

Engineering Technology

Desert/ Inland Empire Region (Riverside- San Bernardino-Ontario MSA)

Demand for Engineering Technology Occupations

Employment for the engineering technology occupational group is expected to increase by 11% through 2021 in the Inland Empire/ Desert Region. A total of nearly 14,500 job openings will be available over the five-year time frame.

Of the selected occupations, electricians had the most jobs in 2016 (7,326 jobs) and are expected to have the most job openings (5,223 total job openings) over the next five years. Electrical Power-Line Installers and Repairers is the fastest growing occupation in this group, increasing employment 19%, and is expecting to have more than 150 annual job openings over the next five years.

According to job ads, the top worksite regional cities for jobs in this occupational group were Riverside, Ontario, and Corona. The top employers were Edison International, City of Riverside, and Niagara Bottling Llc. The industry that employs the most engineering technology occupations in the two-county region is building equipment contractors.

Engineering Technology Occupations (SOC Code)	2016 Jobs	2021 Jobs	2016 - 2021 % Change (New Jobs)	2016 - 2021 Openings (New and Replacement Jobs)	Annual Openings (New and Replacement Jobs)	Age 55+ % of Occupation	Middle Skill Job?*
Electricians (47-2111)	7,326	8,350	14%	5,223	1,045	17%	Yes
Operating Engineers and Other Construction Equipment Operators (47-2073)	4,008	4,277	7%	2,505	501	26%	Yes
Industrial Machinery Mechanics (49-9041)	2,585	2,998	16%	1,581	316	28%	Yes
Electrical Power-Line Installers and Repairers (49-9051)	1,523	1,816	19%	941	188	15%	Yes
Telecommunications Line Installers and Repairers (49-9052)	1,284	1,488	16%	874	175	13%	Yes
Computer-Controlled	1,242	1,423	15%	824	165	20%	Yes

Engineering Technology Occupations (SOC Code)	2016 Jobs	2021 Jobs	2016 - 2021 % Change (New Jobs)	2016 - 2021 Openings (New and Replacement Jobs)	Annual Openings (New and Replacement Jobs)	Age 55+ % of Occupation	Middle Skill Job?*
Machine Tool Operators, Metal and Plastic (51-4011)							
Construction and Building Inspectors (47-4011)	1,163	1,245	7%	719	144	41%	Yes
Architectural and Civil Drafters (17-3011)	1,111	1,134	2%	495	99	25%	Yes
Electrical and Electronics Engineering Technicians (17-3023)	896	926	3%	416	83	27%	Yes
Electrical Engineers (17-2071)	609	672	10%	263	53	28%	No
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)	328	313	(5%)	85	28	19%	Yes
Electro-Mechanical Technicians (17-3024)	325	322	(1%)	140	28	26%	Yes
Industrial Engineering Technicians (17-3026)	305	323	6%	151	30	26%	Yes
Power Distributors and Dispatchers (51-8012)	218	208	(5%)	93	19	24%	Yes
Mechanical Engineering Technicians (17-3027)	127	139	9%	68	14	21%	Yes
TOTAL	23,049	25,632	11%	14,430	2,886	22%	

Source: EMSI 2017.4, COE

*Middle skill definition is found in Appendix A

Wages

Wages for engineering technology occupations are sorted by median earnings. The median wage and average annual earnings for each of the occupations in the engineering technology occupational group are above the MIT Living Wage estimate of \$12.10 per hour or \$25,172 annually for a single adult living in the Inland Empire/ Desert Region.

Engineering Technology Occupational Group	Hourly Earnings Range*	Median Wage*	Avg. Annual Earnings
Electrical Engineers	\$26.53 to \$62.52	\$44.55	\$92,800
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	\$25.11 to \$58.86	\$39.45	\$83,900
Construction and Building Inspectors	\$23.11 to \$59.12	\$39.15	\$82,500
Power Distributors and Dispatchers	\$32.10 to \$58.31	\$37.94	\$85,400
Electrical Power-Line Installers and Repairers	\$17.87 to \$59.55	\$34.97	\$78,500
Electrical and Electronics Engineering Technicians	\$15.95 to \$45.53	\$31.03	\$64,200
Electro-Mechanical Technicians	\$24.60 to \$46.30	\$29.73	\$69,000
Operating Engineers and Other Construction Equipment Operators	\$16.94 to \$48.06	\$28.98	\$66,200
Industrial Engineering Technicians	\$15.62 to \$44.86	\$26.14	\$58,800
Electricians	\$15.29 to \$41.78	\$25.16	\$55,400
Mechanical Engineering Technicians	\$14.86 to \$37.64	\$25.12	\$53,800
Architectural and Civil Drafters	\$13.11 to \$37.05	\$24.15	\$51,500
Telecommunications Line Installers and Repairers	\$13.84 to \$37.00	\$23.48	\$51,400
Industrial Machinery Mechanics	\$16.84 to \$36.35	\$23.38	\$52,000
Computer-Controlled Machine Tool Operators, Metal and Plastic	\$10.82 to \$28.79	\$17.01	\$38,300

Source: EMSI 2017.4

*Entry Hourly is 10th percentile wage, median is 50th percentile wage, experienced is 90th Percentile

Skills

The following table lists the top skills requested by employers from job postings across the full year 2017. The “n” represents the number of job postings available for each occupation or the number of times the skills was mentioned for each occupation during the timeframe.

Occupation	Top Skills in Job Postings (2017)
Electricians (n=295)	Electrical Work (n=259), Repair (n=220), Electrical Systems (n=103)
Electrical Engineers (n=170)	Electrical Engineering (n=95), AutoCAD (n=57), Programmable Logic Controller (PLC) Programming (n=49)
Industrial Machinery Mechanics (n=163)	Repair (n=151), Machinery (n=75), Programmable Logic Controller (PLC) Programming (n=31)
Electrical and Electronics Engineering Technicians (n=131)	Repair (n=76), Test Equipment (n=32), Schematic Diagrams (n=26)
Construction and Building Inspectors (n=81)	Inspection (n=77), Construction Inspection (n=22), Building Inspection (n=17)
Computer-Controlled Machine Tool Operators, Metal and Plastic (n=33)	Computer Numerical Control (CNC) (n=33), Computerized Numerical Control Lathes (n=12), Machine Operation (n=12)
Operating Engineers and Other Construction Equipment Operators (n=30)	Inspection (n=20), Equipment Operation (n=17), Operating Engineering (n=10)
Telecommunications Line Installers and Repairers (n=21)	Fiber Optics (n=8), Test Equipment (n=8), Machinery (n=7)
Architectural and Civil Drafters (n=21)	AutoCAD (n=21), Autodesk (n=8), Engineering Design (n=7)
Mechanical Engineering Technicians (n=19)	Repair (n=18), Wiring (n=5), Industrial Engineering Industry Expertise (n=4)
Electrical Power-Line Installers and Repairers (n=18)	Test Equipment (n=8), Machinery (n=6), Telecommunications (n=6)
Power Distributors and Dispatchers (n=7)	Repair (n=5), Power Plant Operations (n=4), Calibration (n=3)
Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (n=3)	Switches (n=3), SCADA (n=3), Circuit Breakers (n=3)
Electro-Mechanical Technicians (n=3)	Machinery (n=3), Welding (n=3), Repair (n=3)

Occupation	Top Skills in Job Postings (2017)
Industrial Engineering Technicians (n=1)	N/A

Source: Burning Glass – Labor Insights

Appendix A

Middle Skill Definition:

Note: Exceptions were made for those already categorized as such. An occupation only needed to meet one criteria.

1. All occupations listed as having some college or associate degree = Yes
2. All occupations needing an apprenticeship = Yes
3. All occupations with a Bachelor's degree with $\sim \geq 33\%$ of workers (CPS) having some college to associate degree = Yes
4. All occupations with high school or equivalent or no formal education with long-term OTJ = Yes
5. All supervisorial occupations (skills-builder qualified) = Yes
6. All occupations with high school or equivalent or no formal education with less than 5 years work experience = Yes
7. Exceptions for Bachelor's degree where there is pre-existing CCs level programs
8. Exceptions were made for occupations with high school or equivalent or no formal education with short or moderate OTJ where multiple CCs have pre-existing programs



For reference, the following table displays the lay job titles corresponding to the established standard occupational title and code as determined by O*Net

Online: <https://www.onetonline.org/>

Job Title	Corresponding Occupations from O*NET
CNC Operator	Computer-Controlled Machine Tool Operators, Metal and Plastic (51-4011)
Electrician I/II with utility company	Electricians (47-2111) Electrical and Electronics Repairers, Powerhouse, Substation, and Relay (49-2095)
Electronic Technician	Electrical and Electronic Engineering Technician (17-3023)
Electrical Engineering Technician	Electrical and Electronic Engineering Technician (17-3023)
PLC Controls Electrician	Electrical Engineers (17-2071)
Architectural and Civil Drafters	Architectural and Civil Drafters (17-3011)
Construction and Building Inspectors	Construction and Building Inspectors (47-4011)
Power Distributors and Dispatchers	Power Distributors and Dispatchers (51-8012)
Operating Engineers and Other Construction Equipment Operators	Operating Engineers and Other Construction Equipment Operators (47-2073)
Electrical Power-Line Installers and Repairers	Electrical Power-Line Installers and Repairers (49-9051)
Telecommunications Line Installers and Repairers	Telecommunications Line Installers and Repairers (49-9052)
Any manufacturing related jobs that include robotics or mechatronics	Electro-Mechanical Technicians (17-3024) Mechanical Engineering Technicians (17-3027) Industrial Engineering Technicians (17-3026) Industry Machinery Mechanics (49-9041)