










Automotive 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 |
|--|---|---|--|
|  <p>Proceed with New Program</p> |   |   | <input type="checkbox"/> Bachelor's Degree+ <input type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate <input checked="" type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship |
| SUPPORT FOR PROGRAM MODIFICATION? | NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING | NUMBER OF ANNUAL JOB OPENINGS | |
|   | <p>HIGH</p>  | <p>HIGH</p>  | |

This report provides labor market information for occupations selected by San Diego College of Continuing Education for its *Automotive Technology* program. These occupations include “Automotive Service Technicians and Mechanics,” “Electrical and Electronics Installers and Repairers, Transportation Equipment,” “Electrical and Electronics Repairers, Commercial and Industrial Equipment,” and “Transportation Inspectors.” According to available labor market information, *Automotive Technology Occupations* in San Diego County have a labor market demand of 701 annual job openings (while average demand for a single occupation in San Diego County is 242 annual job openings). On average, five institutions supply 245 for-credit awards and one institution supplies 81 noncredit awards in San Diego County for these occupations. In short, the region supplies 326 for-credit and noncredit awards for 701 annual job openings, suggesting that there is a supply gap in the labor market. Entry-level wages for all occupations except “Automotive Service Technicians and Mechanics” and median wages for all occupations are above the living wage. This brief recommends that the colleges proceed with developing a new program for these occupations and supports a program modification because 1) there is a supply gap; and 2) most of 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, Automotive Technology (TOP 0948.00). 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 *Automotive Technology*, which will be the focus of this report:

- **Automotive Service Technicians and Mechanics (SOC 49-3023):** Diagnose, adjust, repair, or overhaul automotive vehicles.
- **Electrical and Electronics Installers and Repairers, Transportation Equipment (SOC 49-2094):** 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.
- **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 referred to as *Automotive 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](https://www.bls.gov/soc).

Projected Occupational Demand

Between 2020 and 2025, *Automotive Technology Occupations* are projected to decrease by **367** net jobs or **four** percent (Exhibit 1a). Employers in San Diego County will need to hire **701** workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

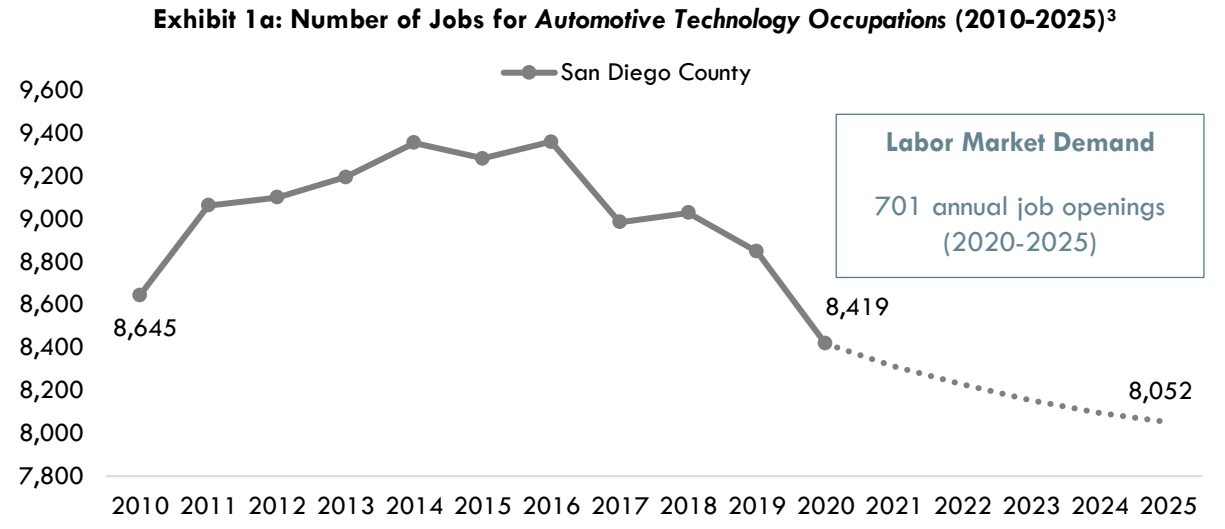


Exhibit 1b disaggregates the projected number of jobs change by occupation. “Automotive Service Technicians and Mechanics” are projected to have the most labor market demand between 2020 and 2025, with **589** annual job openings.

Exhibit 1b: Number of Jobs for Automotive 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) |
|---|--------------|--------------|-----------------------------|-----------------------------|------------------------------|
| Automotive Service Technicians and Mechanics | 6,960 | 6,578 | -382 | -5% | 589 |
| Electrical and Electronics Repairers, Commercial and Industrial Equipment | 1,068 | 1,071 | 3 | 0% | 76 |
| Transportation Inspectors | 225 | 236 | 11 | 5% | 24 |
| Electrical and Electronics Installers and Repairers, Transportation Equipment | 166 | 167 | 1 | 1% | 12 |
| Total | 8,419 | 8,052 | -367 | -4% | 701 |

³ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

⁴ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

Earnings

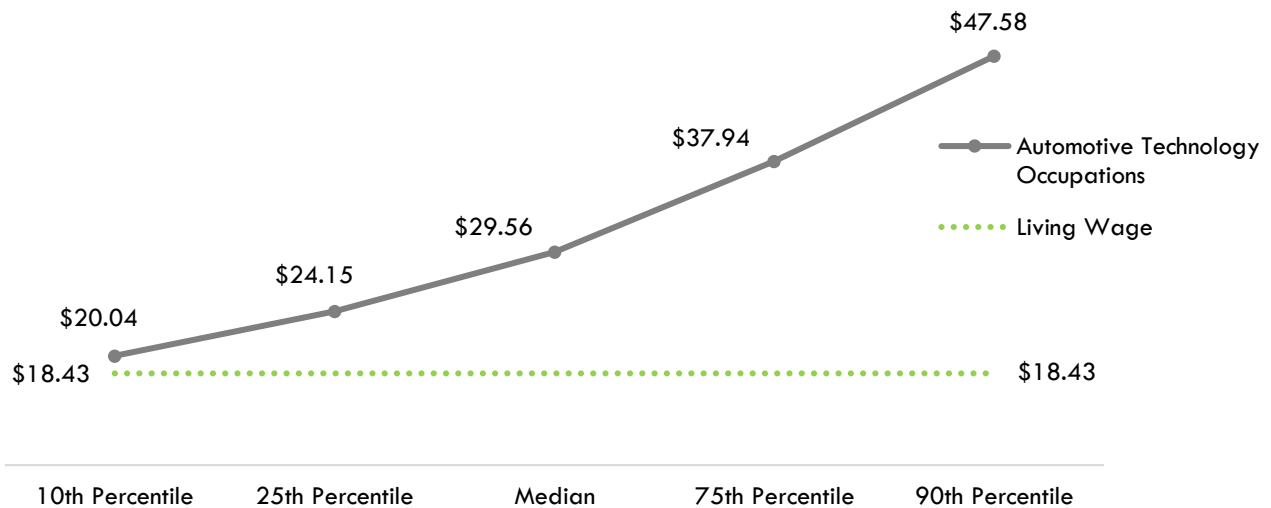
Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Automotive Technology Occupations* range from \$14.91 to \$29.36.

Exhibit 2a: Hourly Earnings for Automotive Technology Occupations in San Diego County⁵

| Occupational Title | Entry-Level Hourly Earnings (25 th Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 th Percentile) |
|---|---|------------------------|---|
| Transportation Inspectors | \$29.36 | \$34.95 | \$51.37 |
| Electrical and Electronics Repairers, Commercial and Industrial Equipment | \$26.76 | \$32.52 | \$38.38 |
| Electrical and Electronics Installers and Repairers, Transportation Equipment | \$25.55 | \$29.09 | \$32.36 |
| Automotive Service Technicians and Mechanics | \$14.91 | \$21.69 | \$29.66 |

On average, the entry-level hourly earnings for *Automotive Technology Occupations* are \$24.15; 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 Earnings⁷ for Automotive Technology Occupations in San Diego County⁸



⁵ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

⁶ "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. insightccd.org/family-needs-calculator/.

⁷ 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.

⁸ EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

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 CIP¹⁰ data, five community colleges supply the region with for-credit awards for Automotive Technology (TOP 0948.00): Cuyamaca College, MiraCosta College, Palomar College, San Diego Miramar 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 |
|--------------|------------------------------|-----------|-----------|------------|--------------------|
| Cuyamaca | Associate Degree | 10 | 15 | 6 | 10 |
| | Certificate 30 to < 60 units | 2 | 2 | 0 | 1 |
| | Certificate 16 to < 30 units | 3 | 0 | 1 | 1 |
| | Total | 15 | 17 | 7 | 13* |
| MiraCosta | Associate Degree | 5 | 5 | 11 | 7 |
| | Certificate 30 to < 60 units | 3 | 1 | 4 | 3 |
| | Certificate 18 to < 30 units | 15 | 10 | 0 | 8 |
| | Certificate 16 to < 30 units | 0 | 0 | 23 | 8 |
| | Certificate 12 to < 18 units | 3 | 2 | 0 | 2 |
| | Certificate 8 to < 16 units | 0 | 0 | 2 | 1 |
| | Certificate 6 to < 18 units | 43 | 34 | 47 | 41 |
| Total | 69 | 52 | 87 | 69* | |
| Palomar | Associate Degree | 7 | 12 | 9 | 9 |
| | Certificate 30 to < 60 units | 9 | 10 | 11 | 10 |
| | Certificate 18 to < 30 units | 6 | 6 | 0 | 4 |
| | Total | 22 | 28 | 20 | 23 |

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).

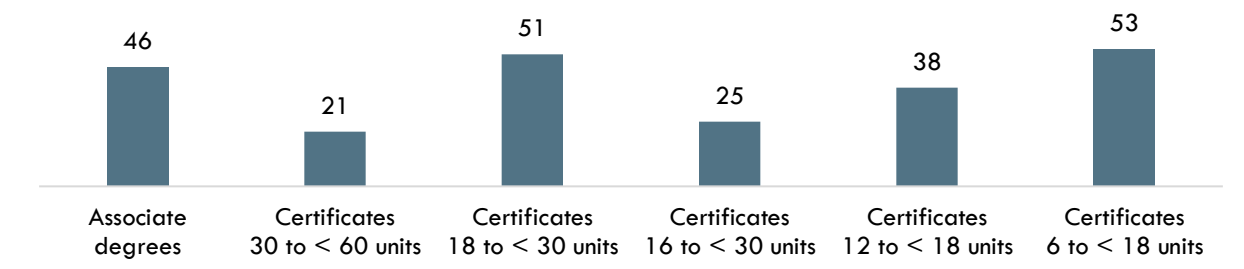
¹⁰ There are two CIP codes related to Automotive Technology (TOP 0948.00): Automobile/Automotive Mechanics Technology/Technician (CIP 47.0604) and Vehicle Emissions Inspection and Maintenance Technology/Technician (CIP 47.0612).

| College | Award Type | PY 17-18 | PY 18-19 | PY 19-20 | 3-Yr Total Average |
|-------------------|------------------------------|------------|------------|------------|--------------------|
| San Diego Miramar | Associate Degree | 11 | 10 | 7 | 9 |
| | Certificate 18 to < 30 units | 69 | 36 | 0 | 35 |
| | Certificate 16 to < 30 units | 0 | 0 | 22 | 7 |
| | Certificate 12 to < 18 units | 72 | 38 | 0 | 37 |
| | Certificate 8 to < 16 units | 0 | 0 | 34 | 11 |
| | Certificate 6 to < 18 units | 0 | 1 | 0 | 0 |
| | Total | 152 | 85 | 63 | 100* |
| Southwestern | Associate Degree | 4 | 9 | 16 | 10 |
| | Certificate 30 to < 60 units | 6 | 7 | 7 | 7 |
| | Certificate 18 to < 30 units | 7 | 3 | 0 | 3 |
| | Certificate 16 to < 30 units | 0 | 4 | 21 | 8 |
| | Certificate 6 to < 18 units | 9 | 8 | 17 | 11 |
| | Total | 26 | 31 | 61 | 39 |
| Total | | 284 | 213 | 238 | 245* |

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

By for-credit award type, the colleges supplied the most awards for certificates 6 to 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 Automotive Technology (TOP 0948.00) in San Diego County (3-Yr Average)



In terms of noncredit awards, only San Diego College of Continuing Education provides noncredit awards for Automotive Technology (TOP 0948.00), with a three-year average of 81 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 |
|---|------------|-----------|-----------|-----------|--------------------|
| Automotive Technician | Noncredit | 16 | 38 | 32 | 29 |
| Brake/Suspension and Light Technician | Noncredit | 0 | 0 | 0 | 0 |
| Inspection and Vehicle Preparation Technician | Noncredit | 47 | 28 | 46 | 40 |
| Service Advisor | Noncredit | 9 | 13 | 14 | 12 |
| Total | | 72 | 79 | 92 | 81 |

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply¹¹ suggests that there is a **supply gap** in San Diego County, with 701 annual openings and 326 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 | |
| Automotive Technology (TOP 0948.00) | 701 | 81 | 245 | 375 |

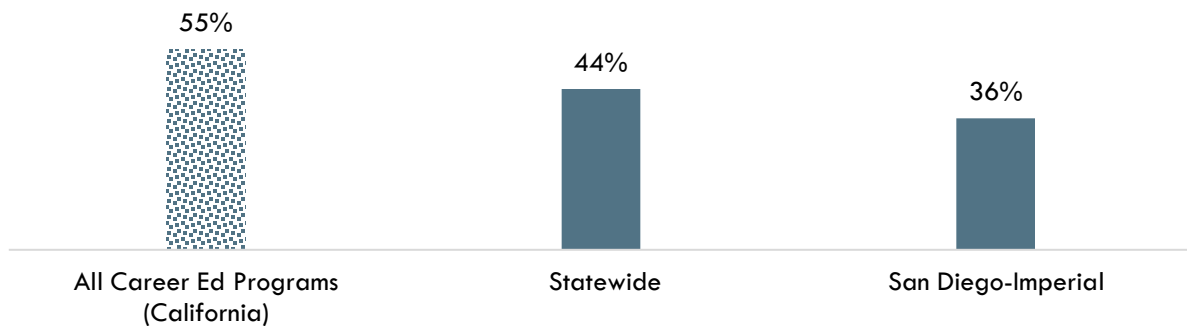
Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers;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

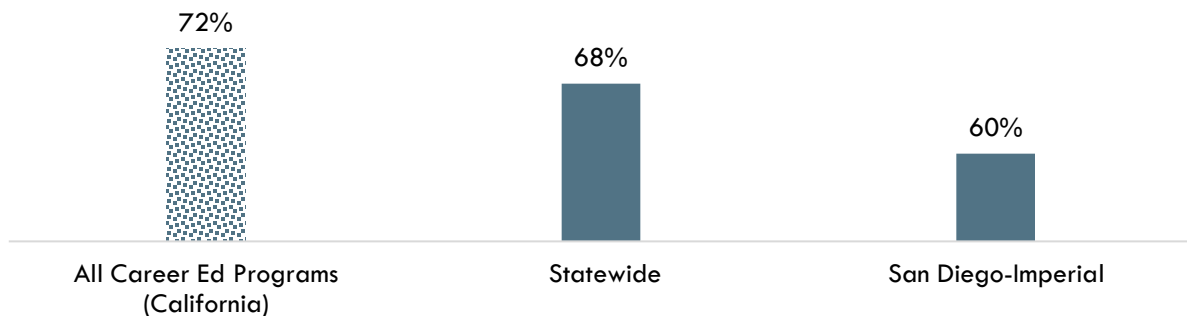
According to the California Community Colleges LaunchBoard, 36 percent of students in the San Diego-Imperial region earned a living wage after completing an Automotive Technology (0948.00) program, compared to 44 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6a).¹²

**Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program
(Automotive Technology, PY 2017-18)¹³**



According to the California Community Colleges LaunchBoard, 60 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing an Automotive Technology (0948.00) program, compared to 68 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
(Automotive 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.

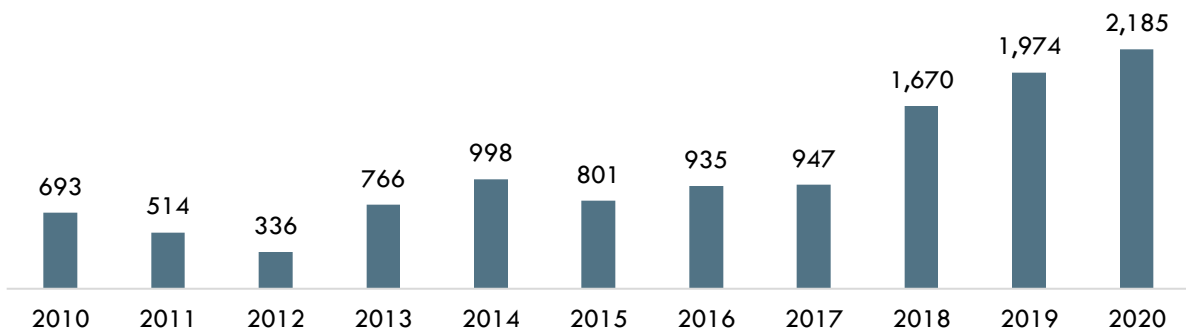
¹⁴ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

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 1,074 online job postings per year for *Automotive 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 Automotive 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 *Automotive Technology Occupations* were [Pep Boys](#), [Bridgestone / Firestone](#), [Penske Automotive Group](#), [Toyota Motors](#), and [Group 1 Automotive](#) based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for Automotive Technology Occupations in San Diego County¹⁷

| Top Employers | |
|---|--|
| <ul style="list-style-type: none"> • Pep Boys • Bridgestone / Firestone • Penske Automotive Group • Toyota Motors • Group 1 Automotive | <ul style="list-style-type: none"> • Chrysler • Nissan North America Incorporated • United Parcel Service Incorporated • Allstate • Honda |

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

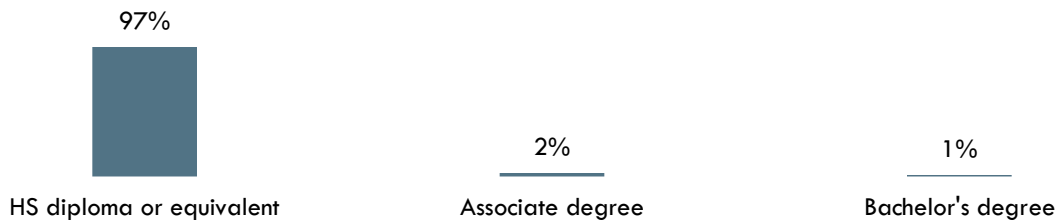
Except for “Transportation Inspectors,” *Automotive Technology Occupations* have a national educational attainment of a *postsecondary non-degree award* (Exhibit 9a).

Exhibit 9a: National Educational Attainment for Automotive Technology Occupations¹⁸

| Occupational Title | Typical Entry-Level Education |
|---|-----------------------------------|
| Electrical and Electronics Repairers, Commercial and Industrial Equipment | Postsecondary non-degree award |
| Electrical and Electronics Installers and Repairers, Transportation Equipment | Postsecondary non-degree award |
| Automotive Service Technicians and Mechanics | Postsecondary non-degree award |
| Transportation Inspectors | 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 *Automotive Technology Occupations* (Exhibit 9b).¹⁹

Exhibit 9b: Educational Requirements for Automotive Technology Occupations in San Diego County²⁰



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 Automotive Technology Occupations in San Diego County²¹

| Specialized Skills | Soft Skills | Software Skills |
|--|---|---|
| <ul style="list-style-type: none"> • Repair • Auto Repair • Customer Service • Automotive Services Industry Knowledge • Scheduling • Customer Contact • Vehicle Inspection • Electrical Systems • Automotive Industry Knowledge • Oil Changes • Hand Tools • Vehicle Maintenance • Sales • Occupational Health and Safety • Motor Vehicle Operation | <ul style="list-style-type: none"> • Communication Skills • Physical Abilities • Organizational Skills • Teamwork / Collaboration • Troubleshooting • Detail-Oriented • Problem Solving • Writing • Preventive Maintenance • Computer Literacy • English • Work Area Maintenance • Multi-Tasking • Verbal / Oral Communication • Energetic | <ul style="list-style-type: none"> • Microsoft Excel • Microsoft Word • Microsoft PowerPoint • SAP • Python • C++ • Java • Software Development • Systems Analysis • Software Engineering • Computer Engineering • Linux • Microsoft Access • Enterprise Resource Planning • Word Processing |

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 Automotive Technology Occupations in San Diego County²²

Top Certifications in Online Job Postings

1. Driver's License
 2. Automotive Service Excellence (ASE) Certification
 3. Security Clearance
 4. Occupational Safety and Health Administration Certification
 5. Air Brake Certified
 6. EPA 609
 7. Chrysler Certified
 8. Certified Lube Technician
 9. First Aid CPR AED
 10. CDL Class C
 11. CDL Class B
 12. OSHA Forklift Certification
 13. Mobile Electronics Certified Professional (MECP)
 14. Airframe and Powerplant (A and P) Certification
 15. CDL Class A
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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.