



Manufacturing and Industrial Technology TOP: 0956.00

April 2020

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

Program Recommendation

This report was compiled by the South Central Coast Center of Excellence to provide regional labor market data for the program recommendation – Manufacturing and Industrial Technology. This report can help determine whether there is demand in the local labor market that 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 remain steady**, over the next five years, for all related occupations.
- Electro-Mechanical Technicians and Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic are anticipated to experience **high risk of automation**, Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic are anticipated to experience **medium risk of automation**, and Mechanical Drafters and General and Operations Managers are anticipated to experience **low risk of automation**.
- In 2018 there were 2,905 regional completions in programs related to the occupations identified as related to Manufacturing and Industrial Technology and 1,332 openings, indicating an **oversupply**. Note that in including General and Operations Managers the inclusion of business related programs is supported, which account for 2,720 of the total completions. If the General and Operations Managers occupation is excluded there are 104 regional completions for 124 openings, indicating an **undersupply**.
- Typical entry-level education is a **Bachelor's degree** for General and Operations Managers, an **Associate's Degree** for Mechanical Drafters and Electro-Mechanical Technicians, a **postsecondary nondegree award** for Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic, and a **high school diploma or equivalent** for Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic.
- Completers of Manufacturing and Industrial Technology programs from the 2015-2016 academic year had a **median annual wage** upon completion of \$30,137.
- 69% of students are **employed within a year** after completing a program.
- 60% of students are **earning a living wage**.

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

Currently, 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
11-1021	General and Operations Managers	Plan, direct, or coordinate the operations of public or private sector organizations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse/general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services.	Business Manager, Facility Manager, General Manager, Operations Director, Operations Manager, Plant Superintendent, Store Manager
17-3013	Mechanical Drafters	Prepare detailed working diagrams of machinery and mechanical devices, including dimensions, fastening methods, and other engineering information.	CAD Designer, CAD Operator, Design Drafter, Designer, Drafting Technician, Mechanical Designer, Mechanical Drafter, Product Designer, Project Designer
17-3024	Electro-Mechanical Technicians	Operate, test, maintain, or calibrate unmanned, automated, servo-mechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment at worksites, such as oil rigs, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.	Electro-Mechanic, Electro-Mechanical Technician, Electronic Technician, Engineering Technician, Laboratory Technician (Lab Technician), Maintenance Technician, Mechanical Technician, Product Test Specialist, Test Technician, Tester
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal/Plastic	Develop programs to control machining or processing of metal or plastic parts by automatic machine tools, equipment, or systems.	CAD CAM Programmer, Computer Numerical Control Machine Operator, Computer Numerical Control Machine Center Operator, Computer Numerical Control Machinist, Machine Shop Lead Man, Machining Manager, Programmer
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal/Plastic	Set up, operate, or tend more than one type of cutting or forming machine tool or robot.	Cell Technician, CNC Machine Setter, CNC Machinist, CNC Operator, Die Setter, Machine Operator, Machine Technician, Machinist, Operator, Set-Up Person

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 remain steady, over the next five years, for all related occupations.

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

SOC	Occupation	2018 Jobs	2023 Jobs	2018-2023 Change	2018-2023 % Change
11-1021	General and Operations Managers	12,575	13,329	754	6%
17-3013	Mechanical Drafters	289	291	2	1%
17-3024	Electro-Mechanical Technicians	40	42	2	5%
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	233	261	28	12%
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	303	322	19	6%

Source: Economic Modeling Specialists International (EMSI)

Earnings

In the South Central Coast region, the average wage for the listed occupations is \$46.62 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 is 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
11-1021	General and Operations Managers	\$32.72	\$48.70	\$77.84
17-3013	Mechanical Drafters	\$23.87	\$32.00	\$44.11
17-3024	Electro-Mechanical Technicians	\$23.91	\$28.58	\$34.44
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	\$27.47	\$34.45	\$42.17
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$13.10	\$16.29	\$20.62

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 employing mechanical technicians, 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:

11-1021	General and Operations Managers
17-3013	Mechanical Drafters
17-3024	Electro-Mechanical Technicians
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic

Top Occupations

In 2018, there were 1,690 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 2018
11-1021	General and Operations Managers	1,364
17-3024	Electro-Mechanical Technicians	174
17-3013	Mechanical Drafters	103
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	48
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1

Source: Labor Insight/Jobs (Burning Glass)

SOC Code	Occupation	Risk of Automation
11-1021	General and Operations Managers	Low
17-3024	Electro-Mechanical Technicians	High
17-3013	Mechanical Drafters	Low
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	Medium
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	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. Operations Manager is mentioned as the job title in 6% of all relevant job postings (106 postings).

Exhibit 5 –Job titles

Title	Job Postings, Full Year 2018
Operations Manager	106
Assistant Manager	90
General Manager	69
Operations Supervisor	69
Instrumentation Technician	53

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 Anthem Blue Cross. The top worksite cities in the region for these occupations were Thousand Oaks, Santa Barbara, Santa Clarita, Oxnard, and Palmdale.

Exhibit 6 – Top employers (n=1,690)

Employer	Job Postings, Full Year 2018
Anthem Blue Cross	144
Amgen	72
Dollar Tree	64
Lockheed Martin Corporation	46
24 Hour Fitness	39

Source: Labor Insight/Jobs (Burning Glass)

Skills

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

Exhibit 7 –Job skills (n=1,579)

Skills	Job Postings, Full Year 2018
Budgeting	395
Scheduling	386
Operations Management	275
Retail Industry Knowledge	261
Staff Management	230
Customer Service	199
Project Management	185

Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Exhibit 8 shows the industries with most Manufacturing and Industrial Technology postings in the South Central Coast. Note: 18% 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, 2018

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Manufacturing	316	22.9%
Finance and Insurance	250	18.1%
Retail Trade	249	18.0%
Professional, Scientific, and Technical Services	122	8.8%
Arts, Entertainment, and Recreation	56	4.1%

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
11-1021	General and Operations Managers	Bachelor’s Degree	None
17-3013	Mechanical Drafters	Associate’s Degree	None
17-3024	Electro-Mechanical Technicians	Associate’s Degree	None
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	Postsecondary nondegree award	Moderate-term on-the-job training
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	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 2,905 regional completions (2018) and 1,332 regional openings (2018) in the South Central Coast region in programs related to the occupations identified as related to Manufacturing and Industrial Technology. A secondary table is provided in which General and Operations Managers is excluded.

Exhibit 10 – Completions and Openings

30 Regional Institutions had Related Programs (2018)	2,905 Regional Completions (2018)	1,332 Annual Openings (2018)
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Source: Economic Modeling Specialists International (EMSI)

Exhibit 10 – Completions and Openings without Business Related Completions/Openings for General and Operations Managers

12 Regional Institutions had Related Programs (2018)	104 Regional Completions (2018)	124 Annual Openings (2018)
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Source: Economic Modeling Specialists International (EMSI)

Related Programs

CIP Code	Program	Completions (2018)
52.0201	Business Administration and Management, General	2,508
52.1301	Management Science	116
52.0101	Business/Commerce, General	96
15.1301	Drafting and Design Technology/Technician, General	51
44.0401	Public Administration	29
52.1101	International Business/Trade/Commerce	27
52.0801	Finance, General	25
48.0503	Machine Shop Technology/Assistant	24
11.0201	Computer Programming/Programmer, General	10
15.1306	Mechanical Drafting and Mechanical Drafting CAD/CADD	8
15.0000	Engineering Technology, General	6
48.0501	Machine Tool Technology/Machinist	5
11.0301	Data Processing and Data Processing Technology/Technician	0
15.0499	Electromechanical and Instrumentation and Maintenance Technologies/Technicians, Other	0
15.1302	CAD/CADD Drafting and/or Design Technology/Technician	0
15.9999	Engineering Technologies and Engineering-Related Fields, Other	0
52.0212	Retail Management	0
52.0701	Entrepreneurship/Entrepreneurial Studies	0

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 2015-16 academic year.

- The median annual wage for students after exiting is \$30,137.
- 69% of students are employed within a year after completing a program.
- 60% of students are earning a living wage.

Source: CTE LaunchBoard

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.