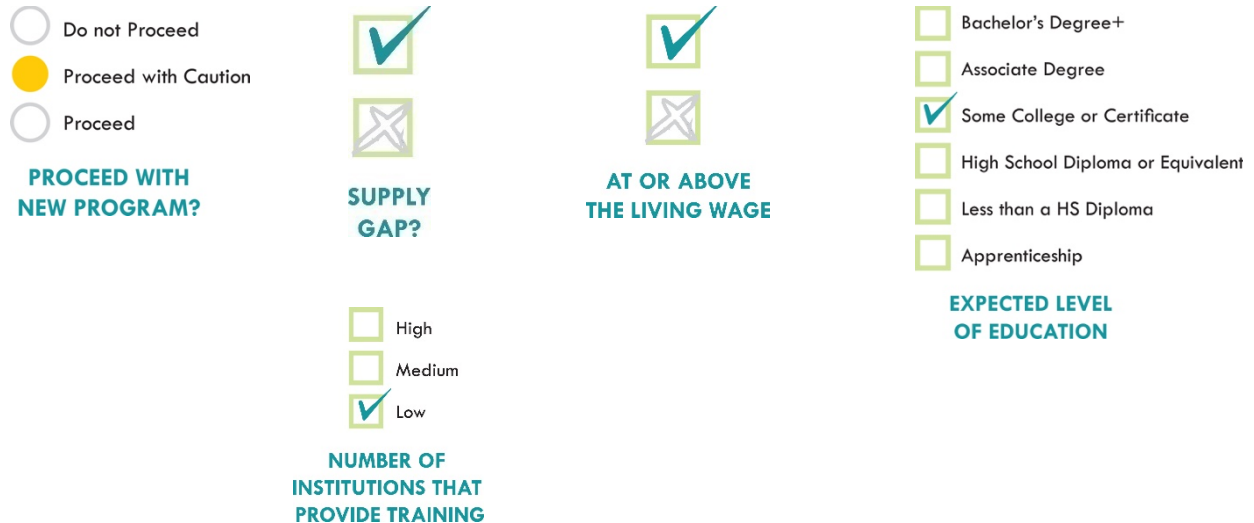


Electronics and Electric Technology

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary



This report provides labor market information for occupation(s) selected by San Diego Continuing Education for its *Electronics and Electric Technology* program. The training provided by this program is likely to lead to employment as *Electric Motor, Power Tool, and Related Repairers* and *Electrical and Electronics Repairers, Commercial and Industrial Equipment*. According to available labor market information, these occupations have a labor market demand of 102 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. One community college supplies the region with four for-credit awards, primarily in certificates and no associate degrees: San Diego City College. Only San Diego Continuing Education supplies noncredit awards, which averaged 35 awards in the same period. In short, the region supplies 39 for-credit and noncredit awards for 102 annual job openings, suggesting that there is a labor market supply gap. Additionally, these occupations' entry-level and median wages are above the living wage, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage. The highest expected level of education for these occupations is a postsecondary nondegree award. However, this brief recommends to proceed with caution when developing a new program because of the small labor market demand and very few employers posted online job postings for these occupations in the past 10 years.

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs¹ (TOP) code, Electronics and Electric Technology (TOP 093400). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego Continuing Education (SDCE), with program development and review. SDCE identified four occupations from the Standard Occupational Classification (SOC)² system for *Electronics and Electric Technology*, which will be the focus of this report:

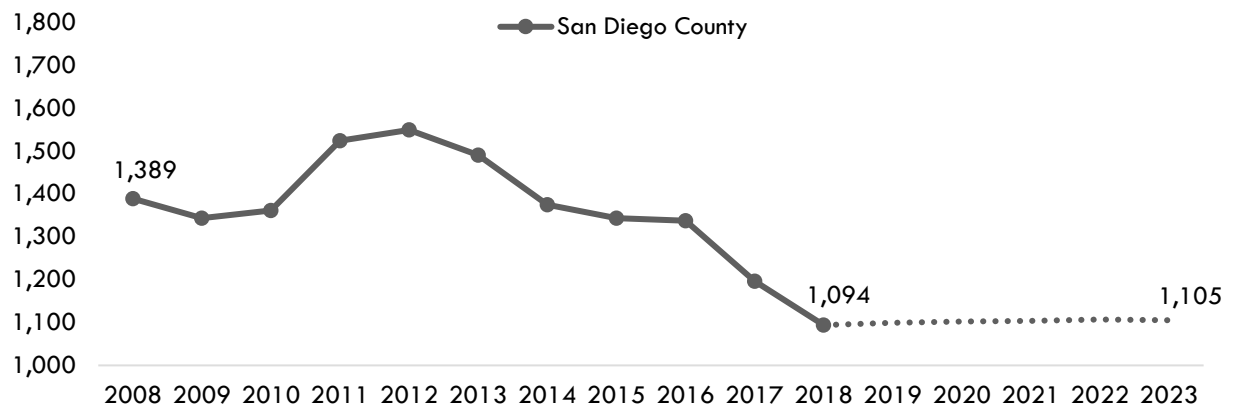
- **Electric Motor, Power Tool, and Related Repairers** (SOC 49-2092): Repair, maintain, or install electric motors, wiring, or switches.
- **Electrical and Electronics Repairers, Commercial and Industrial Equipment** (SOC 49-2094): Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas.

For the purpose of this report, these occupations are collectively referred to as *Electronics and Electric Technology Occupations*.

Projected Occupational Demand

Between 2018 and 2023, *Electronics and Electric Technology Occupations* are projected to increase by **11 net jobs** or **one percent** (Exhibit 1a). Employers in San Diego County will need to hire **102 workers** annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1a: Number of Jobs for *Electronics and Electric Technology Occupations* (2008-2023)³



¹ Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.

² The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

³ Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Exhibit 1b breaks down the projected number of jobs change by occupation more specifically. As Exhibit 1b shows, *Electrical and Electronics Repairers, Commercial and Industrial Equipment* has the largest labor market demand, with 71 job openings projected to be available annually between 2018 and 2023.

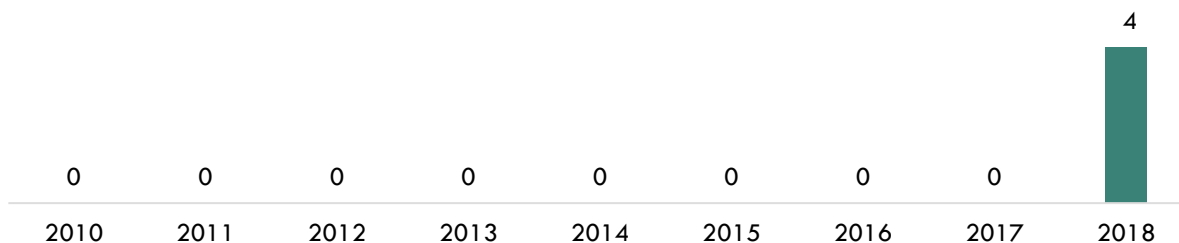
Exhibit 1b: Number of Jobs for *Electronics and Electric Technology Occupations* in San Diego County (2018-2023)

Occupational Title	2018 Net Jobs	2023 Net Jobs	2018 - 2023 Net Change	2018-2023 % Net Change	Annual Job Openings (Demand)
Electrical and Electronics Repairers, Commercial and Industrial Equipment	758	774	16	2%	71
Electric Motor, Power Tool, and Related Repairers	336	332	(4)	(1%)	31
Total	1,094	1,106	12	1%	102

Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market demand that are not captured by historical data. Between 2010 and 2018, there was an average of less than one online job postings per year for *Electronics and Electric Technology Occupations* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Electronics and Electric Technology Occupations* in San Diego County (2010-2018)⁴



⁴ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.

Earnings

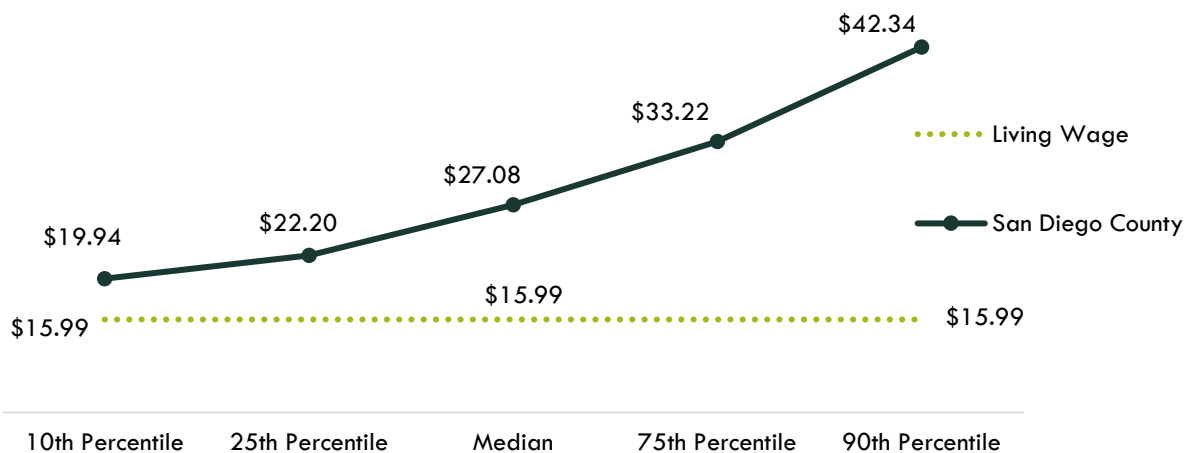
The median hourly earnings of *Electronics and Electric Technology Occupations* range from \$23.25 to \$30.90 (Exhibit 3a).

Exhibit 3a: Hourly Earnings for *Electronics and Electric Technology Occupations* in San Diego County

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Electrical and Electronics Repairers, Commercial and Industrial Equipment	\$26.80	\$30.90	\$37.17
Electric Motor, Power Tool, and Related Repairers	\$17.59	\$23.25	\$29.26

On average, the median hourly earnings for *Electronics and Electric Technology Occupations* is \$27.08; this is more than the living wage for a single adult in San Diego County, which is \$15.99 per hour (Exhibit 3b).⁵

Exhibit 3b: Average Hourly Earnings⁶ for *Electronics and Electric Technology Occupations* in San Diego County⁷



⁵ "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightccd.org/2018-family-needs-calculator.

⁶ 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

⁷ Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Educational Supply

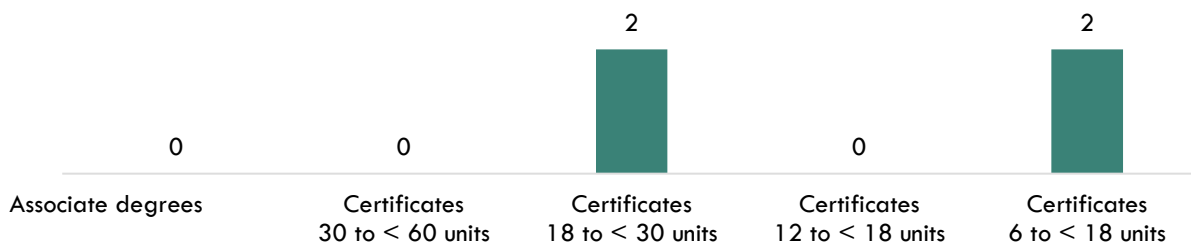
Educational supply for an occupation can be estimated by analyzing the number of awards conferred by a course or program in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁸ According to TOP and CIP⁹ data, **one** community college supplies the region with for-credit awards for Electronics and Electric Technology (TOP 093400): [San Diego City College](#) (Exhibit 4a).

**Exhibit 4a: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Years 2015-16 through 2017-18)**

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
San Diego City	Certificate 18 to < 30 units	1	1	3	2
	Certificate 6 to < 18 units	0	0	7	2
Total		1	1	10	4

No associate degrees are offered for *Electronics and Electric Technology Occupations*, only certificates. More specifically, “Certificates 18 to < 30 units” and “Certificates 6 to < 18 units,” were offered and awarded in equal numbers over a three-year average (program years 2015-16 through 2017-18) (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Electronics and Electric Technology Occupations* in San Diego County (Three-Year Average 2015-16 through 2017-18)



⁸ TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data)

⁹ There are five CIP codes related to Electronics and Electric Technology (TOP 093400) : Electrical, Electronic and Communications Engineering Technology/Technician (CIP 150303), Electrical and Electronic Engineering Technologies/Technicians, Other (CIP 150399) Automation Engineer Technology/Technician (CIP 150406), Electrical/Electronics Equipment Installation and Repair, General (CIP 470101), and Electrical/Electronics Maintenance and Repair Technology, Other (CIP 470199).

In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Electronics and Electric Technology (TOP 093400), with an average of 35 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

**Exhibit 5: Number of Noncredit Awards (Certificates and Degrees) Conferred by SDCE
(Program Years 2015-16 through 2017-18)**

Program Title	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Electronic and Soldering Technology; Electronic Technician	Program Award	24	39	41	35

Demand vs. Supply

In short, the region supplies 39 for-credit and noncredit awards for 102 annual job openings, suggesting that there is a labor market supply gap (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

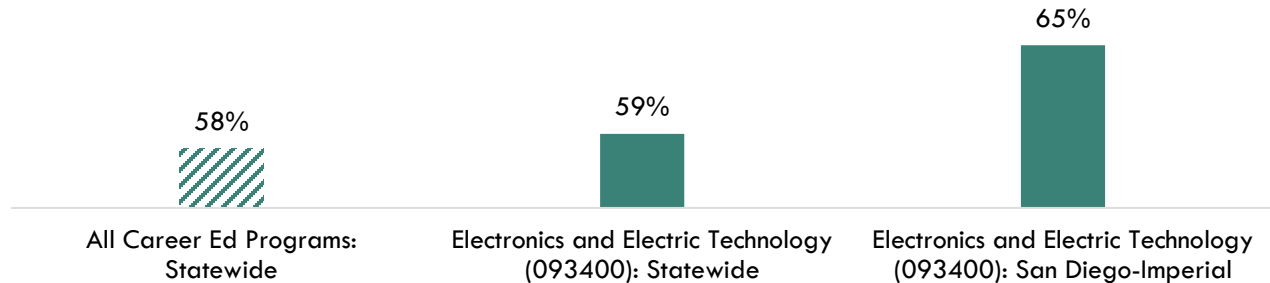
TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Electronics and Electric Technology (TOP 093400)	102	35	4	63

Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

Student Outcomes and Regional Comparisons

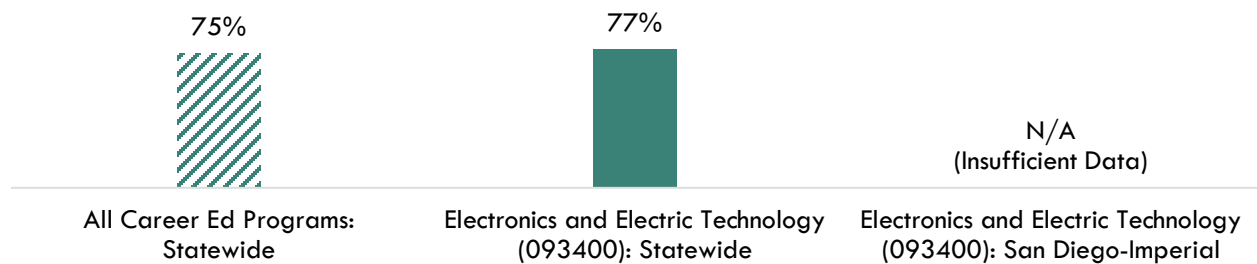
According to the California Community Colleges LaunchBoard, 65 percent of students in the San Diego-Imperial region earned a living wage after completing an Electronics and Electric Technology (093400) program, compared to 59 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16¹⁰



According to the California Community Colleges LaunchBoard, N/A percent of students (due to insufficient data) in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Electronics and Electric Technology (093400) program, compared to 77 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2014-15¹¹



¹⁰ Among completers and skills builders who exited, the proportion of students who attained a living wage.

¹¹ Most recent year with available data is Program Year 2014-15. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Top Employers and Work Locations

Between January 1, 2016 and December 31, 2018, the top employers in San Diego County for these occupations were [Vivint Solar](#), [Iconic Communications](#), and [Anderson Plumbing & Air](#) (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Electronics and Electric Technology Occupations*¹²

Top Employers
<ul style="list-style-type: none">• Vivint Solar• Iconic Communications• Anderson Plumbing Heating & Air

Skills, Education, and Certifications

Electronics and Electric Technology Occupations have educational requirements ranging from a high school diploma or equivalent to a postsecondary nondegree award (Exhibit 9). Similarly, based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Electronics and Electric Technology Occupations* was a [high school diploma or vocational training](#).¹³

Exhibit 9: National Educational Requirements for *Electronics and Electric Technology Occupations*¹⁴

Occupational Title	Typical Entry-Level Education
Electrical and Electronics Repairers, Commercial and Industrial Equipment	Postsecondary nondegree award
Electric Motor, Power Tool, and Related Repairers	High school diploma or equivalent

¹² Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

¹³ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

¹⁴ Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for Electronics and Electric Technology Occupations in San Diego County¹⁵

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Repair • Lifting Ability • Scheduling • Residential Electric Work • Photovoltaic (PV) Equipment 	<ul style="list-style-type: none"> • Troubleshooting • Problem Solving 	<ul style="list-style-type: none"> • Microsoft Office

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Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor’s Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

¹⁵ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2016-2018.