Composite Technicians

Labor Market Analysis: San Diego County

August 2021

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
Proceed with New Program	☑	☑	☐ Bachelor's Degree+ ☐ Associate Degree ☐ Some College or Certificate ☑ HS Diploma or Equivalent ☐ Less than a HS Diploma ☐ Apprenticeship

SUPPORT FOR PROGRAM MODIFICATION?	NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING	NUMBER OF ANNUAL JOB OPENINGS
☑	LOW	MEDIUM

This brief provides labor market information about *Composite Technicians* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. *Composite Technicians* include "Aerospace Engineering and Operations Technologists and Technicians," "Layout Workers, Metal and Plastic," "Mechanical Engineering Technologists and Technicians," and "Patternmakers, Metal and Plastic." According to available labor market information, *Composite Technicians* in San Diego County have a labor market demand of 73 annual job openings (while average demand for a single occupation in San Diego County is 242 annual job openings), and no institution supplies awards for these occupations, suggesting that there is a supply gap in the labor market. Entry-level and median wages are above the living wage for these occupations. This brief recommends proceeding with a new program and supports a program modification because 1) a supply gap exists in the region; 2) entry-level and median earnings for these occupations are above the living wage; and 3) no institution supplies awards for these occupations.

Introduction

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

- **Aerospace Engineering and Operations Technologists and Technicians** (SOC 17-3021): Operate, install, adjust, and maintain integrated computer/communications systems, consoles, simulators, and other data acquisition, test, and measurement instruments and equipment, which are used to launch, track, position, and evaluate air and space vehicles. May record and interpret test data.
- **Layout Workers, Metal and Plastic** (SOC 51-4192): Lay out reference points and dimensions on metal or plastic stock or workpieces, such as sheets, plates, tubes, structural shapes, castings, or machine parts, for further processing. Includes shipfitters.
- **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.
- **Patternmakers, Metal and Plastic** (SOC 51-4062): Lay out, machine, fit, and assemble castings and parts to metal or plastic foundry patterns, core boxes, or match plates.

For the purpose of this report, these occupations are referred to as C*omposite Technicians*.

[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. bls.gov/soc.

Projected Occupational Demand

Between 2020 and 2025, *Composite Technicians* are projected to increase by 59 net jobs or nine percent (Exhibit 1a). Employers in San Diego County will need to hire 73 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1a: Number of Jobs for *Composite Technicians* (2010-2025)[2]

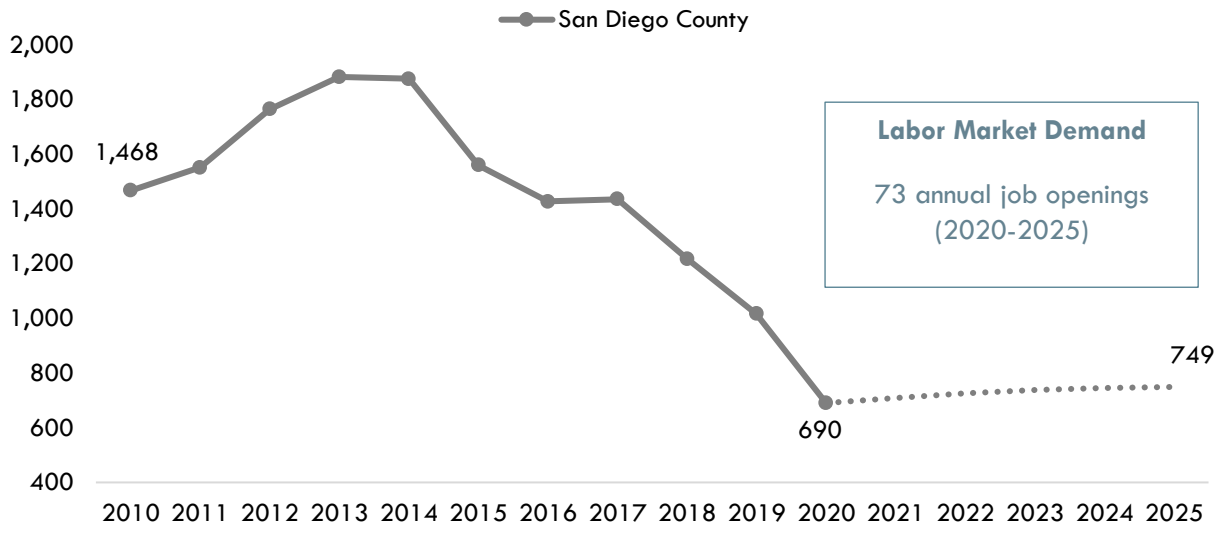


Exhibit 1b disaggregates the projected number of jobs change by occupation. "Mechanical Engineering Technologists and Technicians" are projected to have the most labor market demand between 2020 and 2025, with 32 annual job openings.

Exhibit 1b: Number of Jobs for *Composite Technicians* in San Diego County (2020-2025)[3]

Occupational Title	2020 Jobs	2025 Jobs	2020 - 2025 Net Jobs Change	2020-2025 % Net Jobs Change	Annual Job Openings (Demand)
Mechanical Engineering Technologists and Technicians	293	326	33	10%	32
Aerospace Engineering and Operations Technologists and Technicians	287	317	30	10%	31
Layout Workers, Metal and Plastic	105	101	-4	-4%	9
Patternmakers, Metal and Plastic	5	5	0	0%	1
Total	690	749	59	8%	73

[2] EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.
[3] EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

Earnings

Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Composite Technicians* range from $17.14 to $26.83.

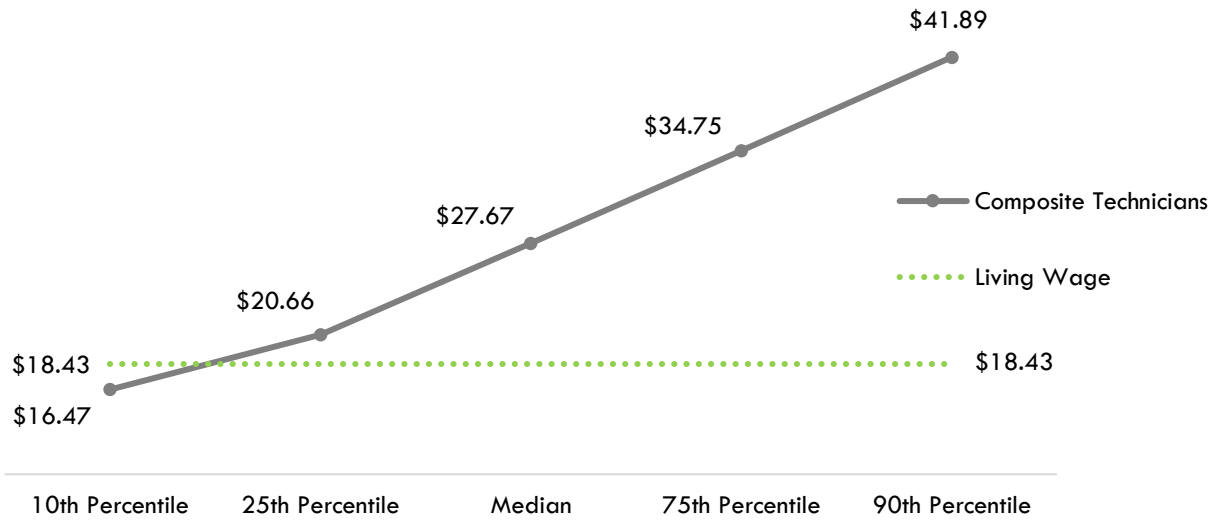
Exhibit 2a: Hourly Earnings for *Composite Technicians* in San Diego County[4]

Occupational Title	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Aerospace Engineering and Operations Technologists and Technicians	$26.83	$34.62	$40.42
Layout Workers, Metal and Plastic	$18.02	$25.15	$30.22
Mechanical Engineering Technologists and Technicians	$17.14	$23.23	$33.61
Patternmakers, Metal and Plastic	N/A	N/A	N/A

"N/A" indicates insufficient data

On average, the entry-level hourly earnings for *Composite Technicians* are $20.66; this is more than the living wage for a single adult in San Diego County, which is $18.43 per hour (Exhibit 2b).[5]

Exhibit 2b: Average Hourly Earnings[6] for *Composite Technicians* in San Diego County[7]



[4] EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.
[5] "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. insightcced.org/family-needs-calculator/.
[6] 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.
[7] 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.[8] There is one TOP code and one CIP code related to *Composite Technicians* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for *Composite Technicians*

TOP or CIP Code	TOP or CIP Program Title
TOP 0954.20	Plastics and Composites
CIP 15.0607	Plastics and Polymer Engineering Technology/Technician

According to TOP data, no community college supplies the region with awards for this occupation. According to CIP data, no non-community-college institution supplies the region with awards (Exhibit 4).

Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2016-17 through PY2019-20 Average)

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY17-18 to PY19-20)	Other Educational Institutions 3-Yr Annual Average Awards (PY16-17 to PY18-19)	3-Yr Total Average Supply (PY16-17 to PY19-20)
0954.20	Plastics and Composites	**0**	**0**	**0**
			Total	**0**

[8] 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).

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply[9] suggests that there is a supply gap for these occupations in San Diego County, with 73 annual openings and zero awards. Comparatively, there are 598 annual openings in California and three awards, suggesting that there is a supply gap across the state[10] (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	**Supply** (Total Annual Average Supply)	**Supply Gap or Oversupply**
San Diego	73	0	**73**
California	598	3	**595**

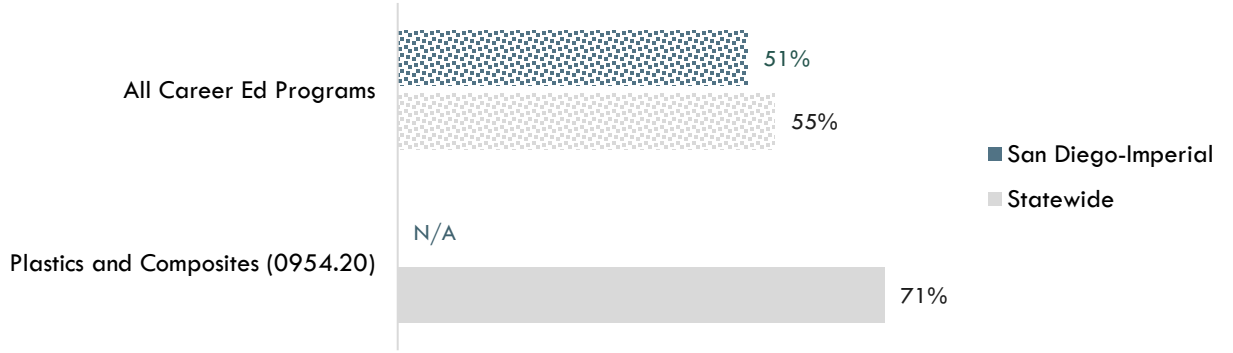
Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers;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

[9] 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.
[10] "Supply and Demand," Centers of Excellence Student Outcomes, coeccc.net/Supply-and-Demand.aspx.

Student Outcomes and Regional Comparisons

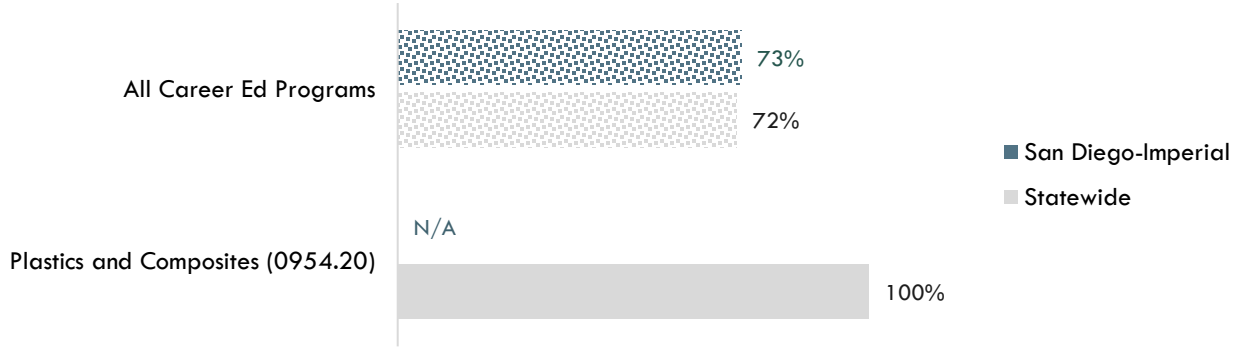
According to the California Community Colleges LaunchBoard, 71 percent of students statewide earned a living wage after completing a Plastics and Composites (0954.20) program, compared to 55 percent of students in Career Education programs in general across the state (Exhibit 6a).[11]

Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program, PY2017-18[12]



According to the California Community Colleges LaunchBoard, 100 percent of students statewide obtained a job closely related to their field of study after completing a Plastics and Composites (0954.20) program, compared 72 percent of students in Career Education programs in general across the state (Exhibit 6b).[13]

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2016-17[14]

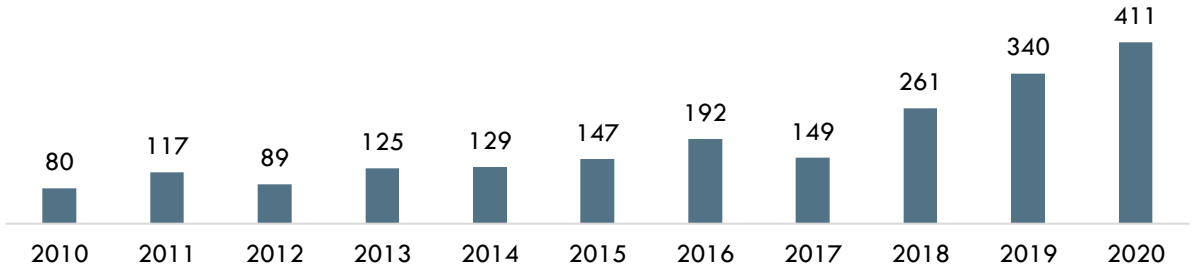


[11] "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.
[12] Among completers and skills builders who exited, the proportion of students who attained a living wage.
[13] "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.
[14] 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 185 online job postings per year for *Composite Technicians* 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 *Composite Technicians* in San Diego County (2010-2020)[15]



Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in San Diego County for *Composite Technicians* were General Atomics, Epsilon Systems Solutions, General Dynamics, Delphinus Engineering, and Sayres & Associates based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for *Composite Technicians* in San Diego County[16]

Top Employers	
• General Atomics	• Ameri-Force
• Epsilon Systems Solutions, Inc.	• Serco Group
• General Dynamics	• American Systems Corporation
• Delphinus Engineering, Inc.	• FieldCore
• Sayres & Associates	• CarMax

[15] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.
[16] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, and Certifications

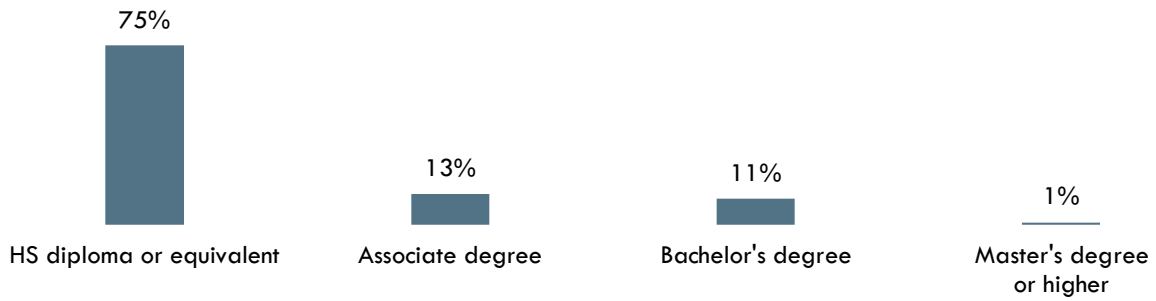
Composite Technicians have a national educational attainment ranging from a high school diploma or equivalent to an associate degree (Exhibit 9a).

Exhibit 9a: National Educational Attainment for *Composite Technicians*[17]

Occupational Title	Typical Entry-Level Education
Mechanical Engineering Technologists and Technicians	Associate degree
Aerospace Engineering and Operations Technologists and Technicians	Associate degree
Layout Workers, Metal and Plastic	High school diploma or equivalent
Patternmakers, Metal and Plastic	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 *Composite Technicians* (Exhibit 9b).[18]

Exhibit 9b: Educational Requirements for *Composite Technicians* in San Diego County[19]



[17] EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.
[18] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.
[19] "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 *Composite Technicians* in San Diego County[20]

Specialized Skills	Soft Skills	Software Skills
• Repair • Welding • Hand Tools • Machinery • Power Tools • Test Equipment • Schematic Diagrams • Grinders • Occupational Health and Safety • Mechanical Engineering • Engineering Drawings • Quality Assurance and Control • Drill Presses • Shielded Metal Arc Welding • Calipers	• Physical Abilities • Communication Skills • Troubleshooting • Computer Literacy • Detail-Oriented • Organizational Skills • Writing • Problem Solving • Teamwork / Collaboration • Planning • English • Preventive Maintenance • Written Communication • Research • Preparing Reports	• Microsoft Excel • Microsoft Word • Microsoft PowerPoint • SolidWorks • SQL • SAP • Computer Aided Drafting/Design • LabVIEW • Enterprise Resource Planning • Oracle • AutoCAD • Load Runner • Lockout / Tagout • Micro Focus • Microsoft Outlook

[20] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 11 lists the top certification that appeared in online job postings between January 1, 2018 and December 31, 2020.

Exhibit 11: Top Certification for *Composite Technicians* in San Diego County[21]

Top Certification in Online Job Postings
1. Security Clearance
2. Occupational Safety and Health Administration Certification
3. OSHA Safety 10 Hour
4. Automotive Service Excellence (ASE) Certification
5. Manufacturing Certification
6. American Bureau of Shipping Certification (ABS)
7. Certified Quality Inspector (CQI)
8. Certified Quality Auditor (CQA)
9. IPC Certification
10. Welding Certification
11. American Society for Quality (ASQ) Certification
12. ISO AS9100
13. Advanced Engine Performance Certified
14. Boiler Operator License
15. CDL Class C

[21] Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

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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.