Automotive Technology

Inland Empire/Desert Region (Riverside and San Bernardino counties)

This workforce demand report uses state and federal job projection data 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.

Summary

The Community College
Automotive Technology
(TOP 0948.00)
Program

Provides training for
- **Automotive Service Technicians and Mechanics** (SOC 49-3023)
- **Electronic Equipment Installers and Repairers, Motor Vehicles** (49-2096)

Occupations

Over the next five years (2020-2025), automotive technology employment is projected to

Increase Employment
5%

1,273
Annual Job Openings

Median Hourly Earnings
$20.43 - $20.75
below the $24.36 hourly Self-sustainability Standard

707 Total Annual Awards
In Programs Related to Automotive Technology

187
Program Awards from Community College Programs

520
Program Awards from Other Postsecondary Education Providers

The Inland Empire/Desert Centers of Excellence
Recommends
Automotive Technology Program Expansion
to meet the need for more workers in the region

Introduction

California Community College automotive technology (TOP 0948.00) programs prepare students for employment through the instruction of the servicing, maintenance, and diagnosis of malfunctions, and repair and overhaul of components and systems in automotive vehicles (Taxonomy of Programs, 2012). The knowledge, skills, and abilities trained by automotive technology programs lead to the following occupations:

- Automotive Service Technicians and Mechanics (SOC 49-3023)
- Electronic Equipment Installers and Repairers, Motor Vehicles (49-2096)

Job Counts and Projections

In 2020, there were 11,532 automotive technology jobs in the Inland Empire/Desert Region. Employment for this occupational group is expected to grow by 5% through 2025 and have 1,273 annual job openings. Exhibit 1 displays the job counts, five-year projected job growth, job openings, and the share of incumbent workers age 55 years and older.

Exhibit 1: Inland Empire/Desert five-year projections, 2020-2025

Occupation	2020 Jobs	2025 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Automotive Service Technicians and Mechanics	11,487	12,049	5%	6,341	1,268	19%
Electronic Equipment Installers and Repairers, Motor Vehicles	45	49	8%	22	4	N/A
Total	**11,532**	**12,098**	**5%**	**6,364**	**1,273**	**19%**

Source: Emsi 2022.1

An online job advertisement search for automotive technology jobs was conducted to reveal the employers seeking these workers, including the time it takes to fill positions, earnings information, and in-demand skills. Over the previous 12 months, only six job ads were posted for electronic equipment installers and repairers, motor vehicles in the region. The job ads search for this occupation was expanded to all of California to provide reliable results.

Exhibit 2 shows the number of job ads posted during the last 12 months and the regional and statewide average time to fill these jobs. On average, regional employers spent 36 days filling online job advertisements, while employers throughout the state spent 35 days. Time to fill information reveals that regional employers likely face similar challenges filling open positions as other employers in California.

Exhibit 2: Job ads and time to fill

Occupation	Job Ads	Regional Average Time to Fill (Days)	Statewide Average Time to Fill (Days)
Automotive Service Technicians and Mechanics	2,963	36	35
Electronic Equipment Installers and Repairers, Motor Vehicles*	46	-	46
Total	**3,009**	**36**	**35**

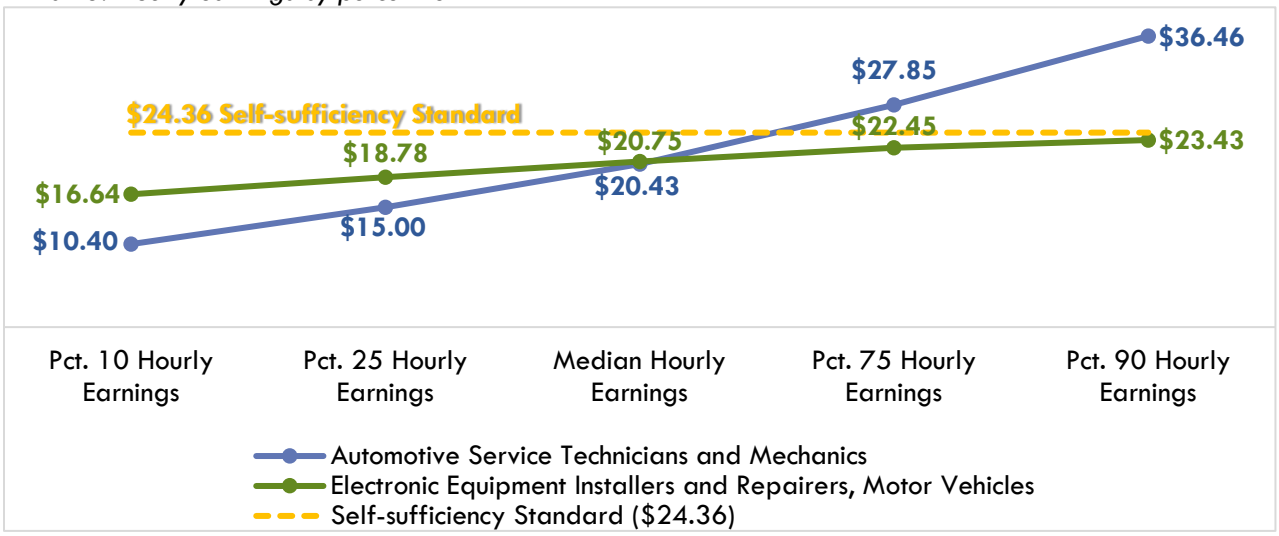
Source: Burning Glass – Labor Insights
*California job advertisements

Earnings and Benefits

Community colleges should ensure their training programs lead to employment opportunities that provide self-sustainable income. The University of Washington estimates that a self-sufficient hourly rate for a single adult with one school-age child is $24.36 per hour or $51,452 annually in Riverside County; $23.73 per hour or $50,119 annually in San Bernardino County (Pearce, 2021). For this study, the higher hourly earnings requirement in Riverside County is adopted as the self-sufficiency standard for the two-county region.

Exhibit 3 displays the hourly earnings for the automotive technology occupational group in the Inland Empire/Desert Region. The median hourly earnings for the automotive technology occupational group are between $20.43 and $20.75 per hour, below the regional self-sufficiency standard. The hourly earnings for automotive service technicians and mechanics surpass the self-sufficiency standard at the 75th percentile, indicating that only the top 25% of workers earn a self-sustainable wage. The hourly earnings for electronic equipment installers and repairers, motor vehicles do not exceed the self-sufficiency standard, indicating that workers in this occupation may struggle to support themselves.

Exhibit 3: Hourly earnings by percentile



Source: Emsi 2022.1

Benefits information, provided by the occupational guides developed by the California Labor Market Information Division, indicates that the automotive service technicians and mechanics may receive benefits that include health insurance, retirement plans, paid holidays, and vacation. Benefits information is not available for electronic equipment installers and repairers, motor vehicles (Detailed Occupational Guides, 2022).

Advertised Salary from Online Job Ads

Exhibit 4 displays online job ad salary data for the automotive technology occupational group over the last 12 months. Online job ad salary information reveals that employers are willing to pay the automotive technology occupational group a median annual salary between $43,000 and $49,000, below the region's $51,452 annual ($24.36 hourly) self-sufficiency standard. Consider the salary information with caution since only 39% (1,178 out of 3,009) of online job advertisements for these occupations provided salary information. The salary figures are prorated to reflect full-time, annual earnings status.

Exhibit 4: Advertised salary information

		Real-Time Salary Information				
Occupation	*Number of job ads*	Less than $35,000	$35,000 to $49,999	$50,000 to $74,999	More than $75,000	Median Annual Salary
Automotive Service Technicians and Mechanics	*1,144*	27%	37%	29%	7%	$49,000
Electronic Equipment Installers and Repairers, Motor Vehicles*	*34*	6%	85%	9%	-	$43,000

Source: Burning Glass – Labor Insights
*California job advertisement information

Employers, Skills, Education, and Work Experience

Exhibit 5 displays the employers who posted the most job ads for the automotive technology occupational group over the last 12 months. Showing employer names provides insight into where students may find employment after completing a program. Pep Boys posted the most regional job advertisements for the automotive technology occupational group jobs ads over the previous 12 months.

Exhibit 5: Employers posting the most job ads for automotive technology occupational group

Occupations	Employers	
Automotive Service Technicians and Mechanics *(n=2,963)*	• Pep Boys • CarMax • Valvoline • Tire Choice Auto Service Centers • Cox Automotive	• Monro, Inc. • Bridgestone/Firestone • Goodyear • Walmart/Sam's • Chrysler • Allen Tire
Electronic Equipment Installers and Repairers, Motor Vehicles* *(n=46)*	• Surveillance Auto Installations • Newport Sound	

Source: Burning Glass – Labor Insights
*California job advertisement information

Exhibit 6 lists a sample of specialized and employability skills employers' seek when looking for workers to fill automotive technology positions. Specialized skills are occupation-specific skills that employers request for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is often referred to as "soft skills." The skills requested in job ads may be utilized to guide curriculum development.

Exhibit 6: Sample of in-demand skills from employer job ads

Occupation	Specialized skills	Employability skills
Automotive Service Technicians and Mechanics *(n=2,628)*	• Automotive Repair • Customer Service • Oil Changes • Tire Repair • Predictive/Preventative Maintenance	• Physical Abilities • Communication Skills • Teamwork/Collaboration • Organizational Skills • Problem Solving
Electronic Equipment Installers and Repairers, Motor Vehicles* *(n=39)*	• Car Audio Installation • Customer Service • Wiring • Global Positioning System (GPS) • Welding	• Troubleshooting • Writing • Teamwork/Collaboration • Research • Computer Literacy

Source: Burning Glass – Labor Insights
*California job advertisement information

According to the Bureau of Labor Statistics, between 36% and 48% of incumbent workers in this field hold a community college-level of educational attainment; "some college, no degree" and an "associate degree." Nearly all of the job advertisements for the automotive technology occupational group sought candidates with a high school diploma or vocational training. Exhibit 7 displays the typical entry-level education, educational attainment, and minimum advertised education requirements for the automotive technology occupational group.

Exhibit 7: Typical entry-level education, educational attainment, and minimum advertised education requirements

Occupation	Typical Entry-Level Education Requirement	CC-Level Educational Attainment*	Real-Time Minimum Advertised Education Requirement			
			Number of Job Ads	High school or vocational training	Associate degree	Bachelor's degree or higher
Automotive Service Technicians and Mechanics	Postsecondary nondegree award	36%	*1,493*	98%	2%	-
Electronic Equipment Installers and Repairers, Motor Vehicles**	High school diploma or equivalent	48%	*24*	100%	-	-

Source: Emsi 2022.1, Burning Glass – Labor Insights
*Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework
**California job advertisement information

Exhibit 8 displays the work experience typically required and the real-time work experience requirements from employer job ads for the automotive technology occupational group. Most employers sought candidates with zero to two years of work experience.

Exhibit 8: Work experience required and real-time work experience requirements

Occupation	Work Experience Typically Required	Real-Time Work Experience			
		Number of job ads	0 – 2 years	3 – 5 years	6+ years
Automotive Service Technicians and Mechanics	None	*1,419*	63%	34%	3%
Electronic Equipment Installers and Repairers, Motor Vehicles*	None	*29*	62%	14%	24%

Source: Emsi 2022.1, Burning Glass – Labor Insights
*California job advertisement information

Student Completions and Programs Outcomes

Exhibit 9 displays student completions for automotive technology (TOP 0948.00) programs over the last three academic years. Over this period, regional community colleges have issued 187 awards annually in

automotive technology programs. Program completion and student outcome methodologies are found in the appendix.

Exhibit 9: 2018-21, Annual average community college awards for automotive technology programs in the region

TOP 0948.00 – Automotive Technology	Academic Year 2018-19	Academic Year 2019-20	Academic Year 2020-21	Total CC Annual Average Awards, Academic Years 2018-21
Barstow				**7**
Associate Degree	3	4	4	4
Certificate (18 to < 30 units)	2	0	0	1
Certificate (16 to < 30 units)	0	5	4	3
Chaffey				**38**
Associate Degree	12	11	9	11
Certificate (30 to < 60 units)	4	1	2	2
Certificate (18 to < 30 units)	29	0	0	10
Certificate (16 to < 30 units)	0	34	13	16
Copper Mountain				**1**
Associate Degree	1	0	1	1
Certificate (30 to < 60 units)	1	0	0	0
Certificate (6 to < 18 units)	1	0	0	0
Desert				**19**
Associate Degree	7	7	6	7
Certificate (18 to < 30 units)	12	0	0	4
Certificate (16 to < 30 units)	0	24	2	9
Mt. San Jacinto				**16**
Associate Degree	5	6	7	6
Certificate (30 to < 60 units)	8	0	0	3
Certificate (16 to < 30 units)	0	15	8	8
Palo Verde				**16**
Associate Degree	1	0	0	0
Certificate (18 to < 30 units)	4	0	0	1
Certificate (16 to < 30 units)	0	17	0	6
Certificate (6 to < 18 units)	7	0	20	9
Riverside				**49**
Associate Degree	13	12	15	13
Certificate (18 to < 30 units)	43	0	0	14

TOP 0948.00 – Automotive Technology	Academic Year 2018-19	Academic Year 2019-20	Academic Year 2020-21	Total CC Annual Average Awards, Academic Years 2018-21
Certificate (16 to < 30 units)	0	40	25	22
San Bernardino				**11**
Associate Degree	3	9	3	5
Certificate (30 to < 60 units)	5	5	0	3
Certificate (18 to < 30 units)	4	0	0	1
Certificate (16 to < 30 units)	0	3	0	1
Certificate (6 to < 18 units)	1	0	1	1
Victor Valley				**27**
Associate Degree	5	13	8	9
Certificate (30 to < 60 units)	4	2	0	2
Certificate (18 to < 30 units)	9	0	0	3
Certificate (16 to < 30 units)	0	5	12	6
Certificate (8 to < 16 units)	0	8	15	8
Total	**184**	**221**	**155**	**187**

Source: MIS Data Mart

California program outcome data may provide a useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 10.

Exhibit 10: 0948.00 – Automotive technology strong workforce program outcomes

Strong Workforce Program Metrics: 0948.00 – Automotive Technology Academic Year 2018-19, unless noted otherwise	Inland Empire/Desert Region	California
Unduplicated count of enrolled students (2019-20)	2,313	18,621
Completed 9+ career education units in one year (2019-20)	25%	29%
Perkins Economically disadvantaged students (2019-20)	84%	80%
Students who attained a noncredit workforce milestone in a year (2019-20)	-	77%
Students who earned a degree, certificate, or attained apprenticeship (2019-20)	146	1,723
Transferred to a four-year institution (transfers)	18	157
Job closely related to the field of study (2017-18)	58%	71%
Median annual earnings (all exiters)	$26,256	$30,008
Median change in earnings (all exiters)	34%	35%

Strong Workforce Program Metrics: 0948.00 – Automotive Technology Academic Year 2018-19, unless noted otherwise	Inland Empire/Desert Region	California
Attained a living wage (completers and skills-builders)	48%	41%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Exhibit 11 displays awards reported by other postsecondary education providers in automobile/automotive mechanics technology/technician (CIP 47.0604) programs. Completion data is compiled from the Integrated Postsecondary Education Data System (IPEDS) for the most recent three years available. On average, two other postsecondary education institutions in the region have issued 520 awards annually over the last three academic years.

Exhibit 11: Other educational providers automobile/automotive mechanics technology/technician programs, three-year annual average credentials in the Inland Empire/Desert Region

47.0604 – Automobile/ Automotive Mechanics Technology/Technician	Academic Year 2016-17	Academic Year 2017-18	Academic Year 2018-19	Other Educational Providers Annual Average Credentials, Academic Years 2016-19
CET – Colton				
Award < 1 academic year	13	7	17	12
Universal Technical Institute of California, Inc.				
Award 2 < 4 academic years	598	188	4	263
Associate Degree	0	263	470	244
Total	**611**	**458**	**491**	**520**

Source: IPEDS

Recommendation

Community college automotive technology (TOP 0948.00) programs provide the knowledge, skills, and abilities that prepare students for employment as automotive service technicians and mechanics and electronic equipment installers and repairers, motor vehicles. Employment for the automotive technology occupational group is expected to increase by 5% through 2025, with 1,273 job openings expected annually. The median hourly earnings for the automotive technology occupational group are between $20.43 and $20.75 per hour, below the regional self-sufficiency standard. The hourly earnings for automotive service technicians and mechanics surpass the self-sufficiency standard at the 75th percentile, indicating that only the top 25% of workers earn a self-sustainable wage. The hourly earnings for electronic equipment installers and repairers, motor vehicles do not exceed the self-sufficiency standard, indicating that workers in this occupation may struggle to support themselves.

Regional community colleges have issued 187 awards annually in automotive technology programs over the last three years (TOP 0948.00). Other postsecondary education providers in the region issued 520 total

awards annually across two programs related to automotive technology over the last three academic years. Combined, regional education providers issued approximately 707 awards annually over the previous three academic years.

The Centers of Excellence recommends expanding automotive technology programs to meet regional demand for the automotive technology occupational group. Colleges considering this program should work closely with applicable employers to document the skills and certifications needed for students to achieve self-sustainable earnings shortly after exiting automotive technology program.

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Appendix: Occupation definitions, sample job titles, five-year projections, and earnings for automotive technology occupations

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

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
Work Experience Required: None
Training Requirement: Between one and twelve months of on-the-job training
Incumbent workers with a Community College Award or Some Postsecondary Coursework: 48%

Automotive Service Technicians and Mechanics (49-3023)

Diagnose, adjust, repair, or overhaul automotive vehicles.

Sample job titles: Automobile Mechanic (Auto Mechanic), Automotive Drivability Technician (Auto Drivability Tech), Automotive Mechanic (Auto Mechanic), Automotive Service Technician (Auto Service Tech), Heavy Line Technician, Lube Technician, Master Automotive Technician (Master Auto Tech), Mechanic, Quick Service Technician (Quick Service Tech), Service Technician (Service Tech)

Entry-Level Educational Requirement: Postsecondary nondegree award
Work Experience Required: None
Training Requirement: Less than one month on-the-job training
Incumbent workers with a Community College Award or Some Postsecondary Coursework: 36%

Appendix: Methodology

Exhibit 9 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2018 and 2021 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total of associate degrees and certificates issued during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variation that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from records provided by California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2021a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS), administered by Santa Rosa Junior College (LaunchBoard, 2021a).

Job advertisement data is limited to the information provided by employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014). Online job advertisements often do not reveal employers' hiring intentions; it is unknown if employers plan to hire one or multiple workers from a single online job ad or if they are collecting resumes for future hiring needs. A closed job ad may not be the result of a hired worker.

Table 1. 2020 to 2025 job growth, wages, entry-level education, training, and work experience required for the automotive technology occupational group in the Inland Empire/Desert Region (Riverside and San Bernardino counties combined)

Occupation (SOC)	2020 Jobs	5-Year Change (New Jobs)	5-Year % Change (New Jobs)	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage (10th to 90th percentile)	Median Hourly Wage (50th percentile)	Average Annual Earnings	Entry-Level Education & On-The-Job-Training	Work Experience Required
Automotive Service Technicians and Mechanics (49-3023)	11,487	563	5%	1,268	$10.40 to $36.46	$20.43	$46,800	Postsecondary nondegree award & Less than one month	None
Electronic Equipment Installers and Repairers, Motor Vehicles (49-2096)	45	4	8%	4	$16.64 to $23.43	$20.75	$42,500	High school diploma or equivalent & Between one and twelve months	None
Total	**11,532**	**566**	**5%**	**1,273**	**-**	**-**	**-**	**-**	**-**

Source: Emsi 2022.1