

Engineering Occupation Overview

Emsi Q2 2016 Data Set

July 2016

College of San Mateo



3401 CSM Drive
San Mateo, California 94402
650.358.6880

Parameters

Occupations

23 items selected. See Appendix A for details.

Regions

Code	Description
6001	Alameda County, CA
6013	Contra Costa County, CA
6075	San Francisco County, CA
6081	San Mateo County, CA
6085	Santa Clara County, CA

Timeframe

2014 - 2021

Datarun

2016.2 - QCEW Employees

Occupation Summary for ENGR CTE

<p>91,258 Jobs (2016) 91% above National average</p>	<p>+9.9% % Change (2014-2021) Nation: +6.0%</p>	<p>\$50.73/hr Median Hourly Earnings Nation: \$37.42/hr</p>
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Growth

87,135

2014 Jobs

95,744

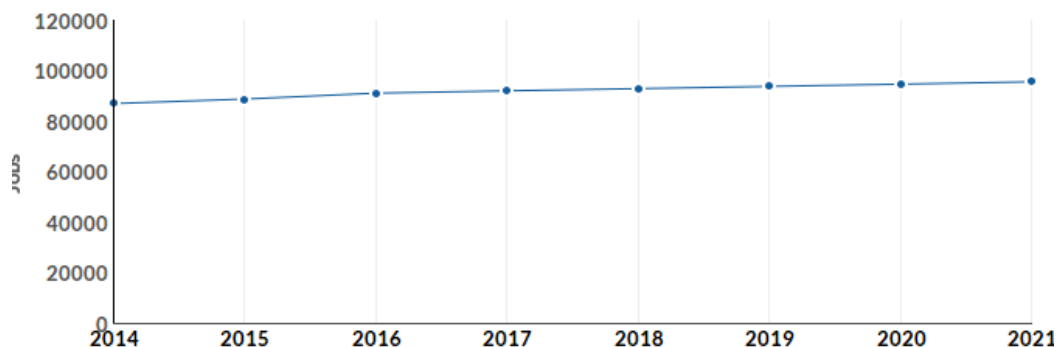
2021 Jobs

8,609

Change (2014-2021)

9.9%

% Change (2014-2021)



Occupation	2014 Jobs	2021 Jobs	Change	% Change
Surveyors (17-1022)	855	966	111	13%
Chemical Engineers (17-2041)	887	1,007	120	14%
Civil Engineers (17-2051)	9,427	10,519	1,092	12%
Computer Hardware Engineers (17-2061)	14,585	16,867	2,282	16%
Electrical Engineers (17-2071)	8,018	8,643	625	8%
Electronics Engineers, Except Computer (17-2072)	11,213	11,419	206	2%
Environmental Engineers (17-2081)	1,929	2,203	274	14%
Industrial Engineers (17-2112)	8,034	8,677	643	8%
Materials Engineers (17-2131)	838	880	42	5%
Mechanical Engineers (17-2141)	7,639	8,444	805	11%
Engineers, All Other (17-2199)	5,836	6,525	689	12%
Civil Engineering Technicians (17-3022)	1,741	1,914	173	10%
Electrical and Electronics Engineering Technicians (17-3023)	7,535	8,133	598	8%
Electro-Mechanical Technicians (17-3024)	532	580	48	9%
Environmental Engineering Technicians (17-3025)	551	630	79	14%
Industrial Engineering Technicians (17-3026)	1,223	1,357	134	11%
Mechanical Engineering Technicians (17-3027)	1,336	1,448	112	8%

Occupation	2014 Jobs	2021 Jobs	Change	% Change
Engineering Technicians, Except Drafters, All Other (17-3029)	1,842	2,043	201	11%
Surveying and Mapping Technicians (17-3031)	745	852	107	14%
Chemical Technicians (19-4031)	1,475	1,659	184	12%
Broadcast Technicians (27-4012)	523	515	-8	-2%
Sound Engineering Technicians (27-4014)	300	385	85	28%
Traffic Technicians (53-6041)	70	79	9	13%

Percentile Earnings

\$40.61/hr

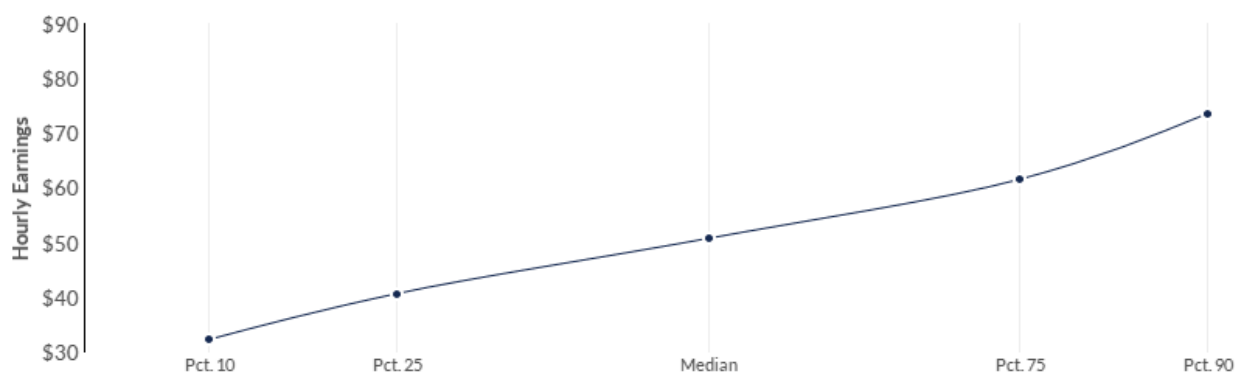
25th Percentile Earnings

\$50.73/hr

Median Earnings

\$61.55/hr

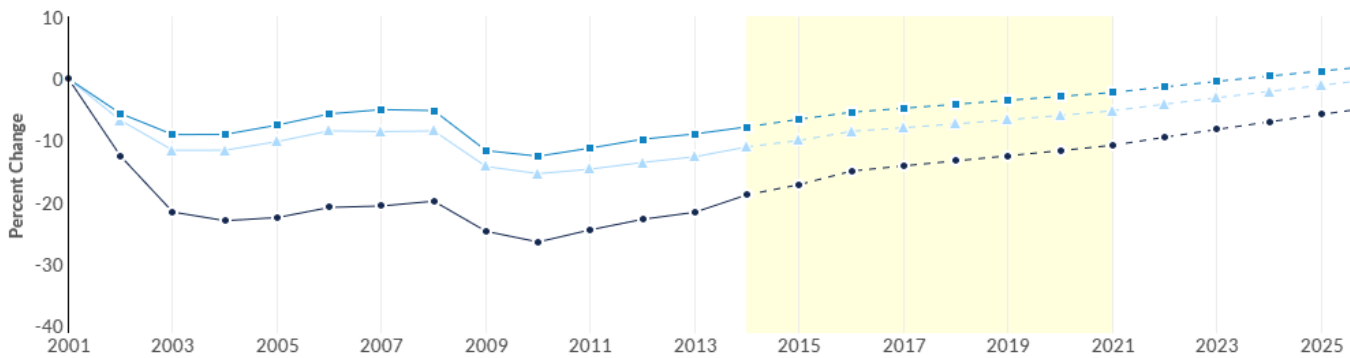
75th Percentile Earnings



Occupation	25th Percentile Earnings	Median Earnings	75th Percentile Earnings
Surveyors (17-1022)	\$36.03	\$42.46	\$49.59
Chemical Engineers (17-2041)	\$41.25	\$54.11	\$64.44
Civil Engineers (17-2051)	\$40.87	\$49.26	\$60.24
Computer Hardware Engineers (17-2061)	\$52.12	\$64.20	\$75.23
Electrical Engineers (17-2071)	\$47.16	\$59.59	\$71.20
Electronics Engineers, Except Computer (17-2072)	\$45.28	\$57.35	\$70.02
Environmental Engineers (17-2081)	\$38.20	\$48.40	\$58.23
Industrial Engineers (17-2112)	\$41.44	\$51.27	\$63.18
Materials Engineers (17-2131)	\$44.37	\$56.28	\$70.21
Mechanical Engineers (17-2141)	\$40.75	\$50.96	\$62.57
Engineers, All Other (17-2199)	\$43.37	\$56.01	\$69.27
Civil Engineering Technicians (17-3022)	\$24.66	\$29.79	\$39.49
Electrical and Electronics Engineering Technicians (17-3023)	\$25.65	\$31.52	\$38.03
Electro-Mechanical Technicians (17-3024)	\$20.70	\$26.39	\$33.13
Environmental Engineering Technicians (17-3025)	\$25.99	\$34.15	\$42.43
Industrial Engineering Technicians (17-3026)	\$22.19	\$28.21	\$36.46

Occupation	25th Percentile Earnings	Median Earnings	75th Percentile Earnings
Mechanical Engineering Technicians (17-3027)	\$23.28	\$28.74	\$35.70
Engineering Technicians, Except Drafters, All Other (17-3029)	\$26.45	\$35.32	\$45.69
Surveying and Mapping Technicians (17-3031)	\$27.68	\$33.97	\$42.33
Chemical Technicians (19-4031)	\$18.31	\$24.81	\$31.84
Broadcast Technicians (27-4012)	\$13.08	\$22.41	\$28.82
Sound Engineering Technicians (27-4014)	\$24.14	\$33.57	\$41.25
Traffic Technicians (53-6041)	\$22.12	\$29.76	\$39.09

Regional Trends



Region	2014 Jobs	2021 Jobs	Change	% Change
● Region	87,135	95,744	8,609	9.9%
■ Nation	2,036,199	2,159,225	123,026	6.0%
▲ California	274,513	292,579	18,066	6.6%

Regional Breakdown



County	2021 Jobs
Santa Clara County, CA	52,773
Alameda County, CA	17,234
San Francisco County, CA	11,927
San Mateo County, CA	7,675
Contra Costa County, CA	6,135

Job Postings Summary

8,129

Unique Postings (May 2016)
24,352 Total Postings

3 : 1

Posting Intensity (May 2016)



There were 24,352 total job postings for 23 *Occupations* in May 2016, of which 8,129 were unique. These numbers give us a Posting Intensity of 3-to-1, meaning that for every 3 postings there is 1 unique job posting.

This is lower than the Posting Intensity for all other occupations and companies in the region (5-to-1), indicating that companies may not be trying as hard to hire this position.

Occupation Gender Breakdown



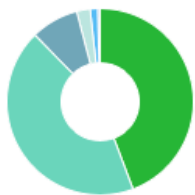
Gender	2016 Jobs	2016 Percent
● Males	77,515	84.9%
● Females	13,744	15.1%

Occupation Age Breakdown



Age	2016 Jobs	2016 Percent
14-18	85	0.1%
19-24	3,217	3.5%
25-34	17,727	19.4%
35-44	25,284	27.7%
45-54	26,134	28.6%
55-64	15,276	16.7%
65+	3,536	3.9%

Occupation Race/Ethnicity Breakdown



Race/Ethnicity	2016 Jobs	2016 Percent
White	40,405	44.3%
Asian	39,600	43.4%
Hispanic or Latino	7,544	8.3%
Black or African American	2,133	2.3%
Two or More Races	1,169	1.3%
Native Hawaiian or Other Pacific Islander	239	0.3%
American Indian or Alaska Native	168	0.2%

Occupational Programs

42 Programs (2014)	4,761 Completions (2014)	4,154 Openings (2014)
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CIP Code	Program	Completions (2014)
14.1001	Electrical and Electronics Engineering	1,166
14.0801	Civil Engineering, General	834
14.1901	Mechanical Engineering	818
15.1501	Engineering/Industrial Management	357
14.0701	Chemical Engineering	276

Industries Employing ENGR CTE

Industry	Occupation Group Jobs in Industry (2016)	% of Occupation Group in Industry (2016)	% of Total Jobs in Industry (2016)
Engineering Services	12,020	13.2%	43.4%
Electronic Computer Manufacturing	10,855	11.9%	20.5%
Semiconductor and Related Device Manufacturing	9,388	10.3%	30.7%
Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	6,306	6.9%	13.9%
Custom Computer Programming Services	3,264	3.6%	3.3%

Appendix A - Occupations

Code	Description
17-1022	Surveyors
17-2041	Chemical Engineers
17-2051	Civil Engineers
17-2061	Computer Hardware Engineers
17-2071	Electrical Engineers
17-2072	Electronics Engineers, Except Computer
17-2081	Environmental Engineers
17-2112	Industrial Engineers
17-2131	Materials Engineers
17-2141	Mechanical Engineers
17-2199	Engineers, All Other
17-3022	Civil Engineering Technicians
17-3023	Electrical and Electronics Engineering Technicians
17-3024	Electro-Mechanical Technicians
17-3025	Environmental Engineering Technicians
17-3026	Industrial Engineering Technicians
17-3027	Mechanical Engineering Technicians
17-3029	Engineering Technicians, Except Drafters, All Other
17-3031	Surveying and Mapping Technicians
19-4031	Chemical Technicians
27-4012	Broadcast Technicians
27-4014	Sound Engineering Technicians
53-6041	Traffic Technicians

Appendix B - Data Sources and Calculations

Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

Occupation Data

Emsi occupation employment data are based on final Emsi industry data and final Emsi staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level Emsi earnings by industry.

Completers Data

The completers data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Institution Data

The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

State Data Sources

This report uses state data from the following agencies: California Labor Market Information Department