

COLLEGE OF THE CANYONS

*Santa Clarita Community College District
26455 Rockwell Canyon, Santa Clarita, CA 91355*

Office of Institutional Development and Technology

Electronic Systems Needs Assessment

Daylene M. Meuschke, Ed.D.
Barry C. Gibbons, Ph.D.

June 2014



Table of Contents

Introduction.....	2
Methods.....	3
Results.....	4
Recommendations.....	6

Tables

Table 1. Projected Job Openings Electronic Technician Related Occupations and Median Hourly Earnings in the Santa Clarita Community College District Service Area Requiring Some Postsecondary Education.....	4
Table 1. Projected Job Openings Electronic Technician Related Occupations and Median Hourly Earnings in the Santa Clarita Community College District Service Area Requiring a High School Diploma or Some Postsecondary Education.....	5

Introduction

The Office of Institutional Development and Technology, with input from the Dean of Career Technical Education and Electronic Systems Technology lead faculty, facilitated an electronics system program focus group with industry representatives as part of the needs assessment for the College's new electronics systems program. In addition, labor market data were obtained from Economic Modeling Specialists, Inc. (EMSI) to assess the labor market demand and wages for the electronic systems technicians in the Santa Clarita Valley. The focus group was intended to assess the entry-level skills needed by entry-level electronic systems technicians and to obtain additional information necessary for informing decisions for the electronic systems program. This needs assessment intended to answer questions in three areas:

1. **Employment Projections:**

- What is the average number of job openings (both new and replacement) for electronic systems technicians annually for the next five years?
- What are the numbers of new and replacement electronic systems jobs expected by 2020?

2. **Salary:**

- What is the *median hourly wage* for electronic systems technicians?

3. **Knowledge and Skill Sets Needed in the Electronic Systems Industry:**

- What knowledge and / or skills valued most by electronic systems industry representatives need to be incorporated into the electronic systems program at College of the Canyons?

The resulting information is intended to be used to inform decisions regarding the development and offering of an electronic systems program at College of the Canyons. In addition, the information will be used to complete the application packet required by the South Central Regional Consortium.

Methods

Six representatives from companies employing electronics technicians within Los Angeles County attended an electronic systems program focus group on August 1, 2012 at College of the Canyons' Valencia Campus. The purpose of this meeting was to obtain information on the employee needs for the electronic systems industry within the District's service area and to get input on the knowledge and skills needed for graduates of an electronic systems program. Representatives reviewed equipment for the program and sample curriculum. They were invited to provide input on curriculum that should be omitted and courses that need to be included in the program.

Labor market data including employment projections and median hourly earnings were obtained from the Economic Modeling Specialists, Inc. (EMSI).

Results

Employment Projections and Salary. The first area of inquiry was related to the employment demand and salaries for electronic systems technicians. Specifically, employment demand and salary information was obtained by asking the following questions:

- What is the average number of job openings (both new and replacement) projected annually for the next five years for electronic systems technicians?
- What are the total numbers of jobs (both new and replacement) for electronic systems technicians projected by 2020?
- What are the median hourly earnings for electronic systems technicians?

Employment Projections. The total number of new and replacement jobs requiring *some postsecondary education training* expected over the next five years in the Santa Clarita Community College District service area is **75** technicians within companies employing electronic systems technicians. The average annual openings expected between 2014 and 2020 are **13** electronic systems technicians according to EMSI data.

The total number of new and replacement jobs requiring a *high school diploma or some postsecondary education training* expected over the next five years in the Santa Clarita Community College District service area is **242** technicians within companies employing electronic systems technicians. The average annual openings expected between 2014 and 2020 are **40** electronic systems technicians according to EMSI data.

Median Hourly Earnings. According to EMSI, the median hourly wage for electronic systems technicians with *some postsecondary education training* is **\$28.74** and **\$22.58** for electronic systems technicians with a high school diploma or postsecondary education training.

Table 1. Projected Job Openings Electronic Technician Related Occupations and Median Hourly Earnings in the Santa Clarita Community College District Service Area Requiring Some Postsecondary Education

SOC Code	Description	2014 Jobs	2020 Jobs	Annual Openings (new and replacement)	2014 Median Hourly Earnings	Education
17-3023	Electrical and Electronics Engineering Technicians	146	150	4	\$29.80	Associate's degree
17-3024	Electro-Mechanical Technicians	11	13	1	\$25.14	Associate's degree
17-3029	Engineering Technicians, Except Drafters, All Other	56	62	2	\$31.47	Associate's degree
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairs	<10	10	--	--	Associate's degree
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	117	124	3	\$28.62	Postsecondary non-degree award
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	49	53	2	\$25.62	Postsecondary non-degree award
49-9062	Medical Equipment Repairers	15	18	1	\$23.43	Associate's degree
	Total	404	429	13	\$28.74	Associate's degree

Source: EMSI QCEW Employees & Self-Employed – 2nd Quarter 2014

Table 2. Projected Job Openings Electronic Technician Related Occupations and Median Hourly Earnings in the Santa Clarita Community College District Service Area Requiring a High School Diploma or Some Postsecondary Education

SOC Code	Description	2014 Jobs	2020 Jobs	Annual Openings (new and replacement)	2014 Median Hourly Earnings	Education
17-3023	Electrical and Electronics Engineering Technicians	146	150	4	\$29.80	Associate's degree
17-3024	Electro-Mechanical Technicians	11	13	1	\$25.14	Associate's degree
17-3029	Engineering Technicians, Except Drafters, All Other	56	62	2	\$31.47	Associate's degree
49-2021	Radio, Cellular, and Tower Equipment Installers and Repairs	<10	10	--	--	Associate's degree
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	117	124	3	\$28.62	Postsecondary non-degree award
49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	49	53	2	\$25.62	Postsecondary non-degree award
49-9041	Industrial Machinery Mechanics	149	167	8	\$26.12	High school diploma or equivalent
49-9043	Maintenance Workers, Machinery	54	55	1	\$18.25	High school diploma or equivalent
49-9062	Medical Equipment Repairers	15	18	1	\$23.43	Associate's degree
49-9071	Maintenance and Repair Workers, General	612	650	19	\$17.96	High school diploma or equivalent
	Total	1,219	1,301	40	\$22.58	

Source: EMSI QCEW Employees & Self-Employed – 2nd Quarter 2014

Focus Group Input from Insurance Industry Representatives

Employment Needs. One representative from Universal Studios indicated that the company expects to hire approximately 60 animation technicians for the park's new Harry Potter ride (Note: College of the Canyons has an established internship program with Universal Studios). The representative also noted that an additional 40 technicians will be needed over the next five years due to attrition. The total new and replacement jobs for this one company alone is approximately 100. Starting hourly rate at Universal Studios is \$18.75.

Curriculum Needs. The electronic systems representatives who participated in the focus group reviewed sample curriculum for the electronic systems program. Focus group participants expressed the need for a program that would prepare students for work as an entry-level electronic systems technician. Based on their input, the curriculum for College of the Canyons electronic systems program should ensure that the program prepares students to:

- Understand flow charts in order to know encoders which indicate where the machine is at during each phase of the production process.
- Read program code and explain what the machine is doing.
- Read and interpret input/output symbols.
- Troubleshoot based on indicator lights on the instrument panel.
- Understand Programmable Logic Controller beyond the 60 hours currently offered at College of the Canyons in the boot camp format.

Equipment:

- Focus group participants indicated that the PNEUTRAINER-200 is appropriate for the program's curriculum. Pneumatics are used by two of the companies who participated in the focus group because it allows for more control.
- Focus group participants also suggested that College of the Canyons look at the mobile pneumatic and electric automation lab at Festo.
- Focus group participants indicated that Allen Bradley controllers are the most common controllers in the industry.

Recommendations

Generally, there is mild to moderate local need for an electronic systems program which might be strengthened by regional needs, though regionally there are other programs to help service that need. Similar programs at surrounding community colleges include Antelope Valley College, Glendale Community College, L.A. City College, L.A. Pierce College, L.A. Trade Tech, L.A. Valley College, Oxnard College and Pasadena City College. Upon review of the data from EMSI (2014, May) and input gathered from the focus group with electronic systems industry representatives, the following recommendations should be taken into consideration for the electronic systems program at College of the Canyons:

- Ensure that curriculum prepares students with the knowledge and ability to:
 - Read flow charts in order to know encoders which indicate where the machine is at during each phase of the production process.
 - Read program code and explain what the machine is doing.
 - Know how to interpret input/output symbols.
 - Troubleshoot based on indicator lights on the instrument panel.
 - Understand Programmable Logic Controller training beyond the 60 hours currently offered through College of the Canyons boot camp format.
- Ensure students have training experience using the latest equipment being used in the industry.