

## **Program Endorsement Brief: 0956/Manufacturing and Industrial Technology Metrology Mini-Certificate**

Orange County Center of Excellence, August 2019

---

### **Summary Analysis**

The Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to two middle-skill occupations: Mechanical Engineering Technicians (17-3027), and Inspectors, Testers, Sorters, Samplers, and Weighers (51-9061)], and one emerging occupation: Manufacturing Production Technicians (17-3029.09). Middle-skill occupations typically require some postsecondary education, but not a bachelor's degree.<sup>1</sup> Because Manufacturing Production Technicians is an emerging occupation, traditional labor market information for this occupation is grouped under the broader Engineering Technicians, Except Drafters, All Other (17-3029) occupation, which includes several emerging occupations. Therefore, the number of annual job openings for Manufacturing Production Technicians is likely overstated. This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with relevant occupations.

Based on the available data it appears that there is a supply gap for these middle-skill occupations in the region. **Therefore, the COE endorses this proposed program for the following reasons:**

#### **Demand:**

- Over the next five years, there is projected to be **3,037 jobs available annually** in the region due to retirements and workers leaving the field, **which is more than the 55 awards conferred annually** by community colleges in the region.
- However, the engineering technicians, except drafters, all other (17-3029) SOC code includes a variety of emerging occupations, including mechanical engineering technologists and manufacturing production technicians. Since the SOC code does not solely represent metrology-focused occupations, **the number of annual job openings is likely overstated.**

#### **Supply:**

- **Ten educational institutions in Los Angeles/Orange County, all of which are community colleges,** have programs related to manufacturing and industrial technology, conferring an average of **55 awards annually** between 2015 and 2018.

### **Occupational Demand**

Exhibit 1 shows the five-year occupational demand projections for these middle-skill occupations related to metrology. In Los Angeles/Orange County, the number of jobs related to these

---

<sup>1</sup> The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

occupations is projected to decrease by 9% through 2023. However, due to retirements and workers leaving the field, there will be more than 3,100 job openings per year through 2023. It is important to note that the engineering technicians, except drafters, all other (17-3029) SOC code includes a variety of emerging occupations, including manufacturing production technicians, as well as other engineering occupations. Since the SOC code does not solely represent metrology-focused occupations, the data in Exhibit 1 is likely overstated.

**Exhibit 1: Occupational demand in Los Angeles and Orange Counties<sup>2</sup>**

| Geography    | 2018 Jobs     | 2023 Jobs     | 2018-2023 Change | 2018-2023 % Change | Annual Openings |
|--------------|---------------|---------------|------------------|--------------------|-----------------|
| Los Angeles  | 19,445        | 17,344        | (2,101)          | (11%)              | 10,483          |
| Orange       | 9,570         | 9,156         | (414)            | (4%)               | 1,067           |
| <b>Total</b> | <b>29,015</b> | <b>26,500</b> | <b>(2,515)</b>   | <b>(9%)</b>        | <b>3,164</b>    |

**Wages**—Typical entry-level hourly wages for middle-skill occupations related to metrology throughout the region are between \$14.56 and \$24.50.<sup>3</sup> Typical entry-level wages for two occupations (engineering technicians, except drafters, all other; and mechanical engineering technicians) are higher than the California Family Needs Calculator hourly wages for one adult in the region (\$15.04 in Los Angeles County and \$17.36 in Orange County). Inspectors, testers, sorters, samplers, and weighers have typical entry-level wages of \$14.56 per hour, which is lower than the California Family Needs Calculator hourly wages in both counties. Regional average wages are below the average statewide wage of \$24.40 for these occupations. Wage information, by county, is included in Appendix A.

**Job Postings**—There were 7,802 online middle-skill job postings related to metrology listed in the past 12 months. The majority of job postings were for: quality inspector, quality control inspector, manufacturing technician, production technician and quality control technician. Top specialized skills were: quality assurance and control, micrometers, quality management, calipers and repair. The top three employers, by number of job postings, in the region were: Arconic, Northrop Grumman, and Danaher Corporation. Of the 7,802 online job postings, 51% listed a minimum education requirement.

**Educational Attainment**—The Bureau of Labor Statistics (BLS) lists a high school diploma as the typical entry-level education required for inspectors, testers, sorters, samplers, and weighers; and an associate degree for mechanical engineering technicians, and engineering technicians, except drafters, all other. The national-level educational attainment data indicates that between 37.8% and 53.1% of workers in the field have completed some college or an associate degree. Of the 51% of job postings listing a minimum education requirement in Los Angeles/Orange County, 87% (3,471) requested a high school diploma or vocational training and 13% (520) requested an associate degree.

## Supply

**Community College Supply**—Exhibit 2 shows the three-year average number of awards conferred by community colleges in the related TOP code: Manufacturing and Industrial

<sup>2</sup> Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

<sup>3</sup> Entry-level wage is defined as the 25<sup>th</sup> percentile hourly wage. Wages for experienced workers are defined as the 75<sup>th</sup> percentile hourly wage.

Technology (0956.00). Over the past three years, Orange Coast had the most completions in the region. There are no colleges in the region that have recently conferred an award in Industrial Quality Control (0956.80). Between July 2018 and June 2019, there were three other related program recommendation requests from regional community colleges. Between 2013 and 2016, there were zero non-community college institutions that conferred awards in related training programs.

**Exhibit 2: Regional community college awards (certificates and degrees), 2015-2018**

| TOP Code                | Program                                 | College         | 2015-16 Awards | 2016-17 Awards | 2017-18 Awards | 3-Year Award Average |
|-------------------------|---|-----------------|----------------|----------------|----------------|----------------------|
| 0956.00                 | Manufacturing and Industrial Technology | Cerritos        | 4              | 3              | 6              | 4                    |
|                         |   | Compton         | -              | -              | 2              | 2                    |
|                         |   | El Camino       | 1              | 3              | 3              | 2                    |
|                         |   | Fullerton       | 10             | 3              | 11             | 8                    |
|                         |   | Irvine          | 9              | 7              | 1              | 6                    |
|                         |   | LA Valley       | 3              | 4              | 2              | 3                    |
|                         |   | Mt San Antonio  | 12             | 19             | 9              | 13                   |
|                         |   | Saddleback      | 6              | 5              | 9              | 7                    |
|                         |   | Santa Ana       | 4              | 0              | 1              | 2                    |
|                         |   | Santiago Canyon | -              | -              | 27             | 27                   |
| <b>Subtotal/Average</b> |   |                 | <b>49</b>      | <b>44</b>      | <b>71</b>      | <b>55</b>            |

**Appendix A: Occupational demand and wage data by county**

**Exhibit 4 Los Angeles County**

| Occupation (SOC)   | 2018 Jobs     | 2023 Jobs     | 5-Yr Change    | 5-Yr % Change | Annual Openings | Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile) | Median Hourly Earnings | Experienced Hourly Earnings (75 <sup>th</sup> Percentile) |
|--|---------------|---------------|----------------|---------------|-----------------|---|------------------------|---|
| Inspectors, Testers, Sorters, Samplers, and Weighers (51-9061) | 16,564        | 14,574        | (1,990)        | (12%)         | 1,856           | \$14.46   | \$19.05                | \$26.02   |
| Engineering Technicians, Except Drafters, All Other (17-3029)  | 1,939         | 1,876         | (63)           | (3%)          | 163             | \$24.47   | \$32.04                | \$41.59   |
| Mechanical Engineering Technicians (17-3027)                   | 942           | 894           | (48)           | (5%)          | 78              | \$23.04   | \$30.21                | \$37.31   |
|  | <b>19,445</b> | <b>17,344</b> | <b>(2,101)</b> | <b>(11%)</b>  | <b>2,097</b>    |   |                        |   |

**Exhibit 5. Orange County**

| <b>Occupation (SOC)</b>  | <b>2018 Jobs</b> | <b>2023 Jobs</b> | <b>5-Yr Change</b> | <b>5-Yr % Change</b> | <b>Annual Openings</b> | <b>Entry-Level Hourly Earnings (25<sup>th</sup> Percentile)</b> | <b>Median Hourly Earnings</b> | <b>Experienced Hourly Earnings (75<sup>th</sup> Percentile)</b> |
|--|------------------|------------------|--------------------|----------------------|------------------------|---|-------------------------------|---|
| Inspectors, Testers, Sorters, Samplers, and Weighers (51-9061) | 8,011            | 7,568            | (443)              | (6%)                 | 927                    | \$14.77   | \$19.43                       | \$26.52   |
| Engineering Technicians, Except Drafters, All Other (17-3029)  | 1,008            | 1,032            | 24                 | 2%                   | 92                     | \$24.56   | \$32.11                       | \$41.65   |
| Mechanical Engineering Technicians (17-3027)                   | 552              | 555              | 3                  | 1%                   | 48                     | \$23.39   | \$30.58                       | \$37.69   |
| <b>Total</b>   | <b>9,570</b>     | <b>9,156</b>     | <b>(414)</b>       | <b>(4%)</b>          | <b>1,067</b>           |   |                               |   |

**Exhibit 6. Los Angeles and Orange Counties**

| <b>Occupation (SOC)</b>  | <b>2018 Jobs</b> | <b>2023 Jobs</b> | <b>5-Yr Change</b> | <b>5-Yr % Change</b> | <b>Annual Openings</b> | <b>Entry-Level Hourly Earnings (25<sup>th</sup> Percentile)</b> | <b>Median Hourly Earnings</b> | <b>Experienced Hourly Earnings (75<sup>th</sup> Percentile)</b> |
|--|------------------|------------------|--------------------|----------------------|------------------------|---|-------------------------------|---|
| Inspectors, Testers, Sorters, Samplers, and Weighers (51-9061) | 24,575           | 22,142           | (2,433)            | (10%)                | 2,783                  | \$14.56   | \$19.17                       | \$26.18   |
| Engineering Technicians, Except Drafters, All Other (17-3029)  | 2,946            | 2,908            | (38)               | (1%)                 | 254                    | \$24.50   | \$32.06                       | \$41.61   |
| Mechanical Engineering Technicians (17-3027)                   | 1,494            | 1,449            | (45)               | (3%)                 | 127                    | \$23.17   | \$30.34                       | \$37.45   |
| <b>Total</b>   | <b>29,015</b>    | <b>26,500</b>    | <b>(2,515)</b>     | <b>(9%)</b>          | <b>3,164</b>           |   |                               |   |

## Appendix B: Sources

- O\*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (EMSI)
- Employment Development Department, Labor Market Information Division, OES
- Employment Development Department, Unemployment Insurance Dataset
- Integrated Postsecondary Education Data System (IPEDS)
- Living Insight Center for Community Economic Development
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor's Office Curriculum Inventory (COCI 2.0)

For more information, please contact:

Jesse Crete, Director  
Center of Excellence, Orange County  
[crete\\_jesse@rsccd.edu](mailto:crete_jesse@rsccd.edu)

August 2019

