



CNC Machine Operator (Manufacturing and Industrial Technology TOP 0956.00)

November 2021

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 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 increase** for Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic; **remain steady** for Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic and Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic; and **decrease** for Milling and Planing Machine Tool Setters, Operators, and Tenders, Metal and Plastic and Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic.
- Manufacturing and Industrial Technology is anticipated to experience **a high risk of automation** for all five related occupations.
- In 2020 there were 6 regional completions in programs related to the occupations identified as aligned with Manufacturing and Industrial Technology and 158 openings, indicating an **undersupply**.
- Typical entry-level education is a **high school diploma or equivalent** for all five related occupations.
- Completers of Manufacturing and Industrial Technology programs from the 2017-2018 academic year in the South Central Coast region had a **median annual wage upon completion of \$34,802**.
- 68% of students are **employed within a year** after completing a program.
- 56% of students **attained a living wage** within a year of completion.
- Completers experienced an average of **+46%** change in earnings after exiting.
- 84% of students were **part time**, 23% **skill builders**, 35% **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
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Set up, operate, or tend drilling machines to drill, bore, ream, mill, or countersink metal or plastic work pieces.	Bore Mill Operator, Computer Numerical Control Drilling Operator (CNC Drilling Operator), Drill Operator, Drill Press Operator, Drill Setup Operator, Driller, Machine Operator, Machinist, Punch Operator, Radial Drill Operator
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Set up, operate, or tend grinding and related tools that remove excess material or burrs from surfaces, sharpen edges or corners, or buff, hone, or polish metal or plastic work pieces.	Cell Operator, Centerless Grinder Operator, Deburrer, Die Maintenance Technician, Finisher, Grinder, Grinder Operator, Grinding Machine Operator, Process Equipment Operator
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Set up, operate, or tend lathe and turning machines to turn, bore, thread, form, or face metal or plastic materials, such as wire, rod, or bar stock.	Computer Numerical Control Lathe Operator (CNC Lathe Operator), Lathe Operator, Lathe Set Up Person, Machine Operator, Numerical Control Operator (NC Operator), Screw Machine Operator, Screw Machine Tool Operator, Setup Operator, Turn Operator
51-4035	Milling and Planing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Set up, operate, or tend milling or planing machines to mill, plane, shape, groove, or profile metal or plastic work pieces.	Machine Operator, Mill Operator, Miller, Milling Operator

SOC Code	Title	Description	Sample of Reported Job Titles
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	Set up, operate, or tend more than one type of cutting or forming machine tool or robot.	Cell Technician, CNC Machine Setter Operator (Computer Numerically Controlled Machine Setter), Fabrication Set-Up Person, Injection Molding Technician, Machine Operator, Machine Technician, Mold Setter, Production Operator, Shear Operator, Tooling 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 increase for Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic; remain steady for Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic and Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic; and decrease for Milling and Planing Machine Tool Setters, Operators, and Tenders, Metal and Plastic and Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic.

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
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	30	27	-3	-10%
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	544	534	-10	-2%
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	124	123	-1	-1%
51-4035	Milling and Planing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	202	192	-10	-5%
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	391	439	48	12%

Source: Economic Modeling Specialists International (EMSI)

Earnings

In the South Central Coast region, the average wage for the listed occupations is \$14.79 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
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$15.33	\$18.17	\$23.25
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$14.77	\$16.95	\$19.89
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$16.27	\$20.51	\$24.37
51-4035	Milling and Planing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$16.88	\$20.44	\$26.88
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	\$14.23	\$16.53	\$20.28

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 for CNC machinists, 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:

51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4035	Milling and Planing Machine Tool Setters, Operators, and Tenders, Metal and Plastic
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic

Top Occupations

In 2019, there were 69 employer postings for the 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 2019
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	58
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	3
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	3
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	3
51-4035	Milling and Planing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2

Source: Labor Insight/Jobs (Burning Glass)

SOC Code	Occupation	Risk of Automation
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High
51-4035	Milling and Planing 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. Grinder is mentioned as the job title in 10% of all relevant job postings (7 postings).

Exhibit 5 –Job Titles

Title	Job Postings, Full Year 2019
Grinder	7
CNC Grinder	4
Grinder/Polisher	4
CNC Grinder II	3
CNC Od Grinder II	3

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 Rexnord. The top worksite cities in the region for these occupations were Santa Clarita, Simi Valley, Camarillo, Oxnard, and Palmdale.

Exhibit 6 – Top Employers (n=43)

Employer	Job Postings, Full Year 2019
Rexnord	18
Precision Castparts	4
Lockheed Martin Corp	2
Premier Placements	2
Stratasys Direct Manufacturing	2

Source: Labor Insight/Jobs (Burning Glass)

Skills

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

Exhibit 7 –Job Skills (n=52)

Skills	Job Postings, Full Year 2019
Grinders	48
Machining	31
Computer Numerical Control (CNC)	30
Lifting Ability	27
Machine Tools	25
Data Entry	24
International Traffic in Arms Regulation (ITAR)	24

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: 30% 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, 2019

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Manufacturing	40	83.3%
Professional, Scientific, and Technical Services	3	6.3%
Administrative and Support and Waste Management and Remediation Services	1	2.1%
Mining, Quarrying, and Oil and Gas Extraction	1	2.1%
Public Administration	1	2.1%

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
51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	Moderate-term on-the-job training
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	Moderate-term on-the-job training
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	Moderate-term on-the-job training
51-4035	Milling and Planing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	High school diploma or equivalent	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 6 regional completions (2020) and 158 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

2 Regional Institutions had Related Programs (2020)	6 Regional Completions (2020)	158 Annual Openings (2020)
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Source: Economic Modeling Specialists International (EMSI)

Related Programs

CIP Code	Program	Completions (2020)
48.0503	Machine Shop Technology/Assistant	5
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 Manufacturing and Industrial Technology Program (TOP: 0956.00) in the South Central Coast region for the 2017-18 academic year.

- Completers of Manufacturing and Industrial Technology programs from the 2017-2018 academic year in the South Central Coast region had a **median annual wage upon completion of \$34,802.**
- 68% of students are **employed within a year** after completing a program.
- 56% of students **attained a living wage** within a year of completion.
- Completers experienced an average of **+46%** change in earnings after exiting.
- 84% of students were **part time**, 23% **skill builders**, 35% **first-generation**, and 72% **economically disadvantaged.**

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.