

# Automotive Technology

*Inland Empire/Desert Region (Riverside-San Bernardino-Ontario Metropolitan Statistical Area)*

## Summary

- Employment for the automotive technology occupational group is expecting to **increase 7% between 2017 and 2022** in the Inland Empire/Desert Region. **7,724 job openings** will be available over the five-year timeframe.
- The median wage for each of the occupations in the automotive technology occupational group is **above the MIT Living Wage estimate of \$12.30 per hour** for a single adult living in the Inland Empire/Desert Region.
- There appears to be an **opportunity for program growth** based on the average annual number of program completions for the selected community college programs (**213 average annual community college credentials, 885 credentials from other educational institutions, 1,098 total average annual credentials**) and the annual job openings for the automotive technology occupational group in the local region (**1,545 annual job openings**).

## Introduction

This report details occupations relevant to the automotive technology program. The automotive technology program prepares individuals to service, maintain, diagnose malfunctions, and repair and overhaul of components and systems in automotive vehicles.<sup>1</sup> The three occupations included in the automotive technology occupational group are the following:

- Automotive Service Technicians and Mechanics
- Electronic Equipment Installers and Repairers, Motor Vehicles
- Parts Salespersons

---

<sup>1</sup> The Taxonomy of Programs, 6<sup>th</sup> Edition, February 2004

## Job Opportunities

In 2017, there were 13,418 automotive technology occupational group jobs in the Inland Empire/Desert Region. Across the region, employment related to the automotive technology occupational group is expected to increase by 7% through 2022. Employers in the region will need to hire 7,724 workers during the five-year timeframe to fill new jobs and to backfill jobs that workers are permanently leaving (includes retirements). Appendix A, Table 1 shows the projected job growth, wages, education, training, and work experience for each of the occupations in this group.

*Exhibit 1: Five-year projections for the automotive technology occupational group in the Inland Empire/Desert Region*

Region	2017 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Inland Empire/Desert	13,418	7%	7,724	1,545	19%

Source: EMSI 2018.3

Exhibit 2 shows the number of job ads posted during the last 12 months and the average time to fill each occupation in the local region and nationally. On average, open positions for the automotive technology occupational group take four days longer to fill in the Inland Empire/Desert Region than in the nation as a whole, indicating that open positions are slightly more challenging to fill in the local region.

*Exhibit 2: Job ads by occupation in the automotive technology occupational group in the Inland Empire/Desert Region during the last 12 months, Nov 2017 – Oct 2018*

Occupation	Job Ads	Regional Average Time To Fill (Days)	National Average Time to Fill (Days)
Automotive Service Technicians and Mechanics	1,279	47	43
Parts Salespersons	88	35	36
Electronic Equipment Installers and Repairers, Motor Vehicles	3	26	24
<b>TOTAL</b>	<b>1,370</b>	<b>-</b>	<b>-</b>

Source: Burning Glass – Labor Insights

## Earnings

The median wage for each of the occupations in the automotive technology occupational group is above the MIT Living Wage estimate of \$12.30 per hour for a single adult living in the Inland Empire/Desert Region. These wages are also sufficient for two working adults and one child (\$14.50 per hour, per adult or \$30,160 annually for each adult). Exhibit 3 displays wage information for this occupational group in the Inland Empire/Desert Region.

*Exhibit 3: Earnings for the automotive technology occupational group in the Inland Empire/Desert Region*

Occupation	Entry to Experienced Hourly Earnings Range*	Median Wage*	Average Annual Earnings
Electronic Equipment Installers and Repairers, Motor Vehicles	\$14.58 to \$21.00	\$17.39	\$36,800
Automotive Service Technicians and Mechanics	\$11.60 to \$24.81	\$16.54	\$39,800
Parts Salespersons	\$12.09 to \$22.56	\$15.13	\$38,300

Source: EMSI 2018.3

\*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage.

## Top Employers, Skills, Education, and Certifications

Exhibit 4 displays the top employers posting job ads during the last 12 months for the Inland Empire/Desert Region. The occupation, electronic equipment installers and repairers, motor vehicles, has been removed from the following tables due to insufficient data from employer job postings.

*Exhibit 4: The top employers posting job ads for automotive technology occupations in the Inland Empire/Desert Region, Nov 2017 – Oct 2018*

Occupation	Top Employers
Automotive Service Technicians and Mechanics (n=1,112)	<ul style="list-style-type: none"> <li>• Pep Boys</li> <li>• Chrysler</li> <li>• Bridgestone/Firestone</li> </ul>
Parts Salespersons (n=77)	<ul style="list-style-type: none"> <li>• DynCorp International</li> <li>• Velocity Vehicle Group</li> <li>• Ryder System Incorporated</li> </ul>

Source: Burning Glass – Labor Insights

Exhibit 5 lists the in-demand skills that employers are seeking when looking for workers to fill automotive technology positions. The skills reported in job postings may be utilized as a helpful guide for curriculum development. Specialized skills are occupation-specific skills employers are requesting for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is commonly referred to as “soft skills.” Employers expressed a need for customer service and communication skills.

*Exhibit 5: In-demand skills for the automotive technology occupational group in the Inland Empire/Desert Region, Nov 2017 – Oct 2018*

Occupation	Specialized skills	Employability skills
Automotive Service Technicians and Mechanics (n=1,110)	<ul style="list-style-type: none"> <li>Battery Testing and Installation</li> <li>Tire Mounting</li> <li>Customer Service</li> </ul>	<ul style="list-style-type: none"> <li>Communication Skills</li> <li>Physical Abilities</li> <li>Preventive Maintenance</li> </ul>
Parts Salespersons (n=82)	<ul style="list-style-type: none"> <li>Customer Service</li> <li>Sales</li> <li>Repair</li> </ul>	<ul style="list-style-type: none"> <li>Communication Skills</li> <li>Organizational Skills</li> <li>Microsoft Office</li> </ul>

Source: Burning Glass – Labor Insights

Exhibit 6 displays the entry-level education typically required to enter these occupations according to the Bureau of Labor Statistics (BLS). This chart also displays educational attainment for incumbent workers with “some college, no degree” and an “associate degree” according to the U.S. Census (2015-16) and the minimum advertised education requirement requested by employers in online job ads.

*Exhibit 6: Educational attainment and online job ads with minimum advertised education requirements for automotive technology occupations in the Inland Empire/Desert Region, Nov 2017- Oct 2018*

Occupation	Typical Entry-Level Education Requirement	Two –year Postsecondary Level Educational Attainment*	Minimum Advertised Education Requirement from Job Ads			
			Number of Job Postings (N=)	High school diploma or vocational training	Associate degree	Bachelor’s degree or higher
Automotive Service Technicians and Mechanics	Postsecondary nondegree award	34%	527	99%	1%	-
Parts Salespersons	No formal educational credential	38%	47	92%	6%	2%

Source: EMSI 2018.3, Current Population Survey, Burning Glass – Labor Insights

\* Percentage of incumbent workers with a Community College Degree/Award or Some Postsecondary Coursework

## Certifications

Exhibit 7 displays the top certifications required by employer job ads in the Inland Empire/Desert Region.

*Exhibit 7: Top certifications required by employers' job ads in the Inland Empire/Desert Region, Nov 2017 - Oct 2018*

Occupation	Certifications
Automotive Service Technicians and Mechanics (n=812)	<ul style="list-style-type: none"> <li>• Driver's License (n=676)</li> <li>• Automotive Service Excellence (ASE) Certification (n=218)</li> </ul>
Parts Salespersons (n=21)	<ul style="list-style-type: none"> <li>• Driver's License (n=16)</li> <li>• Automotive Service Excellence (ASE) Certification (n=3)</li> </ul>

Source: Burning Glass – Labor Insights

## Demand for ASE Certifications in Region

After a driver's license, Automotive Service Excellence (ASE) is the most requested certification for the automotive technology occupational group. The ASE certification test, developed by the National Institute for Automotive Service Excellence, provides automotive technicians and mechanics with tangible proof of their technical knowledge. There are more than 40 ASE certification tests, covering almost every aspect of vehicle repair. Technicians who pass multiple tests can earn ASE Master Status. In addition to passing an ASE Certification test, automotive technicians must have two years of on-the-job training or one year of on-the-job training and a two-year degree in automotive repair to qualify for certification.<sup>2</sup> A job-posting search for the ASE certification yielded 618 job postings in the Inland Empire/Desert Region over the last 12 months (November 2017 to October 2018). Exhibit 8 displays the top occupations requiring an ASE certification.

*Exhibit 8: Top occupations from employer job postings ASE certifications in the Inland Empire/Desert Region, Nov 2017 – Oct 2018*

Occupation	Number Job Postings
Automotive Service Technicians and Mechanics	218
Bus and Truck Mechanics and Diesel Engine Specialists	83
Counter and Rental Clerks	67
First-Line Supervisor of Retail Sales Workers	52

Source: Burning Glass – Labor Insights

<sup>2</sup> National Institute for Automotive Service Excellence <https://www.ase.com/About-ASE.aspx>

The names of local employers searching for workers with the ASE certification appear in Exhibit 9.

*Exhibit 9: Top employers posting job postings seeking ASE certifications in the Inland Empire/Desert Region, Nov 2017 – Oct 2018*

Employer	Number of Job Postings
O'Reilly Auto Parts	82
Bridgestone	40
Penske Truck Leasing	36
AutoZone	35

Source: Burning Glass – Labor Insights

Knowing which skills are currently in demand from local employers' posting ads provides some indication as to what those employers value in new hires. These skills also provide potential job applicants with a specific roadmap regarding which skills they can refine or develop in order to make them a stronger candidate for the job they are seeking. The in-demand specialized skills requested by employers for these postings appear in Exhibit 10.

*Exhibit 10: In-demand specialized skills from employer postings seeking ASE certifications in the Inland Empire/Desert Region, Nov 2017 – Oct 2018*

Specialized Skill	Number of Job Postings
Repair	457
Customer Service	190
Auto Repair	179
Automotive Services Industry Knowledge	126
Retail Industry Knowledge	111
Sales	111

Source: Burning Glass – Labor Insights

Finally, the education level desired by employers informs applicants whether their current level of education is sufficient for the job they are seeking, or if additional schooling would help them land the job. The majority of employer job postings in the region seeking individuals with an ASE certification are asking for individuals with a high school diploma or vocational training (97%).

## Student Completions

Exhibit 11 shows the annual average regional community college awards (associate degrees and certificates) conferred during the three academic years between 2014 and 2017, with the relevant TOP code. Exhibit 12 displays the program titles used at California Community Colleges, sourced from the Chancellor’s Office Curriculum Inventory (COCI). Credentials granted from other educational institutions from 2013 to 2016 are displayed in Exhibit 13, along with the relevant CIP code. Please note, a credential is not equivalent to a single person in search of a job opening since a student may earn more than one credential, such as an associate degree in addition to a certificate. Community College student outcome information is from the CTE LaunchBoard based on the selected TOP code and region.

*Exhibit 11: Annual average community college student completions for automotive technology programs in the Inland Empire/Desert Region*

<b>0948.00 - Automotive Technology</b>	<b>Annual Community College Headcount (2016-17)</b>	<b>Community College Annual Average Credentials (2014-17)</b>
<b>Barstow</b>	119	
Associate Degree		4
Certificate 18 to < 30 semester units		3
<b>Chaffey</b>	412	
Associate Degree		9
Certificate 30 to < 60 semester units		4
Certificate 18 to < 30 semester units		40
<b>Copper Mountain</b>	41	
Associate Degree		2
<b>Desert</b>	355	
Associate Degree		4
Certificate 18 to < 30 semester units		40
<b>Mt. San Jacinto</b>	195	
Associate Degree		6
Certificate 30 to < 60 semester units		7
<b>Palo Verde</b>	163	
Associate Degree		1*
Certificate 18 to < 30 semester units		6
Certificate 6 to < 18 semester units		6
<b>Riverside</b>	540	
Associate Degree		12
Certificate 18 to < 30 semester units		24
<b>San Bernardino</b>	231	
Associate Degree		4
Certificate 30 to < 60 semester units		7

<b>0948.00 - Automotive Technology</b>	<b>Annual Community College Headcount (2016-17)</b>	<b>Community College Annual Average Credentials (2014-17)</b>
Certificate 18 to < 30 semester units		7
Certificate 6 to < 18 semester units		5
<b>Victor Valley</b>	639	
Associate Degree		9
Certificate 30 to < 60 semester units		2
Certificate 18 to < 30 semester units		10
<b>Total community college headcount (2016-17)</b>	<b>2,691</b>	
<b>Total annual average community college credentials (2014-17)</b>		<b>213</b>

Source: LaunchBoard, IPEDS

\*Palo Verde awarded one associate degree in 2016-17

**0948.00 - Automotive Technology program Strong Workforce outcomes in the Inland Empire/Desert Region in the academic year 2015-16, unless noted otherwise:**

- Number of course enrollments: 4,905 (California median: 545) [2016-17]
- Number of students who transferred to a 4-year institution: 45 (CA: 14)
- Employed in the second fiscal quarter after exit: 60% (CA: 74%)
- Median earnings in the second fiscal quarter after exit: \$5,717 (CA: \$6,800)
- Employed in the fourth fiscal quarter after exit: 60% (CA: 73%)
- Median annual earnings: \$19,844 (CA: \$24,896)
- The percentage in a job closely related to the field of study: 77% (CA: 75%) [2014-15]
- Median change in earnings: 83% (CA: 80%)
- The proportion of students who attained a living wage: 34% (CA: 47%)



Exhibit 12: Program titles for automotive technology programs at each school in the Inland Empire/Desert Region

School	Program Titles	
Barstow	<ul style="list-style-type: none"> <li>Automotive Technology</li> </ul>	
Chaffey	<ul style="list-style-type: none"> <li>General Automotive Service Technician</li> <li>Master Automotive Technician</li> </ul>	<ul style="list-style-type: none"> <li>Engine Performance (Smog Check) Technician</li> </ul>
Copper Mountain	<ul style="list-style-type: none"> <li>Automotive Technology</li> <li>Steering and Suspension Service</li> <li>Engine Performance and Driveability</li> </ul>	<ul style="list-style-type: none"> <li>Air Conditioning and Heating Service Repair</li> <li>Transmission Service, Repair, and Overhaul</li> </ul>
Desert	<ul style="list-style-type: none"> <li>Automotive Emissions</li> <li>Automotive Terminology</li> <li>Automotive Quick Service</li> <li>Brakes</li> <li>Light and Medium Duty Diesel</li> <li>Automotive Electrical</li> </ul>	<ul style="list-style-type: none"> <li>Automotive Air Conditioning</li> <li>Automotive Transmission &amp; Axle</li> <li>General Automotive Service</li> <li>Automotive Engine Management</li> <li>Automotive Technology</li> <li>Steering Suspension, &amp; Alignment</li> </ul>
Mt. San Jacinto	<ul style="list-style-type: none"> <li>Automotive/Transportation Technology</li> </ul>	<ul style="list-style-type: none"> <li>Light Duty Automotive Service</li> </ul>
Palo Verde	<ul style="list-style-type: none"> <li>Automotive Technology</li> </ul>	
Riverside	<ul style="list-style-type: none"> <li>Automotive Technology: Electrical</li> <li>Automotive Technology: Ford</li> <li>Automotive Technology: General Motors</li> </ul>	<ul style="list-style-type: none"> <li>Automotive Technology: Mechanical</li> <li>Automotive Technology: Toyota</li> </ul>
San Bernardino	<ul style="list-style-type: none"> <li>Automatic and Manual Transmission</li> <li>Automotive Technician</li> </ul>	<ul style="list-style-type: none"> <li>Engine Performance</li> <li>Wheel Alignment and Brakes</li> </ul>
Victor Valley	<ul style="list-style-type: none"> <li>Automotive Specialist I</li> <li>Automotive Specialist II</li> </ul>	<ul style="list-style-type: none"> <li>Automotive Technology</li> </ul>

Source: Chancellor's Office Curriculum Inventory (COCI)



Exhibit 13: Annual average student completions for automobile/automotive mechanics technology/technician programs in the Inland Empire/Desert Region

47.0604 – Automobile/Automotive Mechanics Technology/Technician (CIP)	Other Educational Institutions Annual Average Certificates or Other Credit Credentials (2013-16)
<b>CET-Colton</b>	
Award < 1 academic yr	4
<b>Universal Technical Institute of California Inc</b>	
Award 2 < 4 academic yrs	881
Award 1 < 2 academic yrs	1*
<b>Total annual average other awards</b>	<b>885</b>

Source: IPEDS

\*Universal Technical Institute of California issued one, 1 < 2 academic year award in 2014-15

## Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard

MIT Living Wage Calculator

Chancellor’s Office Curriculum Inventory (COCI, version 2.0)

The Integrated Postsecondary Education Data System (IPEDS)

The Taxonomy of Programs, 6th Edition

National Institute for Automotive Service Excellence

Michael Goss, Director

Center of Excellence, Inland Empire/Desert Region

[michael.goss@chaffey.edu](mailto:michael.goss@chaffey.edu)

November 2018



## **Appendix A: Occupation definitions, five-year projections, and earnings for automotive technology occupations**

### **Occupation Definitions (SOC code), Education and Training Requirement, Community College Education Attainment**

#### **Parts Salespersons (41-2022)**

Sell spare and replacement parts and equipment in repair shop or parts store.

**Sample job titles:** *Parts Advisor, Parts Clerk, Parts Consultant, Parts Counter Sales Person, Parts Counterperson, Parts Manager, Parts Person, Parts Salesman, Parts Salesperson, Parts Specialist*

*Entry-Level Educational Requirement: No formal educational credential*

*Training Requirement: One to twelve months of on-the-job training*

*Percentage of incumbent workers with a Community College Award or Some Postsecondary*

*Coursework: 38%*

#### **Electronic Equipment Installers and Repairers, Motor Vehicles (49-2096)**

Install, diagnose, or repair communications, sound, security, or navigation equipment in motor vehicles.

**Sample job titles:** *Automotive Technician, Car Audio Installer, Car Electronics Installer, Car Stereo Installer, Electronic Equipment Installer, Electronic Technician, Installation Technician, Installer, Mobile Electronics Installation Specialist, Mobile Electronics Installer*

*Entry-Level Educational Requirement: High school diploma or equivalent*

*Training Requirement: One to twelve months of on-the-job training*

*Percentage of incumbent workers with a Community College Award or Some Postsecondary*

*Coursework: 51%*



### **Automotive Service Technicians and Mechanics (49-3023)**

Repair automobiles, trucks, buses, and other vehicles. Master mechanics repair virtually any part on the vehicle or specialize in the transmission system. Specialty mechanics repair only one system or component on a vehicle, such as brakes, suspension, or radiator.

**Sample job titles:** ASE Master Mechanic (Automotive Service Excellence Master Mechanic), Auto Technician, Automotive Drivability Technician, Automotive Mechanic (Auto Mechanic), Automotive Service Technician, Certified ASE Master Automotive Technician (Certified Automotive Service Excellence Master Automotive Technician), Master Automotive Technician, Master Technician, Mechanic, Transmission Rebuilder, A/C Technician (Air Conditioning Technician), Automobile Technician, Heavy Line Technician, Lube Technician, Oil Bay Technician, Quick Service Technician, Service Technician

*Entry-Level Educational Requirement: Postsecondary nondegree award*

*Training Requirement: Less than one-month on-the-job training*

*Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 34%*



Table 1. 2017 to 2022 job growth, wages, education, training, and work experience required for the automotive technology occupational group, Inland Empire/Desert Region

Occupation (SOC)	2017 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage*	Median Hourly Wage*	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Automotive Service Technicians and Mechanics (49-3023)	10,439	694	7%	1,129	\$11.60 to \$24.81	\$16.54	\$39,800	Postsecondary nondegree award & 1 month	None
Parts Salespersons (41-2022)	2,806	208	7%	399	\$12.09 to \$22.56	\$15.13	\$38,300	No formal educational credential & 1-12 months	None
Electronic Equipment Installers and Repairers, Motor Vehicles (49-2096)	173	(13)	(8%)	16	\$14.58 to \$21.00	\$17.39	\$36,800	High school diploma or equivalent & 1-12 months	None
<b>Total</b>	<b>13,418</b>	<b>890</b>	<b>7%</b>	<b>1,545</b>	-	-	-	-	-

Source: EMSI 2018.3

\*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage