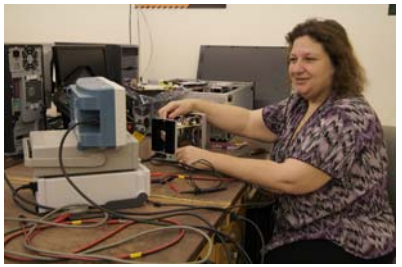
www.elcamino.edu
http://www.elcamino.edu/academics/indtech/electronics/

Women in Electronics and Computer Hardware are in High Demand!



Read on to see how El Camino College and the CalWomenTech Project can help you start a career in this exciting new field!

CalWomenTech Project
and
El Camino College

www.womentechworld.org/ElCamino

Electronics and Computer Hardware @ El Camino College

Career Path: There are three different level of technicians, depending on your education and experience level:

C Technicians are entry level and have an A.S. degree. Those graduating from the El Camino Program with an A.S. degree have C Technician skills and education. These technicians make approximately $12-$25/hour.

B Technicians are intermediate level and have more experience in the field. These technicians may have taken more advanced classes beyond the A.S. degree, or are working towards or have a B.S. degree. These technicians make over $25/hour.

A Technicians are at the advanced level, have extensive experience in the field and work on highly sophisticated projects or programs. They have B.S. degrees and make approximately $75/hour.

Nature of the Work: Much of the work in electronics is technical and mechanical, and varies depending on the field and placement. Positions may include installation and service of equipment in homes, offices, buildings and factories requiring the knowledge and use of tools. Some positions include lifting, especially when in the field installing and repairing equipment. Attention to detail and willingness for a career which requires life long-learning is part of the work requirements in this field.

Specific Jobs Available to Graduates: The electronics industry offers many different jobs for graduates. With an A.S. degree, graduates can become engineering technicians, computer technicians, or electronic technicians. These jobs are in a variety of fields such as mechatronics/automation, consumer electronics, biomedical electronics, and aerospace electronics. With a certificate, graduates can be computer technicians, network technicians, support and help desk technicians, and inside/outside sales consultants.

Industries Employing Graduates of this Program: Aerospace, Electronics, Home and Business Installers, Biomedical Electronics, Local City and County Government. Specific companies include Comcast, AT&T Wireless, Best Buy, Time-Warner, Raytheon, Aerospace Corp, Siemens, Phillips, and Southern Edison.

Women's Success Stories

Wendy Kahan-Wright

Age 42,
Electronics Instructor and Electronics Tool Room Technician
Employed by: El Camino College

"You have to get aggressive, step forward, and get the job done. Usually, as soon as people see your ability, the fact that you're a woman goes away. You just have to kind of shrug off [people's misconceptions about what you can do]."

Approx. Starting Salary:	$12-$15 per hour to start. Graduates with an A.S. degree begin as entry level technicians, and can earn more than those with a certificate.
Average Salary:	$12-$25 per hour to start, though career pay can range from $25-$75 per hour. It also depends on experience and your level of technical ability (whether you are entry level, intermediate, or an advanced technician).
Average Wage at Placement:	$12-$15 per hour to start with an A.S. or a certificate.
Placement Rate:	60% of El Camino's graduates are placed in the electronics industry in a variety of fields. Due to a high number of retirees, more jobs are becoming available to those who are qualified.
Labor Market:	As mentioned earlier, many people in the industry are retiring, therefore there is a need for all levels of technicians. In the El Camino area, the aerospace field is currently the strongest industry, though biomedical electronics and consumer electronics have a strong need for electronic technicians as well.

Course Information:

Course Description: The electronics program provides both an A.S. degree and multiple certificate programs in specific niche areas. Upon completion of the degree or certificate requirements, graduates can be employed as a "C" technician, though some can possibly be hired at the "B" level.

Courses include:

- Electronics and Computer Hardware Technology
- Semiconductor Circuits
- Operational Amplifiers and Linear Integrated Circuits
- Digital Systems and Computer Logic
- Analog and Digital Systems Analysis and Troubleshooting
- Robotics and Machine Control
- Network and Telecommunications Cabling
- A+ Certification Preparation for Computer Hardware Systems
- Preparation for the Federal Communication Commission (FCC) General Radio-Telephone Operator's License
- Introduction to Microprocessors and Interfacing

El Camino has agreements with many CSU's, which help students transfer and earn a B.S. degree in Industrial or Engineering Technology.

Prerequisites: There are no specific prerequisites for this program, although basic computer skills and math skills are recommended.

Hours Offered: Courses are offered during both daytime and evening hours. Class schedules vary by semester.

Length of Program: The A.S. degree program in Electronics requires 60 units and takes 2 to 2 ½ years to complete. The program offers a Computer Technology or Electronic Technology option. Some students spread their coursework over a longer period if family or work obligations prevent them from attending school full-time.

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Boosting Your Skills for Success in the Technology Classroom:

The CalWomenTech Learning Library
www.iwitts.com/html/cwtlibrary_home.html
Find software and other tools to advance your math, blueprint reading, spatial reasoning skills, and much more.

The Women in Industry and Technology (WIT) Program
www.elcamino.edu/academics/wit

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www.elcamino.edu
www.elcamino.edu/academics/indtech/acr

Women in Welding are in High Demand!

Read on to see how El Camino College and the CalWomenTech Project can help you start a career in this high-paying field!

CalWomenTech Project
and
El Camino College

www.womentechworld.org/ElCamino

Welding @ El Camino College

Career Path: There are many career options for welders, such as apprentice welder, arc welder, instructor, gas welder, ironworker, pipe fitter, structural metal and boilermaker, welding technician, resistance welder, welding inspector, welding contractor, welding engineer, and aluminum welder. El Camino College will teach you the skills to gain employment in the field. Students develop skills in welding ferrous and non-ferrous alloys in flat, horizontal, vertical, and overhead positions. Students also acquire proficiency in blueprint reading, layout, structural fabrication, and pipe welding.

Nature of the Work: Much of the work in welding is physical and requires prevision and attention to detail. Positions may include transportation and equipment manufacturing, metal product fabrication, and architectural and structural construction. Sometimes welders work while sitting on a high narrow beam; cramped in uncomfortable positions into tiny quarters; or deep under water so it's important to stay physically fit in this industry.

Specific Jobs Available to Graduates: The welding industry offers many different jobs for graduates. With an A.S. degree, graduates can become welding instructors (with work experience), manufacturing technicians, and structural engineers. With a certificate, graduates can be pipe welders, metal fabricators, sheet metal workers, and structural welders.

Industries Employing Graduates of this Program: Aerospace, Petro-Chemical, School Districts, Manufacturing, Automotive, Construction, and Utilities industries.

Course Description: The welding program provides both an A.S. degree and multiple certificate programs in specific niche areas.

Hours Offered: Courses are offered during both daytime and evening hours. Class schedules vary by semester.

Women's Success Stories

Dulce Rodriguez

Welder
Currently attending El Camino College full time

"Don't be scared to try it, it doesn't hurt to try. If you don't actually make it or don't feel it's for you at least you gave it a try and you won't say 'what if?' or 'I should have.' These are high paying jobs. As long as a state keeps growing, they're going to need welders."

Approx. Starting Salary:	New graduates can expect $14-$18 per hour, depending on their level of mastery and where they are in their apprenticeship. Once they have finished with their apprenticeship, the average starting wage is $35 per hour.
Average Salary:	The mean salary for welders in Torrance is $19.75 for certified welders. Certified welders with at least two years of experience are averaging $27.36 per hour.
Placement Rate:	The Welding program at El Camino college sees nearly a 100% placement rate. Due to the increased number of retirees, jobs are becoming available to those who are qualified. As well as the fact that 90% of product usage involves welding, whether it is in the manufacturing stage or the end product.
Labor Market:	The labor market for welders is projected to grow 7% in Los Angeles County and 9% statewide in the next 10 years, which represents a higher than national average growth in the next decade. The excellent wages and career opportunities make these occupations an outstanding choice for students and job seekers.

FAQs—Career and Academic

Are employers hiring for jobs in this area?

Yes! In fact, your welding instructors go out 2-4 times a month and make industry contacts in the Los Angeles area. Companies that hire graduates of the welding program include: Robertson Helicopter, the Los Angeles Unified School District, and Tanko, as well as petro-chemical, elevator, and aerospace companies.

Can I pursue a career in this field without a background in technology?

While it is not necessary to have a background in technology to enter the welding program at El Camino College, you should know basic computer skills as the program prepares you to do some Computer Aided Design (CAD) and measurements on a computer.

How much math do I really need?

Although basic math skills like those used in measurement are advised for students entering the welding program, students that are not proficient in math will be assigned to self-paced programs to improve their skills. If you'd like to brush up on your math, you can enroll in Mathematics 351 (Arithmetic Review and Pre-Algebra Mathematics) as well as Mathematics 180 (Mathematics Tutorial Learning Center).

How can I prepare for the program if I don't have a background in technology?

Studies show that improving spatial reasoning skills can help women increase their academic achievement. If you don't have a background in technology, you may want to visit the CalWomenTech Learning Library at El Camino College and check out resources such as software that helps you develop spatial reasoning skills and books that help you learn how to read blueprints.

Keep in mind that once you're in the program, you'll have plenty of chances to try out your new technology skills. All of our courses include hands-on laboratory instruction, and Welding 95, our Cooperative Work Experience course, provides opportunities for supervised job experience.

How long will it take to complete this technology program?

To obtain an A.S. degree will take 2 semesters or about 6 months. To complete a Certificate of Competence or the Certificate of Completion will take 3 semesters, between 1 and 2 years. The length of time to complete the program depends on whether or not you are also working and how many classes you take each semester. Day and evening classes are available, depending on your schedule.

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Women in HVACR Websites

Women in HVACR
www.womeninhvacr.org
National organization with 200 members for Women in the HVACR industry with an annual conference, webinars, membership newsletter, and member directory.

Work4Women
www.work4women.org
Online Support groups for technical/mechanical, information technology, telecommunications, construction, and more. Virtual communities.

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Women in Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) are in High Demand!

Read on to see how El Camino College and the CalWomenTech Project can help you start a career in this exciting new field!

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Heating, Ventilation, Air Conditioning, and Refrigeration @ El Camino College

Career Path: Graduates enter the Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) field in entry level positions as described below. With more experience, workers can advance to such positions as estimator, sales engineer, electrical appliance service technician, building maintenance person, boiler repair person, mechanic, installer, and HVACR service technician. Workers often receive ongoing training supplied by their employers, especially in larger companies, which helps them advance to higher level positions.

Nature of the Work: Much of the work in HVACR is technical and mechanical. Positions may include repair of consumer appliances, repair and maintenance of industrial equipment used to heat, ventilate, and air condition buildings, managing energy utilization, and maintenance of aircraft cooling systems. Many positions require hands-on mechanical repairs. Other positions, such as working in controls or in energy management, may require working with computerized systems.

Specific Jobs Available to Graduates: Graduates with an A.S. degree can enter the HVACR industry in entry level jobs as a sales person, refrigeration service technician, air conditioning service technician, counter sales person, energy management, control programming, and controls technician.

Industries Employing Graduates of this Program: Graduates of the HVACR program can find work in a wide variety of industries, including state, local, and Federal governments, schools, airports, hospitals, airlines, retail sales, and corporations.

Course Description: The Heating, Ventilation, Air Conditioning, & Refrigeration (HVACR) program provides both an A.S. degree and multiple certificate programs in specific niche areas.

Hours Offered: Courses are offered during both daytime and evening hours. Class schedules vary by semester.

Women's Success Stories

Valerie Brown

Heating, Ventilation, Air Conditioning, & Refrigeration (HVACR) Service Tech Trainee Employed by Element Service, Inc.

"As a woman I can do anything I put my mind to. Finishing something that I started and getting my degree has given me confidence, it has put a little pep in my step!"

Approx. Starting Salary:	$15 - $28 per hour for graduates with A.S. degree. Graduates with certificates may expect to earn $8 - $15 per hour.
Average Salary:	Experienced workers typically earn $25 - $60 per hour, depending on skill level and experience.
Average Wage at Placement:	$15 per hour
Placement Rate:	98% of students are placed thanks to the increasing demand for workers in this industry and retirements of existing workers. Students have been recruited right from classes and sometimes take on jobs and continue their class work part-time. The HVACR program at El Camino works directly with a wide variety of companies to ensure that students are placed.
Labor Market:	Demand for workers in this area is very high because of the need for more efficient energy management, the heightened demand for air conditioning in most building environments, and the use of computers and technology in the field. Many experienced workers have also reached retirement age, opening up additional placements. There is a labor shortage of 100,000 workers in this field nationally.

FAQs—Career and Academic

Are employers hiring for jobs in this area?

Absolutely! In fact, companies often recruit students directly from our classes. Some students take on positions and continue their schooling on a part-time basis. There is a huge shortage of workers in this field, and the shortage increases every year. We have a 98% placement rate for our students, so any student who applies him or herself will be able to find work.

Can I pursue a career in this field without a background in technology?

A background in technology is not necessary to enter this field, although ideally you should have basic computer and tool identification skills when you begin the program. Once you are enrolled in the program, you will learn the basic technology skills you need to succeed in an entry-level position in HVACR. El Camino has many resources for women entering this field through its Women in Industry and Technology (WIT) program.

How much math do I really need?

No particular math prerequisites apply to the HVACR program. Once you are enrolled in the HVACR program, a three-unit course called Technical Mathematics 1 is included as a part of the coursework, and is directed specifically to applying math to problems found in industrial settings. If you're worried about your math skills, visit the Women in Industry and Technology (WIT) program on campus – they have fun and entertaining software tools that can help you build your math skills.

How can I prepare for the program if I don't have a background in technology?

You don't really need a background in technology or trades to enter this program, but since you will be using computers during the program, it helps to develop basic skills with a personal computer and common desktop software, and to be able to identify common tools that may be used in the classroom.

How long will it take to complete this technology program?

The A.S. Degree program in Air Conditioning and Refrigeration takes 2 to 2-1/2 years to complete. The program requires 38 units in HVACR courses, plus general education requirements to total 60 units.

There are several certificate programs in HVACR of varying lengths. The full Certificate of Completion requires 38 units and can be completed in 1-1/2 years. Other certificates in specialty areas such as Air Conditioning, Refrigeration, or Air Conditioning and Refrigeration Electric Controls require from 13 to 17 units, and can be completed in two semesters.