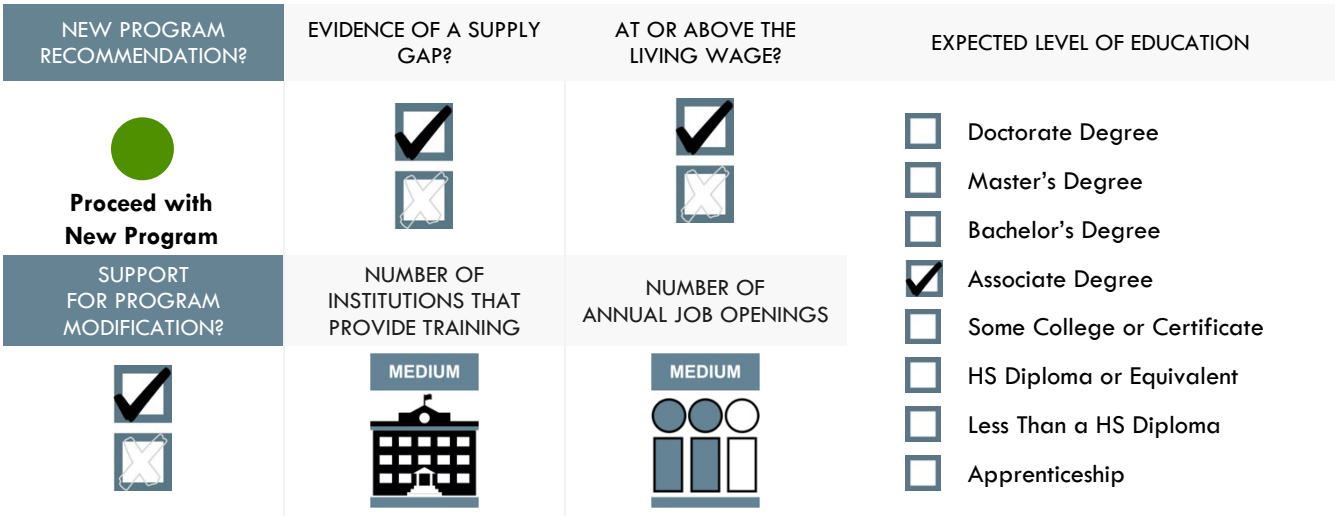
SAN DIEGO & IMPERIAL COUNTIES
COMMUNITY COLLEGES

Manufacturing Engineering Occupations

Labor Market Analysis: San Diego County **September 2025**

Summary



The San Diego & Imperial Center of Excellence (COE) developed this brief to assist the region's community colleges with strategic planning and program development. *Manufacturing Engineering Occupations* include "Industrial Engineering Technologists and Technicians" and "Mechanical Engineering Technologists and Technicians." According to available data, *Manufacturing Engineering Occupations* in San Diego County have a labor market demand of 102 annual job openings (while average demand for a single occupation in San Diego County is 289 annual job openings), and four institutions supply 15 awards for these occupations. Entry-level wages are above the living wage. This brief recommends to proceed with developing a new program and supports a program modification because 1) there is a supply gap in San Diego County and 2) these occupations' entry-level wages are above the living wage. Colleges should note that the expected level of education for *Manufacturing Engineering Occupations* is an associate degree.

Introduction

This report provides labor market information in San Diego County for the following occupational codes in the Standard Occupational Classification (SOC)[1] system:

- **Industrial Engineering Technologists and Technicians** (SOC 17-3026): Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May perform time and motion studies on worker operations in a variety of industries for purposes such as establishing standard production rates or improving efficiency.
- **Mechanical Engineering Technologists and Technicians** (SOC 17-3027): Apply theory and principles of mechanical engineering to modify, develop, test, or adjust machinery and equipment under direction of engineering staff or physical scientists.

For the purpose of this report, these occupations are referred to as *Manufacturing Engineering Occupations*.

Projected Occupational Demand

Between 2024 and 2029, businesses in San Diego County will need to hire 102 employees annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example (Exhibit 1). Most of this labor market demand comes from Installation, Industrial Engineering Technologists and Technicians, which are projected to have the most annual job openings with 66 openings each year between 2024 and 2029.

Exhibit 1: Number of Jobs for *Manufacturing Engineering Occupations* (2024-2029)[2]

Occupational Title	2024 Jobs	2029 Jobs	2024 - 2029 Net Jobs Change	2024 - 2029 % Net Jobs Change	Annual Job Openings (Demand)
Industrial Engineering Technologists and Technicians	719	741	22	3%	66
Mechanical Engineering Technologists and Technicians	396	408	12	3%	36
Total	1,115	1,149	34	3%	102

[1] 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. https://www.bls.gov/soc/.
[2] Lightcast 2025.03; QCEW, Non-QCEW, Self-Employed.

Earnings

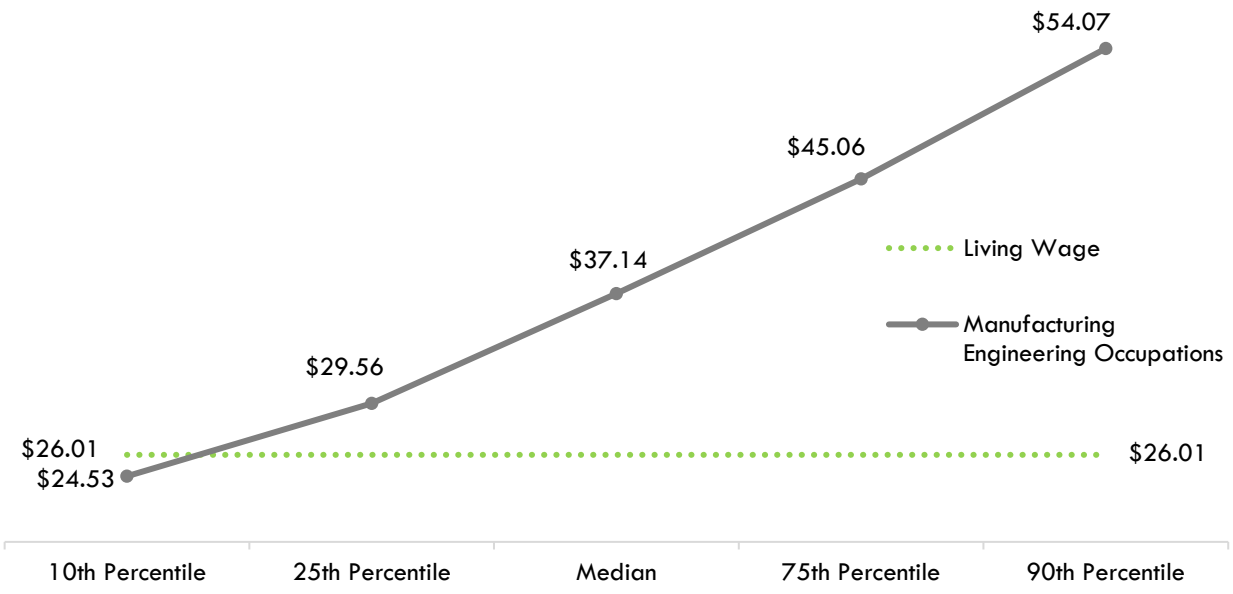
According to traditional[3] labor market information (LMI), entry-level hourly earnings for *Manufacturing Engineering Occupations* range from $29.02 to $30.10 (Exhibit 2).

Exhibit 2: Hourly Earnings for *Manufacturing Engineering Occupations* in San Diego County[4]

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Mechanical Engineering Technologists and Technicians	$30.10	$37.27	$47.02
Industrial Engineering Technologists and Technicians	$29.02	$37.01	$43.11

On average, the entry-level hourly earnings for employed *Manufacturing Engineering Occupations* are $29.56—or $61,484.80 annual salary[5]; this is more than the living wage for a single adult in San Diego County, which is $26.01 per hour (Exhibit 3). [6]

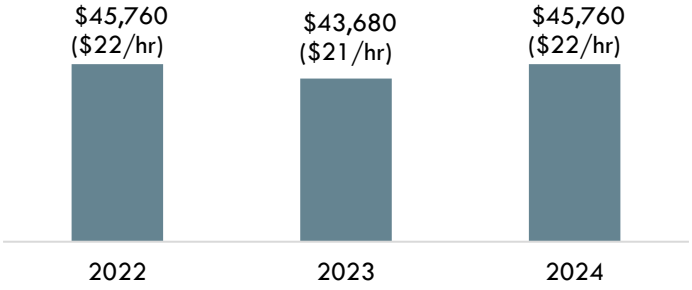
Exhibit 3: Hourly Earnings[7] for *Manufacturing Engineering Occupations* in San Diego County[8]



[3] Traditional LMI is generally historical data captured by the U.S. Bureau of Labor Statistics (BLS) or the California Employment Development Department (EDD). It does not account for recent technological, economic, or legislative changes that may affect labor market demand and wages.
[4] Lightcast 2025.03; QCEW, Non-QCEW, Self-Employed.
[5] Annualized salaries assume a full-time position with 2,080 hours. Multiplying the hourly wage with 2,080 yields the annual salary.
[6] Center for Women's Welfare, University of Washington. (2024). The self-sufficiency standard for California 2024. selfsufficiencystandard.org/California.
[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] Lightcast 2025.03; QCEW, Non-QCEW, Self-Employed.

In online job postings, however, employers advertised between $21 to $22 per hour between January 1, 2022 and December 30, 2024 for *Manufacturing Engineering Occupations* in San Diego County (Exhibit 4).[9] This suggests that employers have maintained wages due to labor market forces that may not be captured by traditional LMI.

Exhibit 4: Entry-Level Advertised Salaries in Online Job Postings for *Manufacturing Engineering Occupations* in San Diego County (2022-2024)



Expected Level of Education

According to traditional LMI (data reported to EDD and BLS), *Manufacturing Engineering Occupations* have a national educational attainment of an associate degree (Exhibit 5).[10]

Exhibit 5: National Educational Attainment for *Manufacturing Engineering Occupations*[11]

Occupational Title	Typical Entry-Level Education
Industrial Engineering Technologists and Technicians	Associate degree
Mechanical Engineering Technologists and Technicians	Associate degree

[9] Lightcast 2025.03; "Job Posting Analytics." 2022-2024.
[10] Lightcast 2025.03; QCEW, Non-QCEW, Self-Employed.
[11] Lightcast 2025.03; QCEW, Non-QCEW, Self-Employed.

Similarly, online job postings between January 1, 2022 and December 31, 2024 in San Diego County had a high school diploma or GED as the most requested educational requirement for *Manufacturing Engineering Occupations;* however, employers also expected the following certifications (Exhibit 6).[12]

Exhibit 6: Top Certifications for *Manufacturing Engineering Occupations* in San Diego County in Online Job Postings (2022-2024)[13]

1. Security Clearance
2. Secret Clearance
3. EPA 608 Technician Certification
4. Forklift Certification
5. CDL Class C License

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. There are three TOP codes and five CIP codes related to *Manufacturing Engineering Occupations* (Exhibit 7).

Exhibit 7: Related TOP and CIP Codes for *Manufacturing Engineering Occupations*[14]

TOP or CIP Code	TOP or CIP Program Title
TOP 0934.20	Industrial Electronics
TOP 0956.00	Manufacturing and Industrial Technology
TOP 0956.70	Industrial and Occupational Safety and Health
CIP 15.0612	Industrial Technology/Technician
CIP 15.0613	Manufacturing Engineering Technology/Technician
CIP 15.0703	Industrial Safety Technology/Technician
CIP 15.0705	Process Safety Technology/Technician
CIP 15.0805	Mechanical/Mechanical Engineering Technology/Technician

[12] Lightcast 2025.03; "Job Posting Analytics." 2022-2024.
[13] Lightcast 2025.03; "Job Posting Analytics." 2022-2024.
[14] This brief uses a conservative estimate of program supply and only calculates awards from the TOP code listed in Exhibit 7.

According to TOP data, four community colleges supply the region with awards for these occupations: Cuyamaca College, Palomar College, San Diego City College and Southwestern College. According to CIP data, no non-community-college institution supplies the region with awards (Exhibit 8).

Exhibit 8: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2020-21 Through Program Year 2023-24 Average)

TOP6 or CIP Code	TOP6 or CIP Program Title	3-Yr Annual Average CC Awards (PY21-22 to PY23-24)	Other Educational Institutions 3-Yr Annual Average Awards (PY20-21 to PY22-23)	Total Average Supply (PY20-21 to PY22-24)
0956.00	Manufacturing and Industrial Technology	**4**	**0**	**4**
	Palomar	**1**	**0**	
	• Associate degree	1	0	
	San Diego City	**3**	**0**	
	• Associate degree	1	0	
	• Certificate 16 < 30 units	2	0	
0956.00	Manufacturing and Industrial Technology	**11**	**0**	**11**
	Cuyamaca	**8**	**0**	
	• Associate degree	4	0	
	• Certificate 16 < 30 units	4		
	Southwestern	**3**	**0**	
	• Associate degree	2	0	
	• Certificate 16 < 30 units	1	0	
			Total	**15**

Demand vs. Supply

Comparing labor demand with labor supply[15] suggests that there is a supply gap for these occupations in San Diego County, with 102 annual openings and 15 awards. Comparatively, there are 755 annual openings in California and 988 awards, suggesting that there is an oversupply across the state (Exhibit 9).[16]

Exhibit 9: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	**Supply** (Annual Awards)	**Supply Gap or Oversupply**
San Diego	102	15	**87**
California	755	988	**- 233**

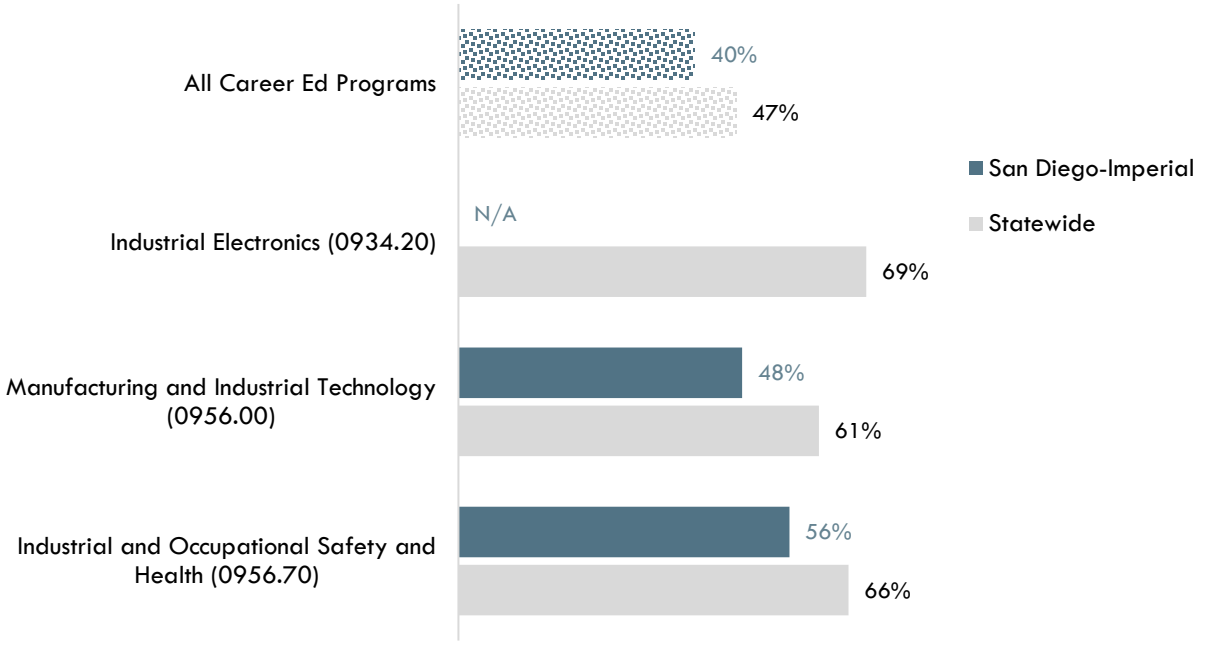
Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers;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

[15] Labor supply can be found from two different sources: Lightcast or the California Community Colleges Chancellor's Office MIS Data Mart. Lightcast uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.
[16] "Supply and Demand," Centers of Excellence Student Outcomes, coeccc.net/our-resources.

Student Outcomes and Regional Comparisons

According to the California Community Colleges DataVista, 48 to 56% of students in the San Diego-Imperial region earned a living wage after completing a program related to *Manufacturing Engineering Occupations*, compared to 61 to 69% statewide and 47% of students in Career Education programs in general across the state (Exhibit 10).[17]

Exhibit 10: Percentage of Students Who Earned a Living Wage by Program, PY2022-23[18]

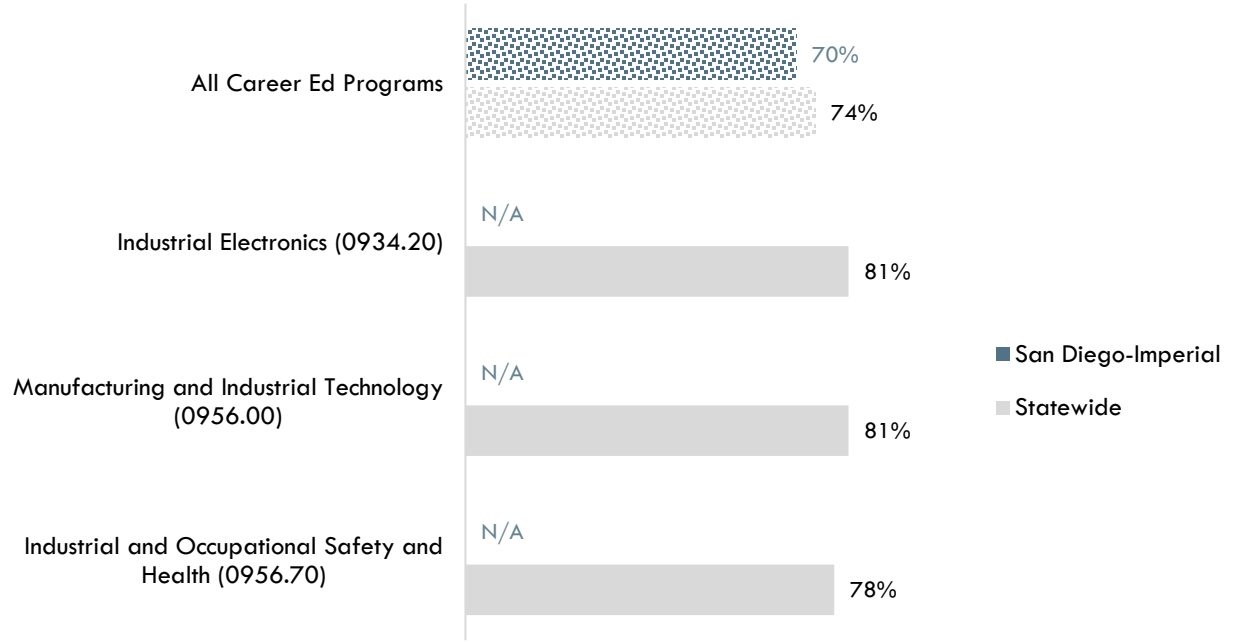


"N/A" indicates insufficient data

[17] DataVista, California Community Colleges, datavista.cccco.edu/.
[18] Most recent year with available data is Program Year 2022-23. Among completers and skills builders who exited, the percentage of students who attained a living wage.

According to the California Community Colleges DataVista, 78 to 81% of students statewide obtained a job closely related to their field of study after completing a program related to *Manufacturing Engineering Occupations*, compared to 74% of students in Career Education programs in general across the state (Exhibit 11).[19]

Exhibit 11: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2021-22[20]



"N/A" indicates insufficient data

[19] DataVista, California Community Colleges, datavista.cccco.edu/.
[20] Most recent year with available data is Program Year 2021-22. 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.

Employers

Between January 1, 2022 and December 31, 2024, the top five employers in San Diego County for *Manufacturing Engineering Occupations* were Aerotek, Northrop Grumman, Kelly Services, Randstad, and Formfactor based on online job postings (Exhibit 12).

Exhibit 12: Top Employers for *Manufacturing Engineering Occupations* in San Diego County[21]

Top Employers	
• Aerotek • Northrop Grumman • Kelly Services • Randstad • Formfactor	• Merck KGaA Darmstadt Germany • Danaher • Eastridge • Epsilon Systems • Volt

Skills

Exhibit 13 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2022 and December 31, 2024.

Exhibit 13: Top Skills for *Manufacturing Engineering Occupations* in San Diego County[22]

Specialized Skills	Soft Skills	Software Skills
• Good Manufacturing Practices • Standard Operating Procedure • Manufacturing Processes • Hand Tools • Manufacturing Operations • Machinery • Assembly Lines • Biology • Cleanrooms • Medical Devices • Warehousing • Automation • Calibration • Production Equipment • Test Equipment	• Troubleshooting • Detail Oriented • Operations • Communication • Packaging And Labeling • Lifting Ability • Computer Literacy • Management • English Language • Problem Solving • Writing • Cleanliness • Self-Motivation • Teamwork • Multitasking	• Microsoft Excel • Microsoft Word

[21] Lightcast 2025.03; "Job Posting Analytics." 2022-2024.
[22] Lightcast 2025.03; "Job Posting Analytics." 2022-2024.

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Important Disclaimers

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