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# Advanced Manufacturing Occupations

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Prepared by Center of Excellence for Labor Market Research

Los Angeles County

## Current and Future Employment

Advanced manufacturing encompasses occupations with different skill, training and education levels. This data sheet classifies these occupations into three groups: low-level training, primary, and pathway occupations.

Low-level training occupations include jobs that do not entail much training or formal education. These jobs usually require a high school diploma or equivalent, and have median hourly earnings of \$15.58. In Los Angeles County, these jobs are expected to decline by 7% over the next five years.

**Table 1 – Low-Level Training Advanced Manufacturing Occupations (by 2015 jobs)**

SOC	Description	2015 Jobs	2020 Jobs	5-Year Change	5-Year % Change	Annual Openings	Median Hourly Earnings
49-9071	Maintenance and Repair Workers, General	34,247	36,067	1,820	5%	1,044	\$19.09
51-2092	Team Assemblers	21,682	20,526	(1,156)	(5%)	353	\$12.13
51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	16,397	16,054	(343)	(2%)	381	\$17.80
51-9111	Packaging and Filling Machine Operators	12,578	12,306	(272)	(2%)	301	\$11.34
51-2099	Assemblers and Fabricators, All Other	6,183	6,214	31	1%	119	\$13.66
51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal	4,074	3,658	(416)	(10%)	33	\$12.73
51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	3,844	3,905	61	2%	125	\$17.49
51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	3,396	3,144	(252)	(7%)	90	\$13.31
51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	3,153	2,614	(539)	(17%)	33	\$11.70
51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2,815	2,454	(361)	(13%)	57	\$13.90
51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	2,651	2,398	(253)	(10%)	45	\$13.13
51-2041	Structural Metal Fabricators and Fitters	2,273	2,134	(139)	(6%)	89	\$17.48
51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	2,025	1,781	(244)	(12%)	36	\$19.25
51-9196	Paper Goods Machine Setters, Operators, and Tenders	1,760	1,381	(379)	(22%)	13	\$14.01
51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	1,750	1,670	(80)	(5%)	32	\$17.50
51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	1,460	1,233	(227)	(16%)	25	\$13.19
51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	1,248	1,156	(92)	(7%)	40	\$15.24
51-2011	Aircraft Structure, Surfaces, Rigging, and Systems Assemblers	1,096	1,159	63	6%	31	\$22.14
51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	905	830	(75)	(8%)	16	\$16.00

51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	845	755	(90)	(11%)	15	\$13.54
51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	818	834	16	2%	32	\$21.63
51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	814	736	(78)	(10%)	15	\$19.19
51-9191	Adhesive Bonding Machine Operators and Tenders	492	413	(79)	(16%)	10	\$12.98
<b>Totals</b>		<b>126,507</b>	<b>123,423</b>	<b>(3,084)</b>	<b>(7%)</b>	<b>2,936</b>	<b>\$15.58</b>

Source: EMSI Employment Data – 2015.4

Primary occupations include advanced manufacturing jobs that require more training and more education. Most of these jobs require an associate degree or other postsecondary award and more work experience. Median hourly earnings for these occupations are \$25.29. There are expected to be fewer primary occupation jobs in 2020 than there were in 2015, with a decline rate of 1%.

**Table 2 – Primary Advanced Manufacturing Occupations (by 2015 jobs)**

SOC	Description	2015 Jobs	2020 Jobs	5-Year Change	5-Year % Change	Annual Openings	Median Hourly Earnings
47-2111	Electricians	14,750	15,191	441	3%	370	\$26.36
51-4041	Machinists	9,991	10,077	86	1%	263	\$16.55
51-4121	Welders, Cutters, Solderers, and Brazers	7,599	7,304	(295)	(4%)	189	\$16.97
49-9041	Industrial Machinery Mechanics	6,607	6,805	198	3%	236	\$28.00
49-3011	Aircraft Mechanics and Service Technicians	4,718	4,828	110	2%	153	\$33.45
17-3023	Electrical and Electronics Engineering Technicians	4,126	3,983	(143)	(3%)	89	\$29.64
47-2211	Sheet Metal Workers	2,721	2,728	7	0%	58	\$27.54
49-9043	Maintenance Workers, Machinery	2,588	2,537	(51)	(2%)	37	\$18.80
17-3027	Mechanical Engineering Technicians	1,264	1,226	(38)	(3%)	27	\$28.07
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	1,258	1,211	(47)	(4%)	32	\$13.56
17-3026	Industrial Engineering Technicians	1,165	1,113	(52)	(4%)	24	\$29.12
17-3013	Mechanical Drafters	1,092	1,053	(39)	(4%)	14	\$24.12
51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	776	831	55	7%	33	\$28.96
17-3021	Aerospace Engineering and Operations Technicians	667	629	(38)	(6%)	14	\$34.98
17-3024	Electro-Mechanical Technicians	419	392	(27)	(6%)	8	\$21.12
51-8091	Chemical Plant and System Operators	303	293	(10)	(3%)	11	\$27.39
<b>Totals</b>		<b>60,044</b>	<b>60,201</b>	<b>157</b>	<b>(1%)</b>	<b>1558</b>	<b>\$25.29</b>

Source: EMSI Employment Data – 2015.4

Pathway occupations are jobs that require a four-year degree. Median hourly earnings for these occupations are \$45.94. There are expected to be 2,085 fewer jobs in 2020 than there were in 2015, which is a 3% decline.

**Table 3 – Pathway Advanced Manufacturing Occupations (by 2015 jobs)**

SOC	Description	2015 Jobs	2020 Jobs	5-Year Change	5-Year % Change	Annual Openings	Median Hourly Earnings
51-1011	First-Line Supervisors of Production and Operating Workers	17,702	16,541	(1,161)	(7%)	246	\$24.39
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	10,697	11,028	331	3%	360	\$34.19
17-2141	Mechanical Engineers	7,028	6,889	(139)	(2%)	243	\$45.03
17-2072	Electronics Engineers, Except Computer	6,738	6,587	(151)	(2%)	150	\$49.48
17-2112	Industrial Engineers	6,726	6,466	(260)	(4%)	197	\$46.83
11-9041	Architectural and Engineering Managers	6,690	6,600	(90)	(1%)	170	\$71.23
11-3051	Industrial Production Managers	5,314	4,819	(495)	(9%)	90	\$45.23
17-2071	Electrical Engineers	5,073	4,953	(120)	(2%)	114	\$51.10
<b>Totals</b>		<b>65,967</b>	<b>63,882</b>	<b>(2,085)</b>	<b>(3%)</b>	<b>1,570</b>	<b>\$45.94</b>

Source: EMSI Employment Data – 2015.4

### Top Employers and Skills for Primary Advanced Manufacturing Occupations

In 2015, there were a total of 5,305 job postings for primary advanced manufacturing jobs in Los Angeles County. Table 4 lists the top employers for these job postings within the county.

**Table 4 – Job Postings by Top Employers for Primary Advanced Manufacturing Occupations (n=5,305)**

Employers	Number of Job Postings, Full Year 2015
SpaceX	82
Northrop Grumman	79
Homeadvisor	74
CLP Resources Incorporated	36
R&E Automated Systems	32
Alcoa	29
Honeywell	26
JT3	20
Jacobs Engineering Group Incorporated	19
Gulfstream Aerospace	18
Tops	17
Parsons Brinckerhoff	16
Crane Company	15
Butler America	14
University of Southern California	14
Amtec	13
Precision Castparts	13
General Dynamics	12
Sharf Woodward & Associates Incorporated	12

Source: Burning Glass

Table 5 lists the top 20 skills mentioned in job postings for primary advanced manufacturing occupations. The most highly sought skills include repair, machining, inspection, CNC and blueprints.

**Table 5 – Top Skills by Employer Job Postings (n=5,305)**

Skills	Number of Job Postings
Repair	1,226
Machining	938
Inspection	900
Computer Numerical Control (CNC)	763
Blueprints	757
Electrical Work	631
Hand Tools	609
Welding	579
Lathes	572
Schematic Diagrams	491
Mathematics	485
Computer Aided Drafting/Design (CAD)	470
Test Equipment	365
AutoCAD	355
Machinery	322
Power Tools	311
Dimensions	295
Wiring	284
Micrometers	273
Calipers	270

Source: Burning Glass

## Educational Programs

Currently, there are 16 community colleges in Los Angeles County that prepare students for the advanced manufacturing field. In the last three years, 1,115 awards (average) have been conferred.

Table 5 displays the breakdown of program type for the related community college programs.

**Table 6 – Student Completions in Los Angeles County (by Program)**

Program Type	Annual 2012-2013	Annual 2013-2014	Annual 2014-2015	3-Year Average
Aeronautical and Aviation Technology-095000	98	46	16	53
Aviation Airframe Mechanics-095010	80	75	80	78
Aviation Powerplant Mechanics-095020	28	29	28	28
Computer Electronics-093410	25	55	39	40
Drafting Technology-095300	114	178	160	151
Electrical, Electronic, and Electro-Mechanical Drafting-095330	3	3	5	4
Electrical-095220	135	143	131	136
Electronics and Electric Technology-093400	247	182	185	205
Engineering Technology, General (requires Trigonometry)-092400	1	100	118	73
Industrial Electronics-093420	0	0	1	0
Industrial Systems Technology and Maintenance-094500	68	73	56	66

Laboratory Science Technology-095500	19	9	13	14
Machining and Machine Tools-095630	95	113	76	95
Manufacturing and Industrial Technology-095600	10	30	50	30
Mechanical Drafting-095340	18	26	15	20
Sheet Metal and Structural Metal-095640	8	5	6	6
Welding Technology-095650	125	83	142	117
<b>Total / Average</b>	<b>1,074</b>	<b>1,150</b>	<b>1,121</b>	<b>1,115</b>

Source: [www.datamart.cccco.edu](http://www.datamart.cccco.edu)