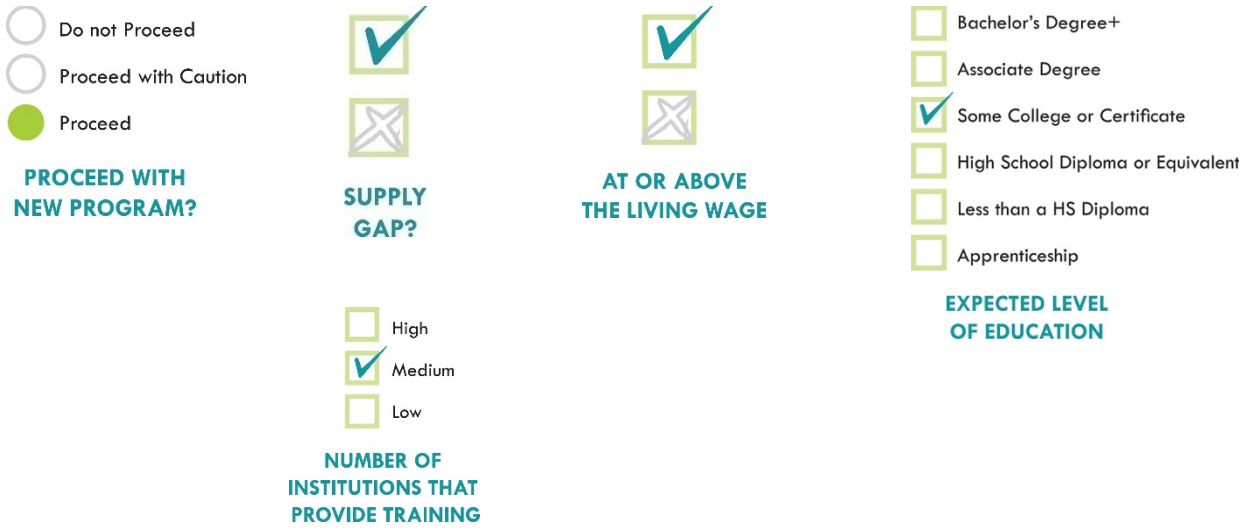
C·O·E CENTERS OF EXCELLENCE FOR LABOR MARKET RESEARCH

Automotive Technology

Labor Market Analysis for San Diego Continuing Education

September 2019

Summary



This report provides labor market information for four occupations selected by San Diego Continuing Education for its *Automotive Technology* program. According to available labor market information, these occupations have a labor market demand of 862 annual job openings, while average demand for an occupation in San Diego County is 277 annual job openings. Five community colleges supply the region with 295 for-credit awards for *Automotive Technology*: Cuyamaca College, MiraCosta College, Palomar College, San Diego Miramar College, and Southwestern College. While associate degrees are offered for *Automotive Technology Occupations*, each institution (with the exception of Cuyamaca College) awards more certificates than associate degrees. More specifically, "Certificates 18 to < 30 units" has the largest number of awards over a three-year average. In terms of noncredit awards, only San Diego Continuing Education supplies awards—91 noncredit awards—for these occupations. In short, the region supplies 386 for-credit and noncredit awards for 862 annual job openings, suggesting that there is a labor market supply gap. Additionally, three out of four *Automotive Technology 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.

C·O·E CENTERS OF EXCELLENCE FOR LABOR MARKET RESEARCH

Introduction

This report provides labor market information (LMI) in San Diego County for occupations related to the six-digit Taxonomy of Programs[1] (TOP) code, Automotive Technology (TOP 094800). 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 *Automotive Technology*, which will be the focus of this report:

- **Electrical and Electronics Installers and Repairers, Transportation Equipment** (SOC 49-2093): Install, adjust, or maintain mobile electronics communication equipment, including sound, sonar, security, navigation, and surveillance systems on trains, watercraft, or other mobile equipment.
- **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.
- **Automotive Service Technicians and Mechanics** (SOC 49-3023): Diagnose, adjust, repair, or overhaul automotive vehicles.
- **Transportation Inspectors** (SOC 53-6051): Inspect equipment or goods in connection with the safe transport of cargo or people. Includes rail transportation inspectors, such as freight inspectors; rail inspectors; and other inspectors of transportation vehicles, not elsewhere classified.

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

Projected Occupational Demand

Between 2018 and 2023, *Automotive Technology Occupations* are projected to increase by 141 net jobs or two percent (Exhibit 1a). Employers in San Diego County will need to hire 862 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

[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.

Exhibit 1a: Number of Jobs for *Automotive Technology Occupations* (2008-2023)[3]

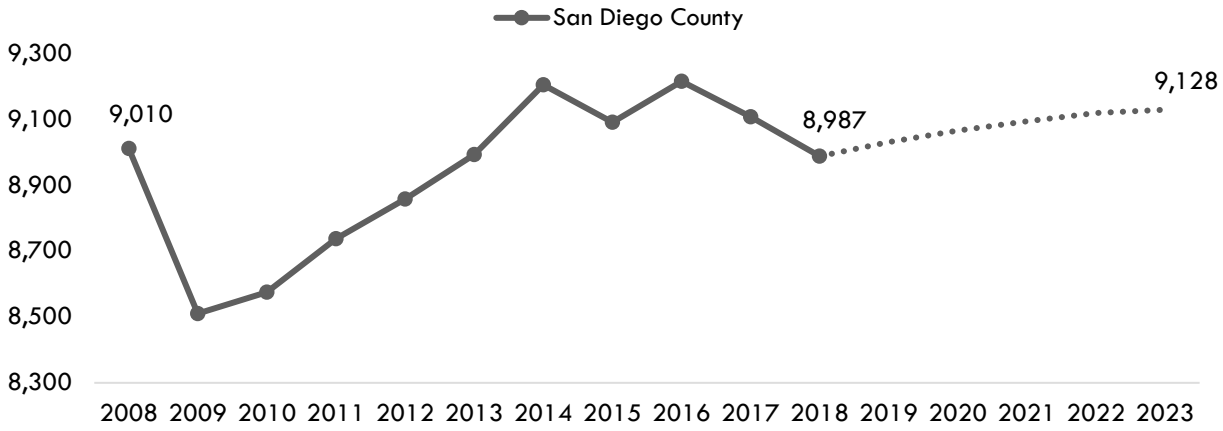


Exhibit 1b breaks down the projected number of jobs change by occupation more specifically. As Exhibit 1b shows, *Automotive Service Technicians and Mechanics* has the largest labor market demand, with 745 job openings projected to be available annually between 2018 and 2023.

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

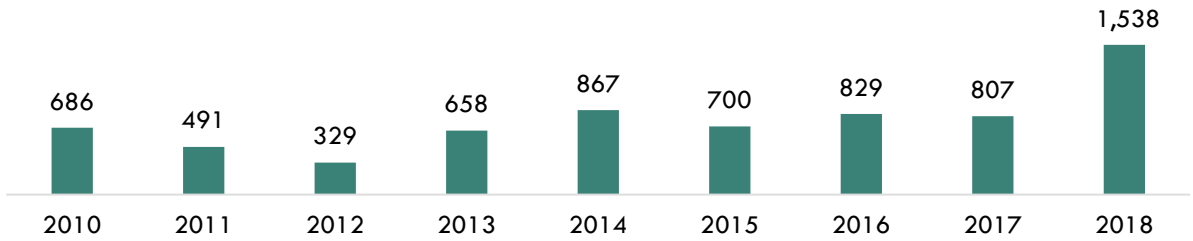
Occupational Title	2018 Net Jobs	2023 Net Jobs	2018 - 2023 Net Change	2018-2023 % Net Change	Annual Job Openings (Demand)
Automotive Service Technicians and Mechanics	7,787	7,893	106	1%	745
Electrical and Electronics Repairers, Commercial and Industrial Equipment	758	774	16	2%	71
Transportation Inspectors	313	335	22	7%	35
Electrical and Electronics Installers and Repairers, Transportation Equipment	129	126	(3)	(2%)	11
Total	8,987	9,128	141	2%	862

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

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 labor market demand that are not captured by historical data. Between 2010 and 2018, there was an average of 767 online job postings per year for *Automotive Technology Occupations* in San Diego County (Exhibit 2).

Exhibit 2: Number of Online Job Postings for *Automotive Technology Occupations* in San Diego County (2010-2018)[4]



Earnings

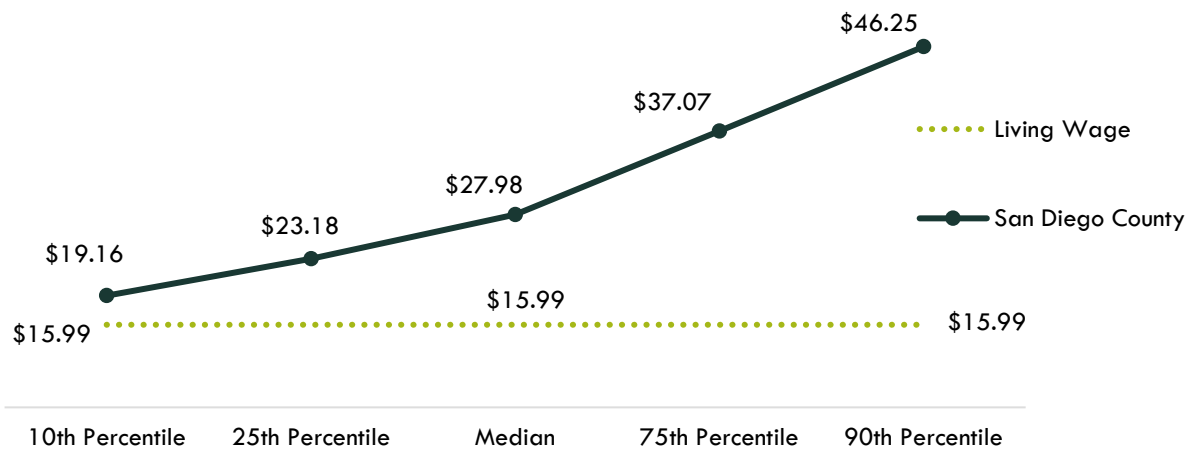
The median hourly earnings of *Automotive Technology Occupations* range from $20.74 to $30.90 (Exhibit 3a). On average, the median hourly earnings for *Automotive Technology Occupations* is $27.98; this is more than the living wage for a single adult in San Diego County, which is $15.99 per hour (Exhibit 3b).[5]

Exhibit 3a: Hourly Earnings for *Automotive Technology Occupations* in San Diego County

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Electrical and Electronics Repairers, Commercial and Industrial Equipment	$26.80	$30.90	$37.17
Transportation Inspectors	$26.54	$32.77	$52.73
Electrical and Electronics Installers and Repairers, Transportation Equipment	$24.68	$27.50	$30.69
Automotive Service Technicians and Mechanics	$14.69	$20.74	$27.69

[4] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2018.
[5] "California Family Needs Calculator." Insight Center for Community Economic Development, last updated 2018. insightcced.org/2018-family-needs-calculator.

Exhibit 3b: Average Hourly Earnings[6] for *Automotive Technology Occupations* in San Diego County[7]



Educational Supply

Educational supply for an occupation can 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 CIP[9] data, five community colleges supply the region with for-credit awards for Automotive Technology (TOP 094800): Cuyamaca College, MiraCosta College, Palomar College, San Diego Miramar College, and Southwestern College. While associate degrees are offered for *Automotive Technology Occupations*, each institution (with the exception of Cuyamaca College) awards more certificates than associate degrees (Exhibit 4a).

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

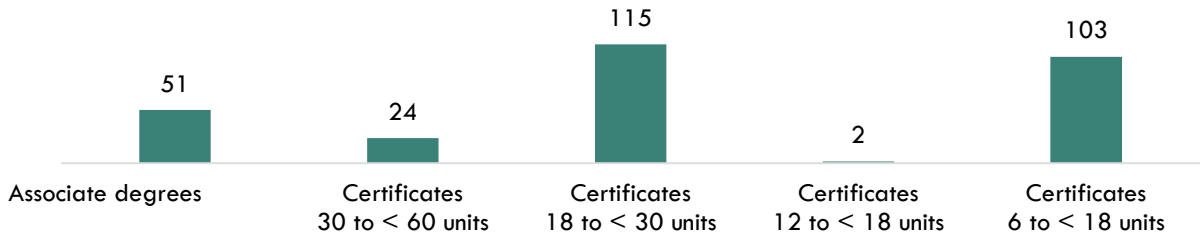
College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
Cuyamaca	Associate of Science (A.S.) degree	9	20	10	13
	Certificate 30 to < 60 units	5	4	2	4
	Certificate 18 to < 30 units	6	9	3	6
	Total	**20**	**33**	**15**	**23**

[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.
[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 two CIP codes related to Automotive Technology (TOP 094800): Automobile/Automotive Mechanics Technology/Technician (CIP 470604) and Vehicle Emissions Inspection and Maintenance Technology/Technician (CIP 470612).

College	Award Type	PY 15-16	PY 16-17	PY 17-18	3-Year Avg
MiraCosta	Associate of Arts (A.A.) degree	11	6	5	7
	Certificate 30 to < 60 units	1	0	3	1
	Certificate 18 to < 30 units	30	10	15	18
	Certificate 12 to < 18 units	2	0	3	2
	Certificate 6 to < 18 units	49	17	43	36
	Total	**93**	**33**	**69**	**65**
Palomar	Associate of Science (A.S.) degree	0	10	7	6
	Associate of Arts (A.A.) degree	15	0	0	5
	Certificate 30 to < 60 units	10	14	9	11
	Certificate 18 to < 30 units	10	4	6	7
	Total	**35**	**28**	**22**	**28**
San Diego Miramar	Associate of Science (A.S.) degree	14	12	11	12
	Certificate 30 to < 60 units	1	0	0	0
	Certificate 18 to < 30 units	85	57	69	70
	Certificate 6 to < 18 units	62	53	72	62
	Total	**162**	**122**	**152**	**145**
Southwestern	Associate of Science (A.S.) degree	12	7	4	8
	Certificate 30 to < 60 units	17	2	6	8
	Certificate 18 to < 30 units	23	10	7	13
	Certificate 6 to < 18 units	0	4	9	4
	Total	**52**	**23**	**26**	**34**
Total		**362**	**239**	**284**	**295**

More specifically, "Certificates 18 to < 30 units" has the largest number of awards over a three-year average (Exhibit 4b).

Exhibit 4b: Total Number of Awards by Type for *Automotive Technology (TOP 094800)* in San Diego County (Three-Year Average 2015-16 through 2017-18)



In terms of noncredit awards, only San Diego Continuing Education provides noncredit awards for Automotive Technology (TOP 094800), with an average of 91 noncredit awards between program years 2015-16 and 2017-18 (Exhibit 5).

Exhibit 5: Number of Noncredit Awards 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
Automotive Technician	Program Award	52	37	16	35
Brake/Suspension & Light Service Technician	Program Award	9	2	0	4
Inspection & Vehicle Preparation Program	Program Award	63	41	44	49
Service Advisor	Program Award	0	0	9	3
Total		**124**	**80**	**69**	**91**

Demand vs. Supply

In short, the region supplies 386 for-credit and noncredit awards for 862 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)

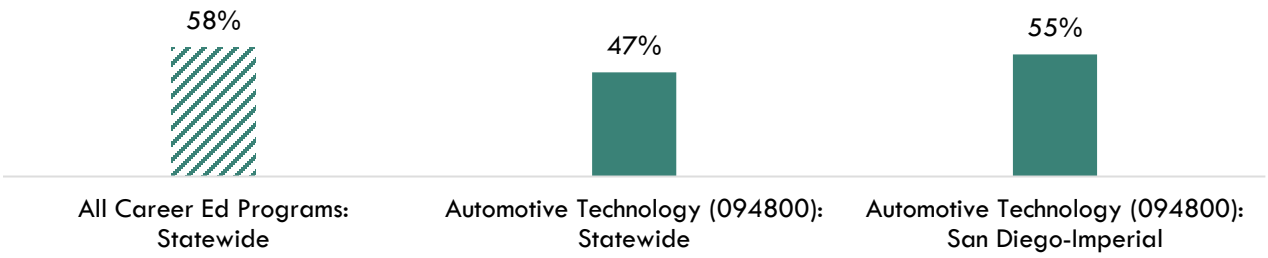
TOP6 Program	**Demand** (Annual Openings)	**Supply** (Total Annual Average Supply)		**Supply Gap or Oversupply**
		Noncredit	For-Credit	
Automotive Technology (TOP 094800)	862	91	295	**476**

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

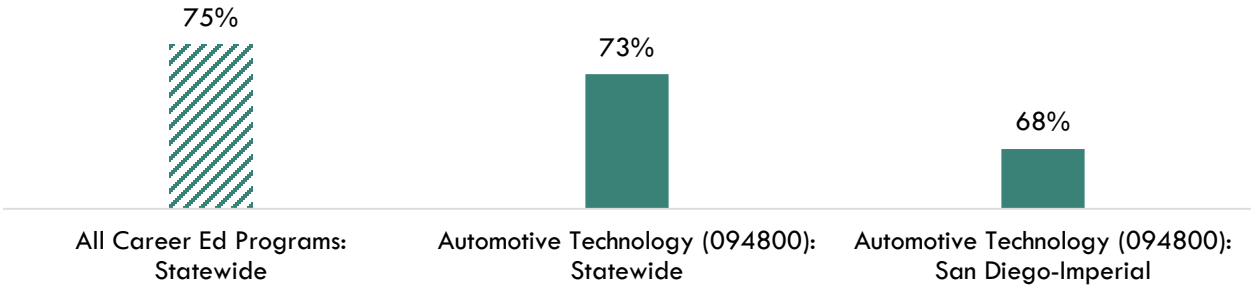
According to the California Community Colleges LaunchBoard, 55 percent of students in the San Diego-Imperial region earned a living wage after completing an Automotive Technology (094800) program, compared to 47 percent statewide and 58 percent of students in Career Education programs in general across the state (Exhibit 7a).

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2015-16[10]



According to the California Community Colleges LaunchBoard, 68 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Automotive Technology (094800) program, compared to 73 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, PY2014-15[11]



[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 five employers in San Diego County for these occupations were Pep Boys, Bridgestone/Firestone, Group 1 Automotive, Nissan North America Incorporated, and Jiffy Lube (Exhibit 8).

Exhibit 8: Top Employers in San Diego County for *Automotive Technology Occupations*[12]

Top Employers	
• Pep Boys • Bridgestone/Firestone • Group 1 Automotive • Nissan North America Incorporated • Jiffy Lube	• Penske Automotive Group • Valvoline • Toyota Motors • Sears • Autonation

Skills, Education, and Certifications

Automotive Technology Occupations have educational requirements ranging from a high school diploma or equivalent to a postsecondary nondegree award (Exhibit 9a).

Exhibit 9a: National Educational Requirements for *Automotive Technology Occupations*[13]

Occupational Title	Typical Entry-Level Education
Automotive Service Technicians and Mechanics	Postsecondary nondegree award
Electrical and Electronics Repairers, Commercial and Industrial Equipment	Postsecondary nondegree award
Electrical and Electronics Installers and Repairers, Transportation Equipment	Postsecondary nondegree award
Transportation Inspectors	High school diploma or equivalent

Based on online job postings between January 1, 2016 and December 31, 2018, the top listed educational requirement for *Automotive Technology Occupations* was a high school diploma or vocational training (Exhibit 9b).[14]

[12] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.
[13] Emsi 2019.03; QCEW, Non-QCEW, Self-Employed.
[14] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

Exhibit 9b: Educational Requirements for Automotive *Technology Occupations* in San Diego County in Online Job Postings[15]

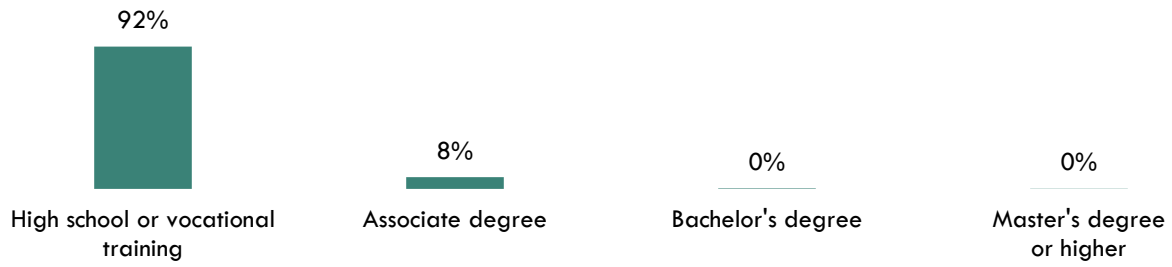


Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2016 and December 31, 2018.

Exhibit 10: Top Skills for *Automotive Technology Occupations* in San Diego County[16]

Specialized Skills	Soft Skills	Software Skills
• Repair • Auto Repair • Automotive Services Industry Knowledge • Customer Service • Customer Contact	• Communication Skills • Organizational Skills • Physical Abilities • Troubleshooting • Teamwork/Collaboration	• Microsoft Excel • Microsoft Word • Microsoft PowerPoint • Systems Analysis • SAP

[15] "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified October 18, 2018. bls.gov/emp/tables/educational-attainment.htm.
[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2016-2018.

Prepared by:
Tina Ngo Bartel, Director
John Edwards, Research Analyst
San Diego-Imperial Center of Excellence for Labor Market Research
tngobartel@miracosta.edu
jedwards@miracosta.edu

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.