



Industrial Technology: Industrial Fabrication (Manufacturing and Industrial Technology TOP 0956.00)

March 2022

Prepared by the South Central Coast Center of Excellence for
Labor Market Research

Program Recommendation

This report was compiled by the South Central Coast¹ Center of Excellence to provide regional labor market data for the program recommendation – Manufacturing and Industrial Technology. This report can help determine whether demand in the local labor market is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Key Findings

- In the South Central Coast region, **the number of jobs related to Manufacturing and Industrial Technology are expected to increase** for Welders, Cutters, Solderers, and Brazers and **remain steady** for the other four related occupations.
- Manufacturing and Industrial Technology is anticipated to experience a **low risk of automation** for Industrial Engineering Technologists and Technicians, and a **high risk of automation** for the other four occupations.
- In 2020 there were 124 regional completions in programs related to the occupations identified as aligned with Manufacturing and Industrial Technology and 1,203 openings, indicating an **undersupply**.
- Typical entry-level education is an **Associate's degree** for Industrial Engineering Technologists and Technicians and a **high school diploma or equivalent** for the other four related occupations.
- Completers of Manufacturing and Industrial Technology programs from the 2018-2019 academic year in the South Central Coast region had a **median annual wage upon completion of \$38,570**.
- 50% of students are **employed within a year** after completing a program.
- 54% of students **attained a living wage** within a year of completion.
- Completers experienced an average of +34% **change in earnings after exiting**.
- 83% of students were **part-time**, 18% **skills-builders**, 40% of students were **first-generation**, and 72% **economically disadvantaged**.

¹ The South Central Coast Region consists of San Luis Obispo County, Santa Barbara County, Ventura County, and the following cities from North Los Angeles County: Canyon Country, Castaic, Lake Hughes, Lancaster, Littlerock, Llano, Newhall, Palmdale, Pearblossom, Santa Clarita, Stevenson Ranch, and Valencia.

Occupation Codes and Descriptions

There are five occupations in the standard occupational classification (SOC) system that were identified as related to Manufacturing and Industrial Technology for this analysis. The occupation titles and descriptions, as well as reported job titles, are included in Exhibit 1.

Exhibit 1 – Occupation, description, and sample job titles

SOC Code	Title	Description	Sample of Reported Job Titles
17-3026	Industrial Engineering Technologists and Technicians	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.	Business Process Analyst, Engineering Technician, Industrial Engineering Analyst, Industrial Engineering Technician, Manufacturing Coordinator, Manufacturing Technology Analyst, Quality Control Engineering Technician (QC Engineering Technician), Quality Management Coordinator, Quality Technician, Service Technician
51-2099	Assemblers and Fabricators, All Other	All assemblers and fabricators not listed separately.	--
51-4041	Machinists	Set up and operate a variety of machine tools to produce precision parts and instruments out of metal. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures.	Computer Numeric Controlled Machinist (CNC Machinist), Computer Numerically Controlled Machinist (CNC Machinist), Gear Machinist, Machine Repair Person, Machinist, Maintenance Machinist, Manual Lathe Machinist, Production Machinist, Tool Room Machinist
51-4121	Welders, Cutters, Solderers, and Brazers	Use hand-welding, flame-cutting, hand-soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.	--
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Set up, operate, or tend welding, soldering, or brazing machines or robots that weld, braze, solder, or heat treat metal products, components, or assemblies. Includes workers who operate laser cutters or laser-beam machines.	Braze Operator, Finishing Technician, Machine Operator, Mig Welder, Robot Operator, Spot Welder

Source: O*NET Online

Current and Future Employment

In the South Central Coast region, the number of jobs related to Manufacturing and Industrial Technology are expected to increase for Welders, Cutters, Solderers, and Brazers and remain steady for the other four related occupations.

Exhibit 2 – Five-year projections for Manufacturing and Industrial Technology in the South Central Coast region

SOC	Occupation	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change
17-3026	Industrial Engineering Technologists and Technicians	220	228	8	4%
51-2098 (for 51-2099)	Miscellaneous Assemblers and Fabricators (for Assemblers and Fabricators, All Other)	5,822	6,089	267	5%
51-4041	Machinists	2,177	2,265	88	4%
51-4121	Welders, Cutters, Solderers, and Brazers	1,547	1,650	103	7%
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	121	119	-2	-2%

Source: Economic Modeling Specialists International (EMSI)

Earnings

In the South Central Coast region, the average wage for the listed occupations is \$17.93 per hour.

Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry-level hourly earnings are represented by the 25th percentile of wages, median hourly earnings are represented by the 50th percentile of wages, and experienced hourly earnings are represented by the 75th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for Manufacturing and Industrial Technology in the South Central Coast region

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
17-3026	Industrial Engineering Technologists and Technicians	\$23.28	\$31.97	\$40.71
51-2098 (for 51-2099)	Miscellaneous Assemblers and Fabricators (for Assemblers and Fabricators, All Other)	\$14.19	\$16.28	\$19.35
51-4041	Machinists	\$17.12	\$22.16	\$28.80
51-4121	Welders, Cutters, Solderers, and Brazers	\$17.11	\$21.56	\$27.67
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	\$16.19	\$20.11	\$23.50

Source: Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is looking in the field, and what they are looking for in potential candidates. To identify job postings related to Manufacturing and Industrial Technology the following standard occupational classifications were used:

17-3026	Industrial Engineering Technologists and Technicians
51-2099	Assemblers and Fabricators, All Other
51-4041	Machinists
51-4121	Welders, Cutters, Solderers, and Brazers
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Top Occupations

In 2021, there were 1,179 employer postings for occupations related to Manufacturing and Industrial Technology.

Exhibit 4 – Top occupations in job postings and risk of automation tables

SOC Code	Occupation	Job Postings, Full Year 2021
17-3026	Industrial Engineering Technologists and Technicians	588
51-4041	Machinists	342
51-4121	Welders, Cutters, Solderers, and Brazers	184
51-2099	Assemblers and Fabricators, All Other	56
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	9

Source: Labor Insight/Jobs (Burning Glass)

SOC Code	Occupation	Risk of Automation
17-3026	Industrial Engineering Technologists and Technicians	Low
51-4041	Machinists	High
51-4121	Welders, Cutters, Solderers, and Brazers	High
51-2099	Assemblers and Fabricators, All Other	High
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	High

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top job titles for employers posting ads for jobs related to Manufacturing and Industrial Technology are listed in Exhibit 5. Maintenance Technician is mentioned as the job title in 11% of all relevant job postings (126 postings).

Exhibit 5 –Job Titles

Title	Job Postings, Full Year 2021
Maintenance Technician	126
CNC Machinist	70
Welder	38
Machinist	36
Maintenance Technician II	34

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the Manufacturing and Industrial Technology field. The top employer posting job ads was Express Oxnard. The top worksite cities in the region for these occupations were Santa Clarita, Oxnard, Ventura, Simi Valley, and Camarillo.

Exhibit 6 – Top Employers (n=642)

Employer	Job Postings, Full Year 2021
Express Oxnard	22
McDonald's	21
Northrop Grumman	19
Amazon	18
ITT Industries Inc	16

Source: Labor Insight/Jobs (Burning Glass)

Skills

Repair is the most sought-after skill for employers hiring for jobs related to Manufacturing and Industrial Technology.

Exhibit 7 –Job Skills (n=936)

Skills	Job Postings, Full Year 2021
Repair	481
Machining	357
Computer Numerical Control (CNC)	315
Welding	247
Lathes	206
Predictive/Preventative Maintenance	187
Hand Tools	145

Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Exhibit 8 shows the industries with the most Manufacturing and Industrial Technology postings in the South Central Coast. Note: 37% of records have been excluded because they do not include an industry. As a result, the chart below may not be representative of the full sample.

Exhibit 8 – Industries employing the most in the Manufacturing and Industrial Technology field, 2021

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Manufacturing	290	39.2%
Retail Trade	108	14.6%
Construction	83	11.2%
Professional, Scientific, and Technical Services	57	7.7%
Public Administration	29	3.9%

Source: Labor Insight/Jobs (Burning Glass)

Education and Training

Exhibit 9 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training needed to attain competency in the occupation.

Exhibit 9 – Education and Training Requirements

SOC	Occupation	Typical entry-level education	Typical on-the-job training
17-3026	Industrial Engineering Technologists and Technicians	Associate’s degree	None
51-2099	Assemblers and Fabricators, All Other	High school diploma or equivalent	Moderate-term on-the-job training
51-4041	Machinists	High school diploma or equivalent	Long-term on-the-job training
51-4121	Welders, Cutters, Solderers, and Brazers	High school diploma or equivalent	Moderate-term on-the-job training
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	High school diploma or equivalent	Moderate-term on-the-job training

Source: Bureau of Labor Statistics Employment Projections (Educational Attainment)

Regional Completions and Openings

There were 124 regional completions (2020) and 1,203 regional openings (2020) in the South Central Coast region in programs related to the occupations identified as aligned with Manufacturing and Industrial Technology.

Exhibit 10 – Completions and Openings

8 Regional Institutions had Related Programs (2020)	124 Regional Completions (2020)	1,203 Annual Openings (2020)
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Source: Economic Modeling Specialists International (EMSI)

Related Programs

CIP Code	Program	Completions (2020)
48.0508	Welding Technology/Welder	81
47.0105	Industrial Electronics Technology/Technician	33
48.0503	Machine Shop Technology/Assistant	5
15.0000	Engineering Technologies/Technicians, General	3
15.9999	Engineering/Engineering-Related Technologies/Technicians, Other	1
48.0501	Machine Tool Technology/Machinist	1

Source: Economic Modeling Specialists International (EMSI)

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Manufacturing and Industrial Technology Program (TOP: 0956.00) in the South Central Coast region for the 2018-19 academic year.

- Completers of Manufacturing and Industrial Technology programs from the 2018-2019 academic year in the South Central Coast region had a **median annual wage upon completion of \$38,570.**
- 50% of students are **employed within a year** after completing a program.
- 54% of students **attained a living wage** within a year of completion.
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Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represent the labor market demand for relevant positions most closely related to Manufacturing and Industrial Technology. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions. All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; 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 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.