Labor Market Analysis for:
0948.00 Automotive Technology

Inland Empire/Desert Center of Excellence, May 2024

Prepared by: Chris Cruzcosa, ccruzcosa@iegocollaborative.org

Summary

Program LMI Endorsement	All LMI Criteria Met	Some LMI Criteria Met (Proceed with Caution)	LMI Criteria NOT Met
	✓	☐	☐

Program LMI Endorsement Criteria		
Supply Gap	**Yes** ✓	No ☐
	Comments: There is *projected* to be **1,009 annual job openings** throughout the Inland Empire/Desert region, which is more than the **613 annual average awards conferred by educational institutions over the last 3 years.** Supply data includes both community college awards (196) and non-community college awards (417).	
Living Wage	**Yes** ✓	No ☐
	Comments: **The annual job openings** for this occupation **have estimated entry-level hourly wages above the IE/D living wage of 13.74.**[1]	
Education	**Yes** ✓	No ☐
	Comments: **Most job postings for target occupations require a high school or equivalent degree (81%).** See exhibits 8 and 9 for more details.	

The Inland Empire/ Desert (IE/D) Center of Excellence for Labor Market Research (IE/D COE) reviewed the following occupations to prepare this report:

- Middle-Skill (typically require training/education above a HS diploma but less than a bachelor's degree)
  - Automotive Service Technicians and Mechanics (49-3023)

Summary of findings

Demand

- The number of jobs related to the middle-skill occupation – Automotive Service Technicians and Mechanics - is projected to increase 3% through 2027, with 1,009 annual job openings (new and replacement jobs).
- Hourly entry-level wages for the occupation are above living wage at the 25th percentile hourly wage, estimated at $18.13 in IE/D.
- There were 2,014 job postings from 465 employers over the past 12 months with the highest postings for automotive technicians.
- Most job postings for target occupations require high school or equivalent degree (81%), followed by bachelor's degree (12%), and associate degree (8%).

Supply

- On average, there were 613 annual awards conferred by educational institutions over the last 3 years in related fields: 196 from community colleges and 417 from other institutions (e.g., 4-year universities, private schools).
- IE/D community college students that exited these programs in the 2021-22 academic year earned a median annual wage of $33,692 ($16.20 per hour).
- 52% of students that exited their program in 2021-22 reported that they are working in a job closely related to their field of study.
- Community college programs play an important role diversifying the talent pipeline in these occupations. Most IE/D professionals in vehicle technology occupations are Hispanic/Latino (60%), "early career" or "mid-career" age categories (70%), and male (98%). Most community college students in related programs are Hispanic/Latino (74%), "pre-career/college" age category (77%), and male (88%).

[1] *While the UW self-sufficiency standard is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2021, does not account for significant increases in the cost of living in the Inland Empire the last three years, and is below the State of California minimum wage of $16.00. For these reasons, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is $26.30 in Riverside County and $25.17 in San Bernadino County.*

Introduction

California Community College Automotive Technology (TOP 0948.00) programs prepare students for employment in the servicing, maintenance, and diagnosis of malfunctions, and repair and overhaul of components and systems in automotive vehicles (Taxonomy of Programs, 2023). The knowledge, skills, and abilities trained by Automotive Technology programs lead to employment in occupations related to vehicle technology.

Job Demand

In 2022, there were 10,244 jobs in occupations related to vehicle technology in the IE/D region. Regional employment for this occupation group is projected to increase by 3% through 2027 with 1,009 job openings projected annually. Exhibit 1 displays the job count, five-year projected job growth, and job openings in the region.

Exhibit 1. Five-year projections for occupations related to vehicle technology, IE/D Region, 2022-2027

Occupation	SOC	2022 Jobs	2027 Jobs	2022 - 2027 % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Automotive Service Technicians and Mechanics	49-3023	10,244	10,517	3%	5045	1,009
Total		**10,244**	**10,517**	**3%**	**5045**	**1,009**

SOURCE: LIGHTCAST 2024.1

Job Postings

The following analysis for occupations related to vehicle technology using online job posting data.

Important note: The data produced in this section were generated by leveraging online job posting data sourced from Lightcast, which is the labor market analytics software tool COEs use to produce these briefs. The job posting data is collected from scraping online job boards such as LinkedIn, Indeed, Glassdoor and many others. The process Lightcast uses to assemble this data does have some limitations due to methods that recruitment professionals sometimes use (e.g., posting one job to fill multiple positions). For example, the number of jobs posted is not necessarily the same as the number of job vacancies.[2] While not perfect, Lightcast leverages machine learning and other AI technologies to enrich, deduplicate and aggregate this information to make it a meaningful dataset.

Exhibit 2 displays the number of job ads posted for occupations related to vehicle technology over the last 12 months and the median posting duration. Over the previous 12 months, there were 2,014 unique job postings for occupations related to vehicle technology in the region from 465 employers.

Exhibit 2. Job ads and posting duration, IE/D Region, May 2023 – April 2024

Job Title	Job Ads	Median Posting Duration
Automotive Service Technicians and Mechanics	2,014	28 days
Total	**2,014**	

SOURCE: LIGHTCAST 2024.1

[2] *"Job Posting Analytics (JPA) Methodology." Lightcast Knowledge Base, https://kb.lightcast.io/en/articles/6957446-job-posting-analytics-jpa-methodology*

Earnings

Exhibit 3 displays the hourly earnings for occupations related to vehicle technology and includes comparison of hourly earnings as compared to the MIT IE/D living wage of $25.73.[3]

Exhibit 3. Hourly earnings by percentile for occupations related to vehicle technology, IE/D Region, 2022

SOURCE: LIGHTCAST 2024.1

All entry-level earnings (that is, the earnings of the lowest paid 25% of employees in the IE/D) were above the UW Self-Sufficiency Standard for the IE/D[4]. However, the occupation was not above the MIT living wage for an adult with no children ($25.73).

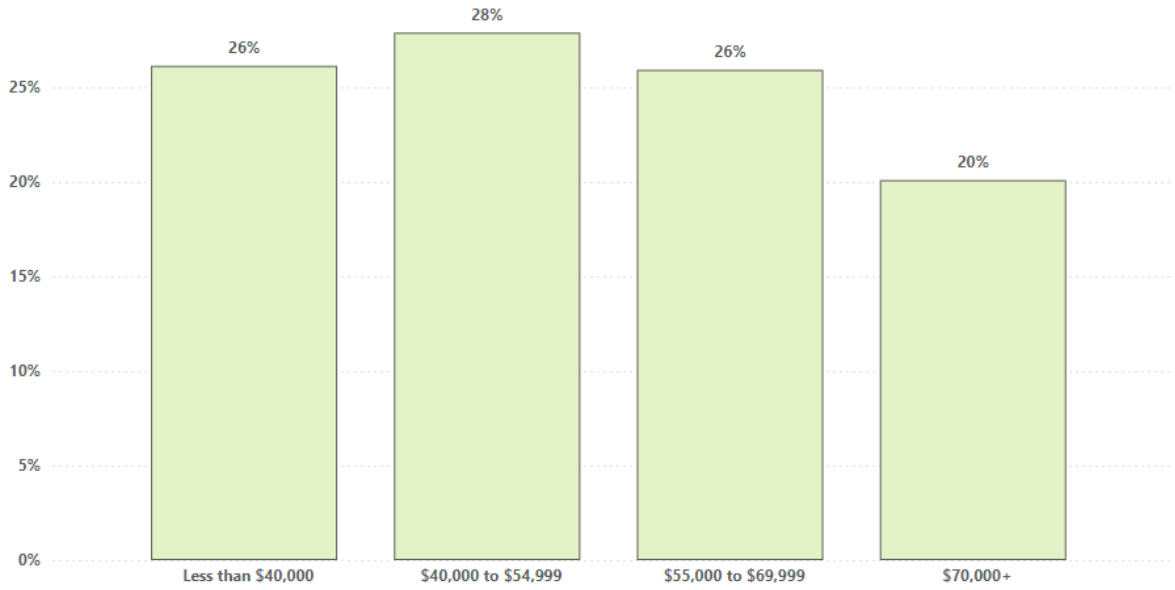
[3] *While the UW self-sufficiency standard is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2021, does not account for significant increases in the cost of living in the Inland Empire the last three years, and is below the State of California minimum wage of $16.00. While the COE uses this standard for the LMI Wage criteria, For these reasons, the provides an alternative living wage calculation from MIT in the analysis as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is $26.30 in Riverside County and $25.17 in San Bernadino County.*

[4] *ibid*

Advertised Salary from Online Job Ads

Exhibit 4 displays the regional online advertised salaries for the occupations related to vehicle technology over the last 12 months. Online job ad salary information data suggests few employers (20%) advertise an annual salary greater than $70,000 ($33.65 per hour).

Exhibit 4. Online advertised salaries occupations related to vehicle technology, IE/D Region, May '23 to April '24



SOURCE: LIGHTCAST 2024.1

Online Job Advertisements: top job titles, skills, education & work experience.

Exhibit 5 displays the job titles most frequently used in job postings for the occupations related to vehicle technology over the last 12 months. Assessing the top advertised job titles may provide insight into the types of positions sought by employers.

Exhibit 5. Job titles most frequently used in job ads, IE/D May '23 to April '24

Job Title	Unique Postings
Automotive Technicians	319
Tire and Lube Technicians	104
Automotive Mechanics	103
Mechanics	89
Lube Technicians	73
Automotive Service Advisors	71
Automotive Technicians/Mechanics	67
Automotive Tire and Lube Technicians	40
General Service Technicians	31
Automotive Service Advisors/Writers	28

SOURCE: LIGHTCAST 2024.1

Exhibit 6 displays the employers posting the most job ads for this occupational group during the last 12 months. Showing employer names can provide insight into where students may find employment after completing a program and may inform job development and other employer engagement targets for faculty and staff involved in related programs. Walmart and Pep Boys had the highest unique job posts for this occupational group in the last 12 months. Posting intensity is the ratio of total job posts to unique job posts which are deduplicated. A higher posting intensity can represent the level of effort and activity the organization is putting into hiring for that position. The following report comes directly from Lightcast's Job Posting Analytics dashboard.

Exhibit 6. Employers posting the most job ads, IE/D May '23 to April '24

Company	Total/Unique (May 2023 - Apr 2024)	Posting Intensity	Median Posting Duration
Walmart	288 / 121	2 : 1	12 days
Pep Boys	239 / 84	3 : 1	21 days
Goodyear	147 / 64	2 : 1	26 days
Ramona Tire And Service Centers	304 / 58	5 : 1	26 days
Valvoline	140 / 57	2 : 1	27 days
Monro Auto Service and Tire Centers	359 / 55	7 : 1	19 days
American Tire Depot	388 / 41	9 : 1	27 days
Bridgestone Corporation	183 / 38	5 : 1	29 days
Big Brand Tire & Service	123 / 34	4 : 1	39 days
Toyota Motors	144 / 27	5 : 1	32 days

SOURCE: LIGHTCAST 2024.1

Exhibit 7 displays the top common, specialized and computer skills that were included in the job postings over the last 12 months. Today's demand is an important indicator of which skills employers are looking for in the current market. Analyzing skills from a historical perspective as well as projecting the future needs of employers may provide insight into how the job posting skills demand compares to the market as a whole. Rapidly growing skills are those that are increasing in demand at a faster rate than the market as a whole. [5]

Exhibit 7. Top 10 in-demand skills from employer job ads, IE/D May '23 to April '24

Common skills	Total Postings	Skill Growth Relative to Market
Customer Service	607	Stable
Communication	525	Lagging
Good Driving Record	299	Growing
Lifting Ability	288	Growing
Management	261	Stable
Sales	244	Stable
Detail Oriented	232	Stable
Troubleshooting (Problem Solving)	221	Growing
Positivity	219	Growing
Problem Solving	197	Growing

[5] *"What are Lightcast Skill Projects", Lightcast Knowledge base, https://kb.lightcast.io/en/articles/8496296-what-are-lightcast-skill-projections*

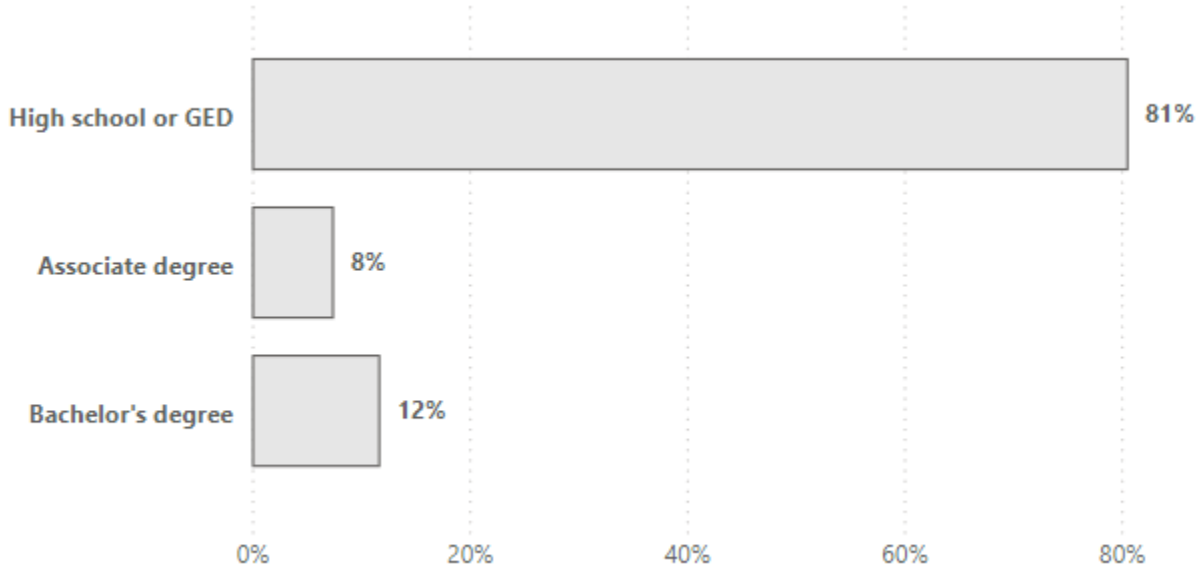
Specialized skills	Total Postings	Skill Growth Relative to Market
Automotive Services	599	Stable
Changing Oil	452	Stable
Suspension (Vehicle)	319	Stable
Brakes	310	Stable
Mechanics	233	Growing
Tires	223	Lagging
Tire Balancing And Rotation	181	Lagging
Tire Repairs	175	Lagging
Vehicle Inspection	173	Growing
Oil And Gas	170	Growing

Computer Skills	Total Postings	Skill Growth Relative to Market
Microsoft Office	35	Growing
Microsoft Outlook	31	Rapidly Growing
Microsoft Excel	27	Growing
Microsoft Word	20	Stable
Microsoft PowerPoint	10	Rapidly Growing
Apache Struts	9	Lagging
Inventory Control Systems	9	Growing
Kronos (Timekeeping Software)	9	Growing
Software Systems	8	Growing
Database Systems	7	Growing

SOURCE: LIGHTCAST 2024.1

Exhibit 8 includes the minimum educational requirements from job postings for this occupational group with high school or equivalent degree (81%) significantly greater than associate degree (8%) or High school diploma or equivalent (12%).

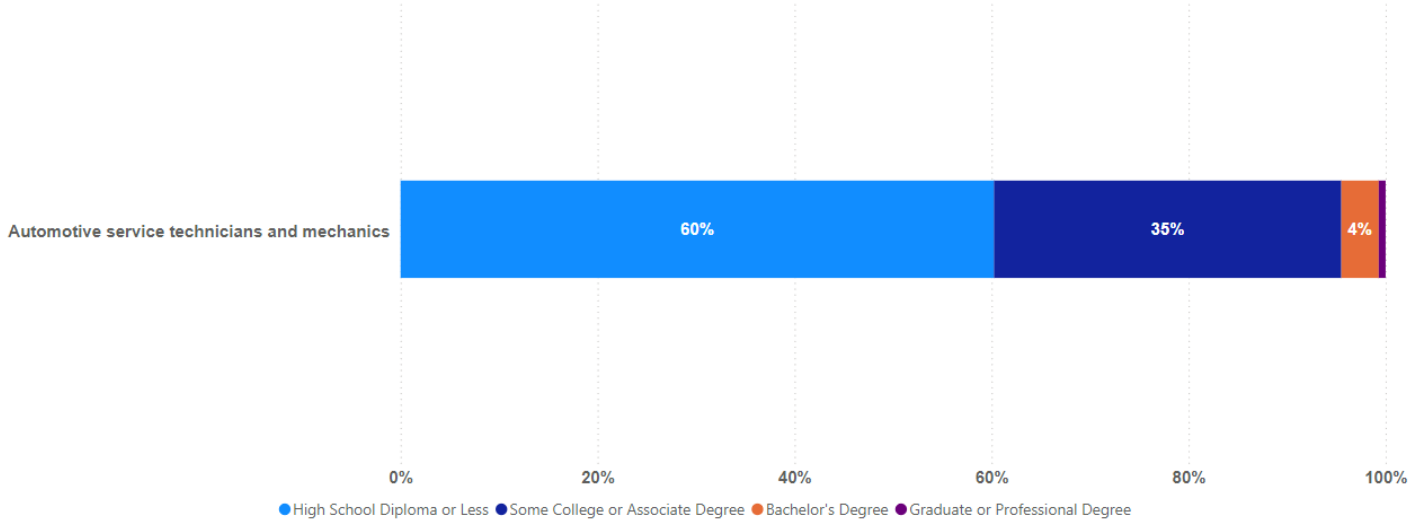
Exhibit 8 Minimum educational requirements in job postings for this occupational group, May '23 to April '24



SOURCE: LIGHTCAST 2024.1

For this middle-skill occupation, the Bureau of Labor Statistics (BLS) education attainment data in Exhibit 9 for current professionals in the occupations of interest indicates that an estimated 35% of workers have completed some college or an associate degree as their highest level of education.

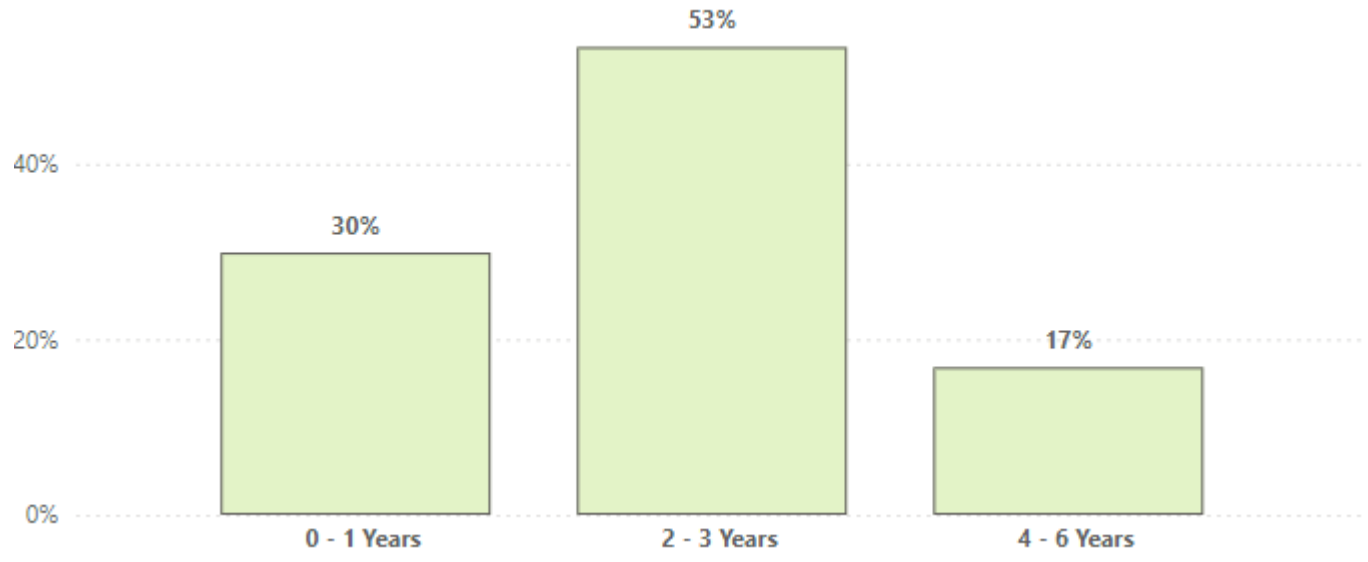
Exhibit 9 National-level Education Attainment for Occupations



SOURCE: BLS 2021

Exhibit 10 displays the work experience typically required from employer job ads for this occupational group. The majority (53%) of employers listing minimum experience requirements sought candidates with 2 – 3 years of previous work experience.

Exhibit 10 Work experience requirements, IE/D May '23 to April '24



SOURCE: LIGHTCAST 2024.1

Student Completions and Program Outcomes

Exhibit 11 displays student completions for the Automotive Technology (TOP 0948.00) programs over the last three academic years (2020-2023). In the previous three academic years, nine regional community colleges issued an average of 196 awards in relevant programs.

Exhibit 11 Annual average community college awards for Automotive Technology (TOP 0948.00)

Top Code	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
0948.00	Automotive Technology	Riverside	40	50	62	51
0948.00	Automotive Technology	Victor Valley	35	57	29	40
0948.00	Automotive Technology	Chaffey	24	41	53	39
0948.00	Automotive Technology	Desert	8	12	29	16
0948.00	Automotive Technology	Mt. San Jacinto	15	11	18	15
0948.00	Automotive Technology	Palo Verde	20	4	15	13
0948.00	Automotive Technology	Barstow	8	13	10	10
0948.00	Automotive Technology	San Bernardino	4	12	4	7
0948.00	Automotive Technology	Copper Mountain	1	10	2	4
Total			**155**	**210**	**222**	**196**

SOURCE: MIS DATA MART

Non-Community College Supply

Award completion data is available for Automobile/Automotive Mechanics Technology/Technician (CIP 47.0604) in the IE/D for non-community college programs.

In the previous three academic years, two regional non-community colleges institutions issued an average of 417 awards in relevant programs.

CIP	CIP with Title	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
47.0604	47.0604 - Automobile/Automotive Mechanics Technology/Technician	Universal Technical Institute of California Inc	413	305	469	396
47.0604	47.0604 - Automobile/Automotive Mechanics Technology/Technician	CET-Colton	21	20	24	22
Total			**434**	**325**	**493**	**417**

SOURCE: IPEDS

California program outcome data may provide 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 12.

Exhibit 12 Automotive Technology strong workforce program outcomes, IE/D, most recent academic year

Program metric title	Inland Empire/Desert	Statewide
Attained a living wage (completers and skills-builders)	62%	49%
Completed 9+ career education units in one year	30%	36%
Job closely related to the field of study	52%	63%
Median annual earnings (all exiters)	$33,692	$36,140
Students who attained a noncredit workforce milestone in a year	70%	82%
Students who earned a degree, certificate, or attained apprenticeship	119	1,314
Unduplicated count of enrolled students	1,471	13,032

SOURCE: LAUNCHBOARD

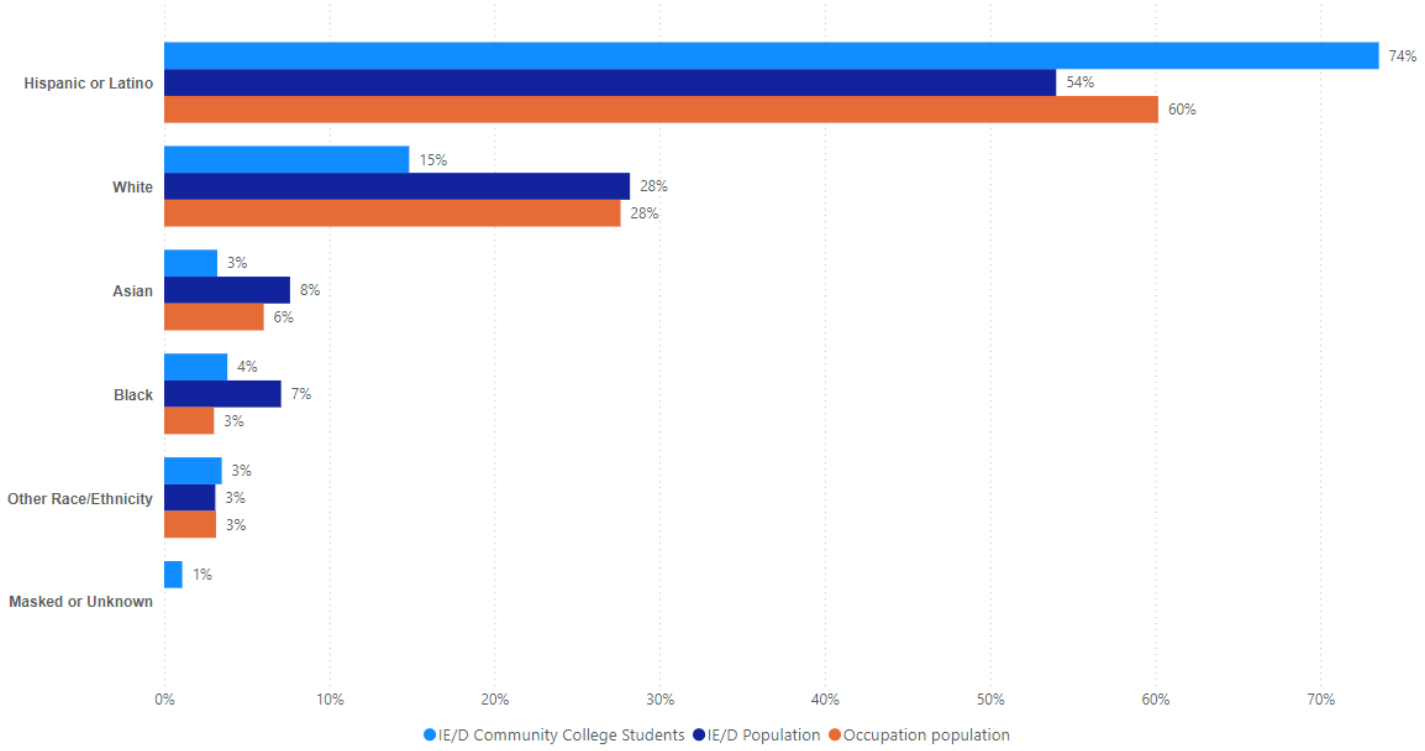
Building an Inclusive Economy

This section examines demographic data for IE/D community college students in Automotive Technology programs compared to the IE/D population. We also include demographics for related occupation data for this occupation related to vehicle technology. This analysis can be used to:

- Understand the community college system's current or potential role supporting a diverse talent pipeline into the occupations of interest.
- Inform students (and the faculty and staff working with them) the extent to which individuals from similar demographic groups are over or underrepresented in the professions related to their field of study.
- Inform employers of the diverse talent pipeline coming from the community college system for the occupations analyzed.

Notably, 74% of students enrolled in Automotive Technology programs are Hispanic/Latino, which is higher than Hispanic/Latino workers in occupations related to vehicle technology in the IE/D region (60%). Additionally, 15% of IE/D community college students in programs related to vehicle technology are White, which is significantly lower than both the IE/D population that are employed in this occupation (28%) and IE/D population (28%). Though 6% of the workers employed in occupations related to vehicle technology are Asian, only 3% of students in Automotive Technology programs are Asian.

Exhibit 13 Program and County Demographics by Ethnicity



SOURCE: LIGHTCAST 2024.1 AND LAUNCHBOARD

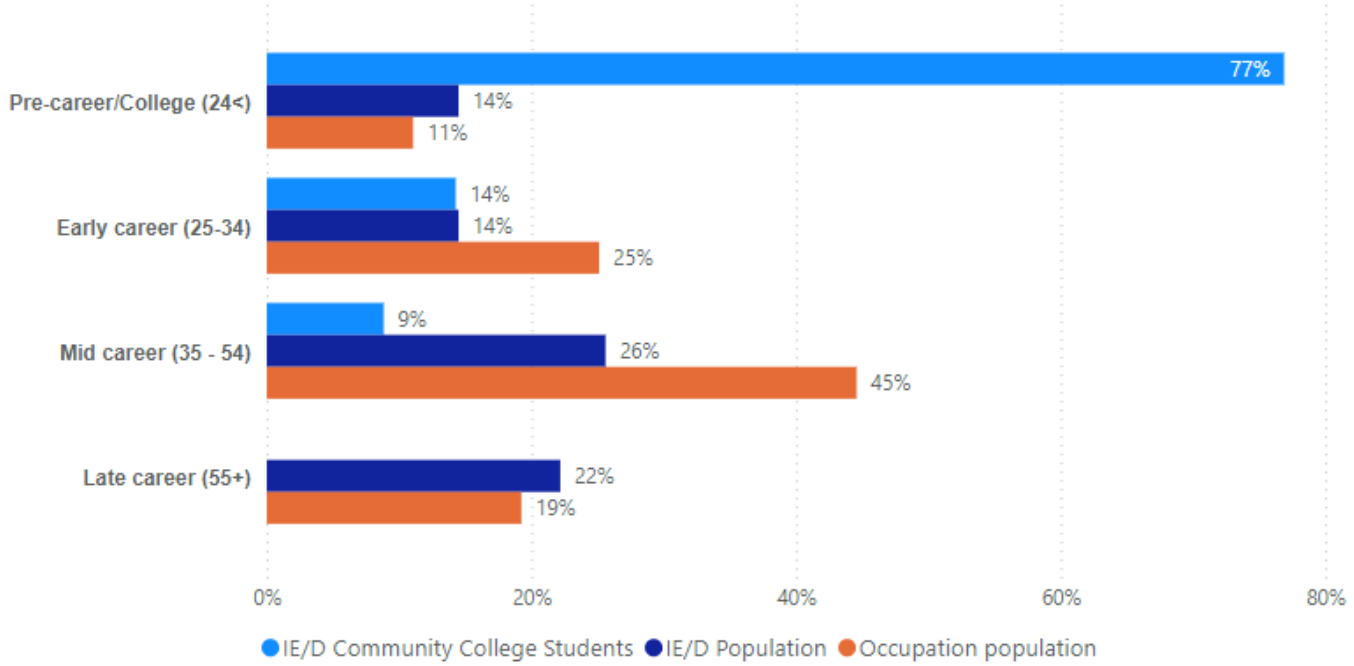
Most IE/D professionals in vehicle technology occupations are Hispanic/Latino (60%), "early career" or "mid career" age categories (70%), and male (98%). Most community college students in related programs are Hispanic/Latino (74%), "pre-career/college" age category (77%), and male (88%). Major takeaways:

- Community colleges are an important talent source for employers committed to greater racial/ethnic diversity, especially Hispanic/Latino professionals.
- College programs may want to consider strategies to engage more women into these programs.

Exhibit 14 compares the age of IE/D community college students enrolled in Automotive Technology programs compared to the IE/D population.

The majority of students enrolled in Automotive Technology programs are either in the “pre-career/college” category (74%) as compared to IE/D population (14%) and workforce (11%) in this occupation related to vehicle technology. These programs are an important entry point for young vehicle technology professionals.

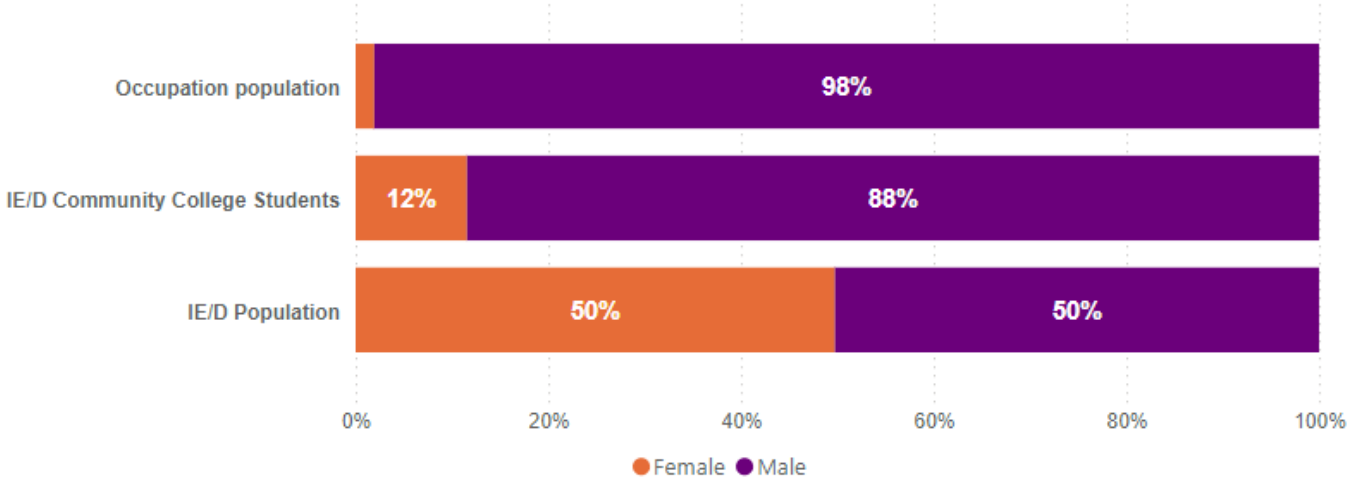
Exhibit 14 Program and County Demographics by Age



SOURCE: LIGHTCAST 2024.1

Exhibit 15 compares the gender of IE/D County community college students enrolled in Automotive Technology programs compared to the IE/D population. We also include demographics for related occupation data for this occupation related to vehicle technology to identify potential diversity and equity issues addressable by community college programs.

Exhibit 15 Program and County Demographics by Gender



SOURCE: LIGHTCAST 2024.1

Appendix: Methodology

Exhibit 11 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2020 and 2023 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variations 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 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, 2023a). 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, 2023a).

Appendix: References

Type of Data	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment. https://lightcast.io/
Living Wage	The living wage is derived from MITs Living Wage Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. For more information, see: https://livingwage.mit.edu/pages/methodology The living wage for one adult in San Bernardino County is $25.17 per hour ($52,353.60 annually). The living wage for one adult in Riverside County is $26.30 per hour ($54,704 annually). The average living wage to represent Inland Empire/Desert is $25.74 per hour (53,539.20 annually)
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions
Student Metrics and Demographics	LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx