Electronics and Electric Technology

Labor Market Analysis for San Diego College of Continuing Education
September 2021

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
🟢 **Proceed with New Program**	☑ ☐	☑ ☐	☐ Bachelor's Degree[+] ☐ Associate Degree ☐ Some College or Certificate ☑ HS Diploma or Equivalent ☐ Less than a HS Diploma ☐ Apprenticeship

SUPPORT FOR PROGRAM MODIFICATION?	NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING	NUMBER OF ANNUAL JOB OPENINGS	
☑ ☐	LOW	LOW	

This report provides labor market information for occupations selected by San Diego College of Continuing Education for its *Electronics and Electric Technology* program. These occupations include "Electrical and Electronics Repairers, Commercial and Industrial Equipment" and "Electric Motor, Power Tool, and Related Repairers." According to available labor market information, *Electronics and Electric Technology Occupations* in San Diego County have a labor market demand of 107 annual job openings (while average demand for a single occupation in San Diego County is 242 annual job openings). On average, two institutions supply five for-credit awards and one institution supplies 34 noncredit awards in San Diego County for these occupations. In short, the region supplies 39 for-credit and noncredit awards for 107 annual job openings, suggesting that there is a supply gap in the labor market. Entry-level and median wages for these occupations are above the living wage. This brief recommends that the colleges proceed with a new program or program modification because 1) there is a supply gap; and 2) these occupations' entry-level and median earnings are above the living wage.

Introduction

This report provides labor market information in San Diego County for occupations related to the six-digit Taxonomy of Programs (TOP)[1] code, Electronics and Electric Technology (TOP 0934.00). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego College of Continuing Education (SDCCE), with program development and review. SDCCE identified the following occupational codes from the Standard Occupational Classification (SOC)[2] system for *Electronics and Electric Technology*, which will be the focus of this report:

- **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.
- **Electric Motor, Power Tool, and Related Repairers** (SOC 49-2092): Repair, maintain, or install electric motors, wiring, or switches.

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

---

[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.

Projected Occupational Demand

Between 2020 and 2025, *Electronics and Electric Technology Occupations* are projected to decrease by two net jobs (Exhibit 1a). Employers in San Diego County will need to hire 107 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* (2010-2025)[3]
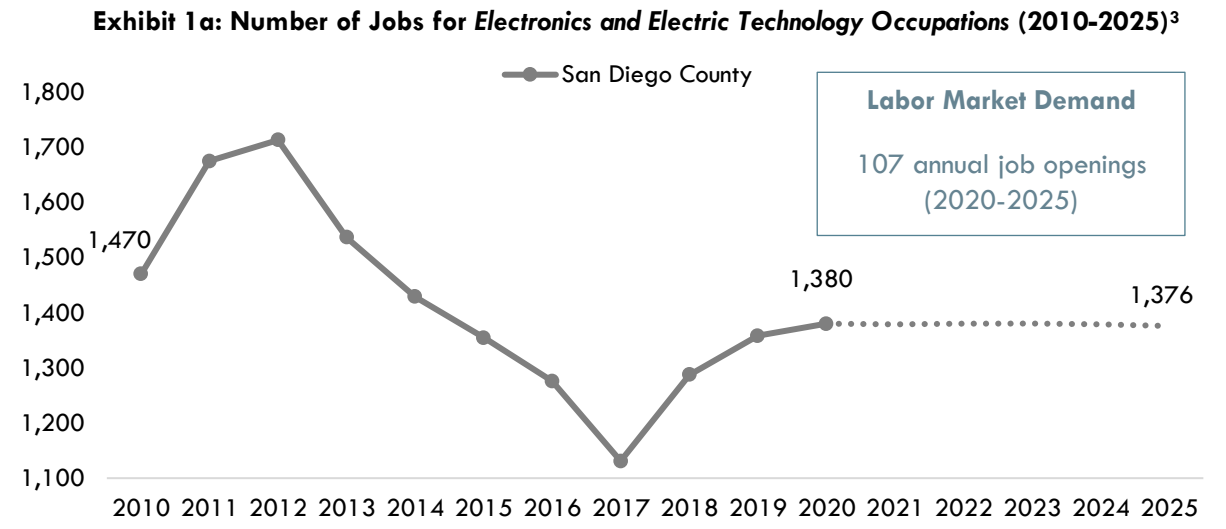
Exhibit 1b disaggregates the projected number of jobs change by occupation. "Electrical and Electronics Repairers, Commercial and Industrial Equipment" are projected to have the most labor market demand between 2020 and 2025, with 76 annual job openings.

Exhibit 1b: Number of Jobs for *Electronics and Electric Technology Occupations*
in San Diego County (2020-2025)[4]

Occupational Title	2020 Jobs	2025 Jobs	2020 - 2025 Net Jobs Change	2020- 2025 % Net Jobs Change	Annual Job Openings (Demand)
Electrical and Electronics Repairers, Commercial and Industrial Equipment	1,068	1,071	3	0%	76
Electric Motor, Power Tool, and Related Repairers	312	305	-7	-2%	31
Total	1,380	1,376	-4	0%	107

Earnings

Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Electronics and Electric Technology Occupations* range from $21.93 to $26.76.
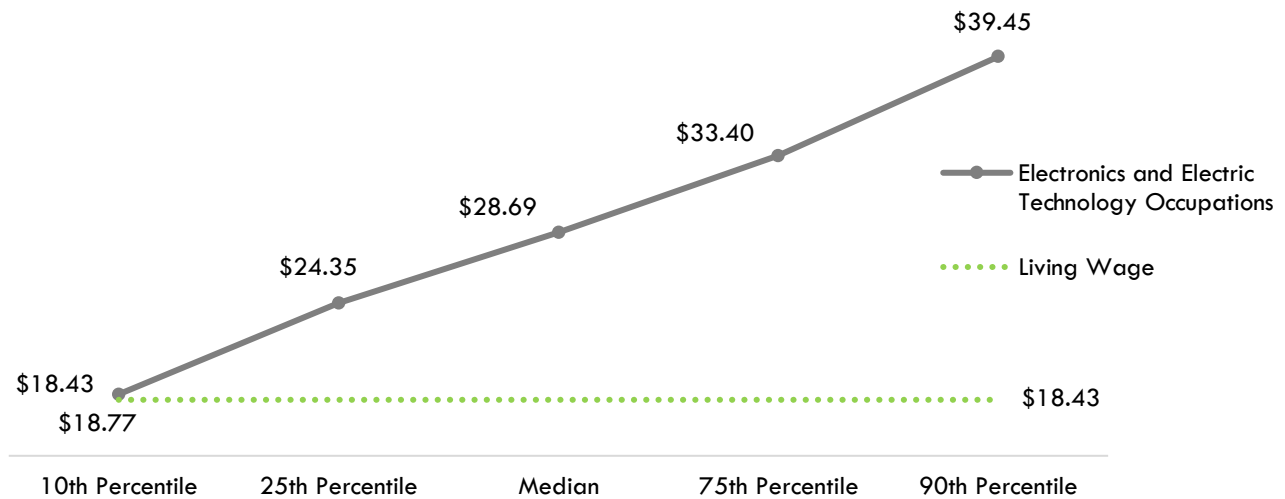
Exhibit 2a: Hourly Earnings for *Electronics and Electric Technology Occupations* in San Diego County[5]

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Electrical and Electronics Repairers, Commercial and Industrial Equipment	$26.76	$32.52	$38.38
Electric Motor, Power Tool, and Related Repairers	$21.93	$24.86	$28.41

On average, the entry-level hourly earnings for *Electronics and Electric Technology Occupations* are $24.35; this is more than the living wage for a single adult in San Diego County, which is $18.43 per hour (Exhibit 2b).[6]

Exhibit 2b: Average Hourly Earnings[7] for *Electronics and Electric Technology Occupations* in San Diego County[8]

$39.45

$33.40

$28.69

$24.35

$18.43
$18.77

$18.43

Electronics and Electric Technology Occupations

Living Wage

10th Percentile   25th Percentile   Median   75th Percentile   90th Percentile

---

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.[9] According to TOP and CIP[10] data, two community colleges supply the region with for-credit awards for Electronics and Electric Technology (TOP 0934.00): San Diego City College and Southwestern College (Exhibit 3a).

Exhibit 3a: Number of For-Credit Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2017-18 through 2019-20)

College	Award Type	PY 17-18	PY 18-19	PY 19-20	3-Yr Total Average
San Diego City	Certificate 18 to < 30 units	3	1	0	1
	Certificate 16 to < 30 units	0	0	1	0
	Certificate 6 to < 18 units	7	2	0	3
	Total	**10**	**3**	**1**	**5***
Southwestern	Certificate 6 to < 18 units	0	1	0	0
	Total	**0**	**1**	**0**	**0**
	Total	**10**	**4**	**1**	**5***

Note: The numbers may not add up exactly due to rounding.

By for-credit award type, the colleges supplied the most awards for certificate 6 to < 18 units based on the three-year average (program years 2017-18 through 2019-20) (Exhibit 3b).

Exhibit 3b: Total Number of For-credit Awards by Type for Electronics and Electric Technology (TOP 0934.00) in San Diego County (3-Yr Average)

[9] 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).
[10] There are five CIP codes related to Electronics and Electric Technology (TOP 0934.00) : Electrical, Electronic and Communications Engineering Technology/Technician (CIP 15.0303), Electrical and Electronic Engineering Technologies/Technicians, Other (CIP 15.0399) Automation Engineer Technology/Technician (CIP 15.0406), Electrical/Electronics Equipment Installation and Repair, General (CIP 47.0101), and Electrical/Electronics Maintenance and Repair Technology, Other (CIP 47.0199).

In terms of noncredit awards, only San Diego College of Continuing Education provides noncredit awards for Electronics and Electric Technology (TOP 0934.00), with a three-year average of 34 noncredit awards (program years 2017-18 through 2019-20) (Exhibit 4).

Exhibit 4: Number of Noncredit Awards Conferred by SDCCE
(Program Years 2017-18 through 2019-20)

Program Title	Award Type	PY 17-18	PY 18-19	PY 19-20	3-Yr Total Average
Electronic Technician	Noncredit	41	28	32	34

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply[11] suggests that there is a supply gap in San Diego County, with 107 annual openings and 39 for-credit and noncredit awards supplied by the region (Exhibit 5).

Exhibit 5: 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 0934.00)	107	34	5	**68**

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.

---

[11] Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 55 percent of students in the San Diego-Imperial region earned a living wage after completing an Electronics and Electric Technology (0934.00) program, compared to 63 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6a).[12]

**Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program
(Electronics and Electric Technology, PY 2017-18)[13]**
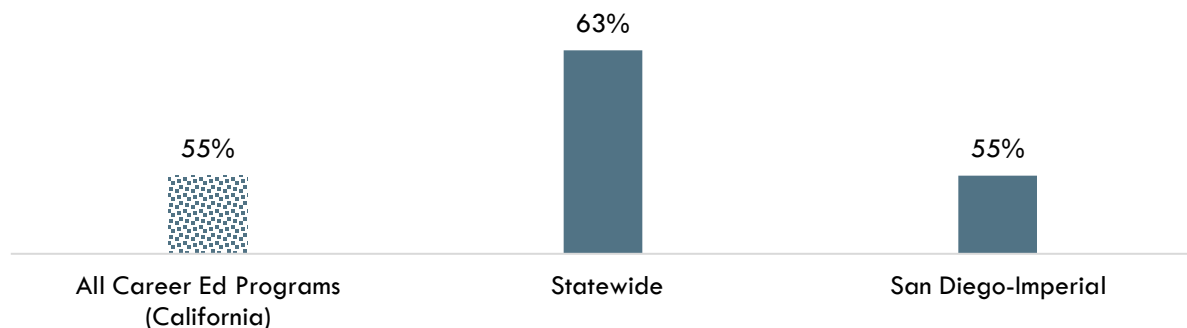
According to the California Community Colleges LaunchBoard, 63 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Electronics and Electric Technology (0934.00) program, compared to 75 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).[14]

**Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program
(Electronics and Electric Technology, PY 2016-17)[15]**

---
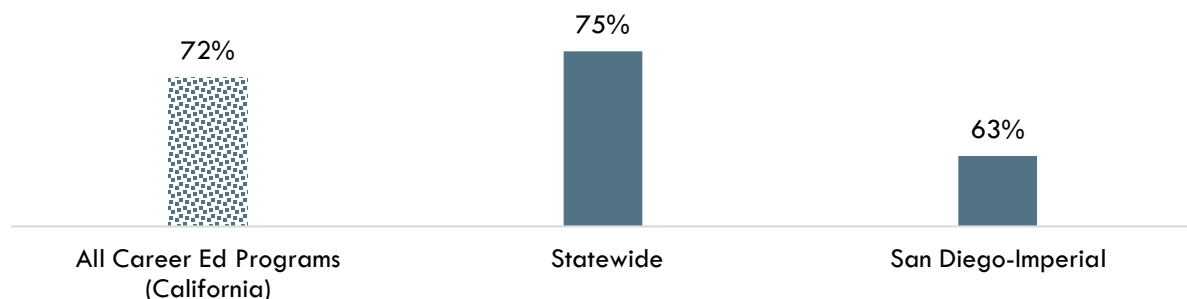
[12] "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.
[13] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[14] "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.
[15] Most recent year with available data is Program Year 2016-17. 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.

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 that are not captured by historical data. Between 2010 and 2020, there was an average of five online job postings per year for *Electronics and Electric Technology Occupations* in San Diego County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1b). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 7: Number of Online Job Postings for *Electronics and Electric Technology Occupations* in San Diego County (2010-2020)[16]
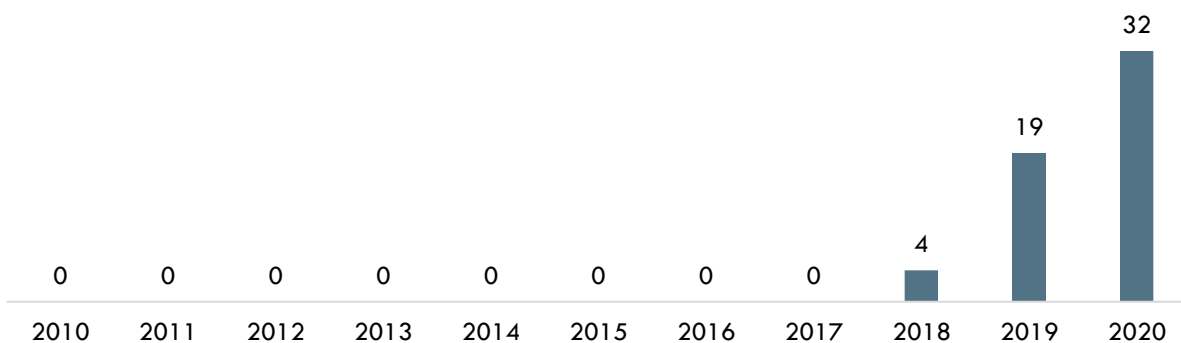
Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in San Diego County for *Electronics and Electric Technology Occupations* were Crown Equipment Corporation, Carnival Entertainment, Asurion, JAAM Electric, and Anderson Plumbing Heating & Air based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for *Electronics and Electric Technology Occupations* in San Diego County[17]

Top Employers	
• Crown Equipment Corporation • Carnival Entertainment • Asurion • JAAM Electric • Anderson Plumbing Heating & Air	• Vivint Solar • San Diego Fleet Management Service Center • KTA-Tator Incorporated • Gryphon Technologies • Uqora

---

[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.
[17] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, and Certifications

Electronics and Electric Technology Occupations have a national educational attainment ranging from a high school diploma or equivalent to a postsecondary non-degree award (Exhibit 9a).

Exhibit 9a: National Educational Attainment for *Electronics and Electric Technology Occupations*[18]

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

Based on online job postings between January 1, 2018 and December 31, 2020 in San Diego County, employers posted a high school diploma or equivalent as the educational requirement for *Electronics and Electric Technology Occupations* (Exhibit 9b).[19]

Exhibit 9b: Educational Requirements for *Electronics and Electric Technology Occupations* in San Diego County[20]

83%   HS diploma or equivalent
4%   Associate degree
13%   Bachelor's degree
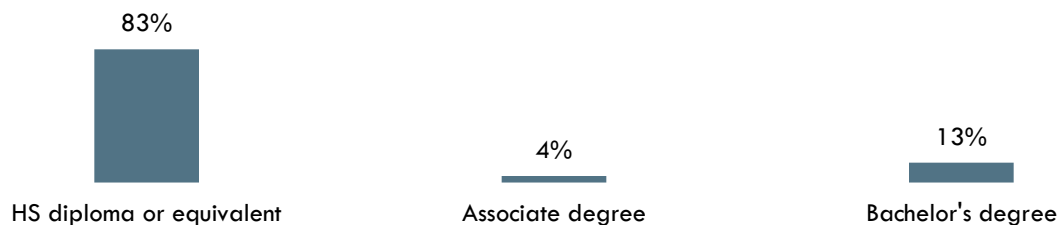
*may not total 100 percent due to rounding

---

[18] EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.
[19] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.
[20] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified April 9, 2021. bls.gov/emp/tables/educational-attainment.htm.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 10: Top Skills for *Electronics and Electric Technology Occupations* in San Diego County[21]

Specialized Skills	Soft Skills	Software Skills
• Repair • Customer Service • Forklift Operation • Technical Assistance • Welding • Electrical Diagrams / Schematics • Electrical Engineering • Lift Trucks • Plumbing • Product Sales • Commercial Off the Shelf • Equipment Maintenance • Lifting Ability • Manual Dexterity • Radar Systems	• Troubleshooting • Communication Skills • Verbal / Oral Communication • Physical Abilities • Problem Solving • Research • Computer Literacy • Organizational Skills • Analytical Skills • English • Teamwork / Collaboration • Written Communication • Multi-Tasking • Presentation Skills • Time Management	• Microsoft Excel • Microsoft Outlook • Microsoft Word

---

[21] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 11 lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 11: Top Certifications for *Electronics and Electric Technology Occupations* in San Diego County[22]

Top Certifications in Online Job Postings
1. Driver's License
2. Electrician Certification
3. Security Clearance
4. Electrical Certification
5. Master Electrician License
6. OSHA Forklift Certification
7. First Aid CPR AED

[22] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Prepared by:

Tina Ngo Bartel, Director (tngobartel@miracosta.edu)

John Edwards, Research Analyst (jedwards@miracosta.edu)

Priscilla Fernandez, Research Analyst (pfernandez@miracosta.edu)

San Diego-Imperial Center of Excellence for Labor Market Research

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.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.