










Industrial Systems Technology Occupations

Labor Market Analysis: Imperial County

August 2022

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
 <p>Proceed with New Program</p>	 	 	<ul style="list-style-type: none"> <input type="checkbox"/> Bachelor's Degree+ <input checked="" type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate <input type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship
SUPPORT FOR PROGRAM MODIFICATION?	NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING	NUMBER OF ANNUAL JOB OPENINGS	
 	<p style="text-align: center;">MEDIUM</p> 	<p style="text-align: center;">HIGH</p> 	

This brief provides labor market information about *Industrial Systems Technology Occupations* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. *Industrial Systems Technology Occupations* include “Chemical Technicians,” “General and Operations Managers,” “Industrial Engineering Technologists and Technicians,” and “Project Management Specialists.” According to available labor market information, *Industrial Systems Technology Occupations* in Imperial County have a labor market demand of 88 annual job openings (while average demand for a single occupation in Imperial County is 12 annual job openings), and one institution supplies 26 awards for these occupations, suggesting that there is a supply gap in the labor market. Entry-level and median wages are above the living wage. This brief recommends proceeding with developing a new program and supports a program modification because 1) there is a supply gap in the region; and 2) entry-level and median wages are above the living wage. Colleges should note, according to traditional labor market information, half of these occupations require an associate degree and the other half require a bachelor’s degree. Based on online job postings, 69% of employers requested high school or vocational training, 23% requested a bachelor’s degree, and 7% requested an associate degree for these occupations.

Introduction

This report provides labor market information in Imperial County for the following occupational codes in the Standard Occupational Classification (SOC)¹ system:

- **Chemical Technicians** (SOC 19-4031): Conduct chemical and physical laboratory tests to assist scientists in making qualitative and quantitative analyses of solids, liquids, and gaseous materials for research and development of new products or processes, quality control, maintenance of environmental standards, and other work involving experimental, theoretical, or practical application of chemistry and related sciences.
- **General and Operations Managers** (SOC 11-1021): Plan, direct, or coordinate the operations of public or private sector organizations, overseeing multiple departments or locations. Duties and responsibilities include formulating policies, managing daily operations, and planning the use of materials and human resources, but are too diverse and general in nature to be classified in any one functional area of management or administration, such as personnel, purchasing, or administrative services. Usually manage through subordinate supervisors.
- **Industrial Engineering Technologists and Technicians** (SOC 17-3026): Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May perform time and motion studies on worker operations in a variety of industries for purposes such as establishing standard production rates or improving efficiency.
- **Project Management Specialists** (SOC 13-1082): Analyze and coordinate the schedule, timeline, procurement, staffing, and budget of a product or service on a per project basis. Lead and guide the work of technical staff. May serve as a point of contact for the client or customer.

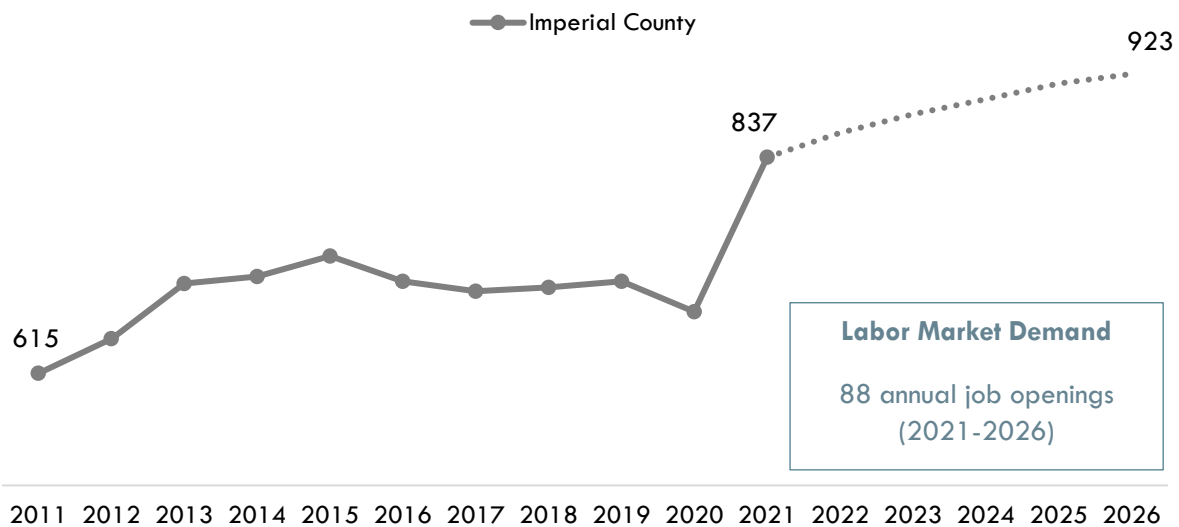
For the purpose of this report, these occupations are referred to as *Industrial Systems Technology Occupations*.

¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating, or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

Projected Occupational Demand

Between 2021 and 2026, *Industrial Systems Technology Occupations* are projected to increase by 86 net jobs or 10 percent (Exhibit 1a). Employers in Imperial County will need to hire 88 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1a: Number of Jobs for Industrial Systems Technology Occupations (2011-2026)²



"N/A" indicates insufficient data

Exhibit 1b disaggregates the projected number of jobs change by occupation. "General and Operations Managers" are projected to have the most labor market demand between 2021 and 2026, with 77 annual job openings.

Exhibit 1b: Number of Jobs for Industrial Systems Technology Occupations in Imperial County (2021-2026)³

Occupational Title	2021 Jobs	2026 Jobs	2021 - 2026 Net Jobs Change	2021-2026 % Net Jobs Change	Annual Job Openings (Demand)
General and Operations Managers	722	797	75	10%	77
Project Management Specialists	110	118	8	7%	10
Chemical Technicians	4	6	2	50%	1
Industrial Engineering Technologists and Technicians	1	2	1	100%	0
Total	837	923	86	10%	88

² EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

³ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

Earnings

Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Industrial Systems Technology Occupations* range from \$28.62 to \$28.89.

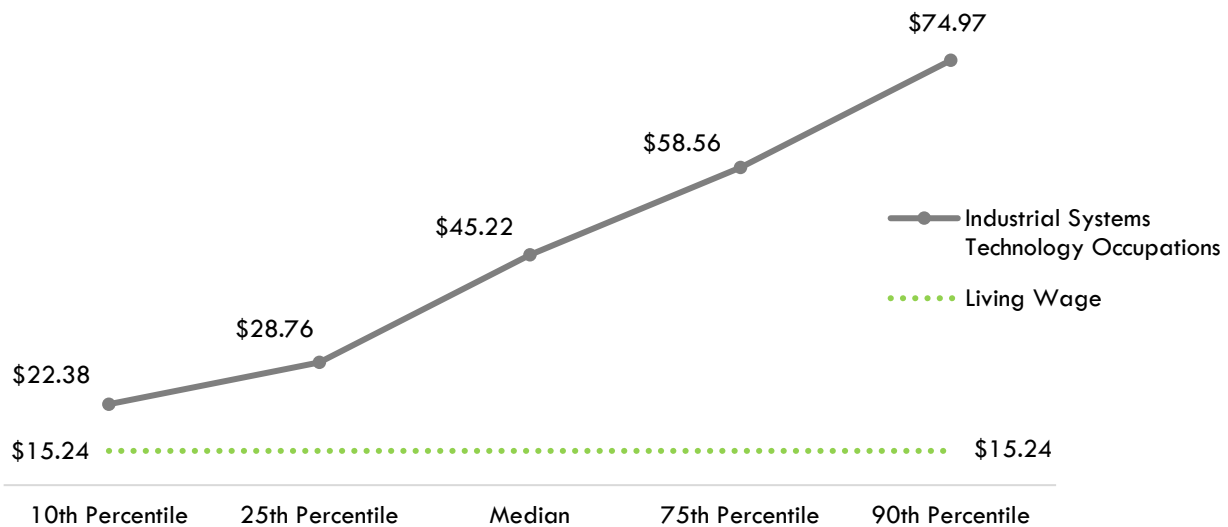
Exhibit 2a: Hourly Earnings for *Industrial Systems Technology Occupations* in Imperial County⁴

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Project Management Specialists	\$28.89	\$45.08	\$54.60
General and Operations Managers	\$28.62	\$45.36	\$62.52
Chemical Technicians	N/A	N/A	N/A
Industrial Engineering Technologists and Technicians	N/A	N/A	N/A

"N/A" indicates insufficient data

On average, the entry-level hourly earnings for *Industrial Systems Technology Occupations* are \$28.76; this is more than the living wage for a household of two adults and two school-age children in Imperial County, which is \$15.24 per hour (Exhibit 2b).⁵

Exhibit 2b: Average Hourly Earnings⁶ for *Industrial Systems Technology Occupations* in Imperial County⁷



⁴ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

⁵ "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. insightccd.org/family-needs-calculator/.

⁶ 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

⁷ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁸ There are seven TOP codes and 13 CIP codes related to *Industrial Systems Technology Occupations* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for *Industrial Systems Technology Occupations*⁹

TOP or CIP Code	TOP or CIP Program Title
TOP 0501.00	Business and Commerce, General
TOP 0506.00	Business Management
TOP 0934.20	Industrial Electronics
TOP 0945.00	Industrial Systems Technology and Maintenance
TOP 0954.00	Chemical Technology
TOP 0955.00	Laboratory Science Technology
TOP 0956.00	Manufacturing and Industrial Technology
CIP 15.0405	Robotics Technology/Technician
CIP 15.0611	Metallurgical Technology/Technician
CIP 15.0612	Industrial Technology/Technician
CIP 15.0613	Manufacturing Engineering Technology/Technician
CIP 15.0805	Mechanical/Mechanical Engineering Technology/Technician
CIP 15.1307	3-D Modeling and Design Technology/Technician
CIP 30.7102	Business Analytics
CIP 41.0301	Chemical Technology/Technician
CIP 47.0105	Industrial Electronics Technology/Technician
CIP 47.0303	Industrial Mechanics and Maintenance Technology/Technician
CIP 50.0404	Industrial and Product Design
CIP 52.0101	Business/Commerce, General
CIP 52.0201	Business Administration and Management, General

⁸ TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

⁹ This brief uses a conservative estimate of program supply and only calculates awards from the TOP codes in Exhibit 3.

According to TOP data, **one** community college supplies the region with awards for these occupations, **Imperial Valley College**. According to CIP data, **no** non-community-college institution supplies the region with awards (Exhibit 4).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Year 2016-17 through PY2019-20 Average)**

TOP or CIP Code	TOP or CIP Program Title	3-Yr Annual Average CC Awards (PY17-18 to PY19-20)	Other Educational Institutions 3-Yr Annual Average Awards (PY16-17 to PY18-19)	3-Yr Total Average Supply (PY16-17 to PY19-20)
0506.00	Business Management	25	0	25
	• Imperial Valley	25	0	
0934.20	Industrial Electronics	1	0	1
	• Imperial Valley	1	0	
Total				26

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply¹⁰ suggests that there is a **supply gap** for these occupations in Imperial County, with **88** annual openings and **26** awards. Comparatively, there are **37,547** annual openings in California and **46,442** awards, suggesting that there is an oversupply across the state¹¹ (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
Imperial	88	26	62
California	37,547	46,442	8,895

¹⁰ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

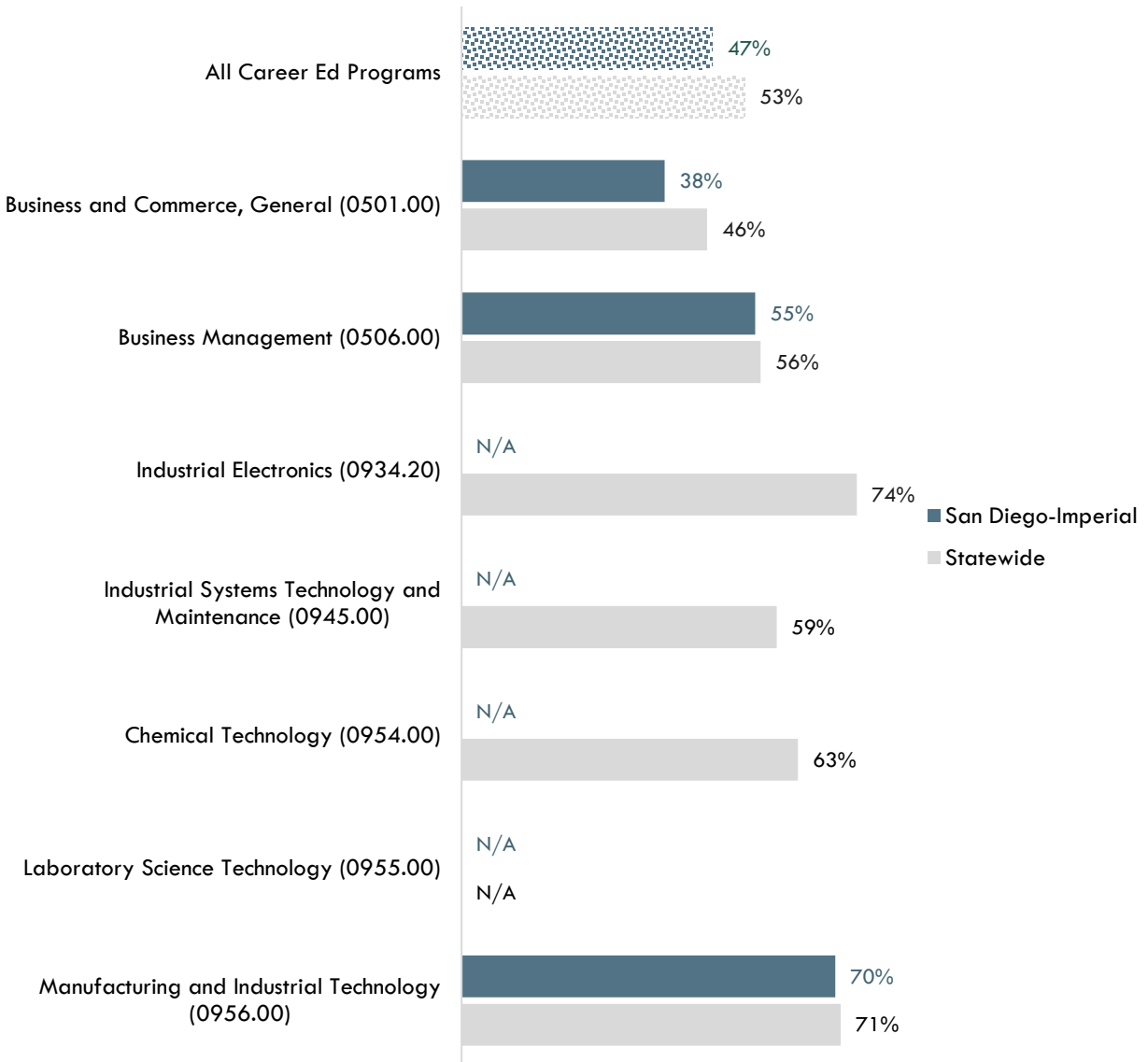
¹¹ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 38 to 70 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Industrial Systems Technology Occupations*, compared to 46 to 74 percent statewide and 53 percent of students in Career Education programs in general across the state (Exhibit 6a).¹²

Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program, PY2018-19¹³



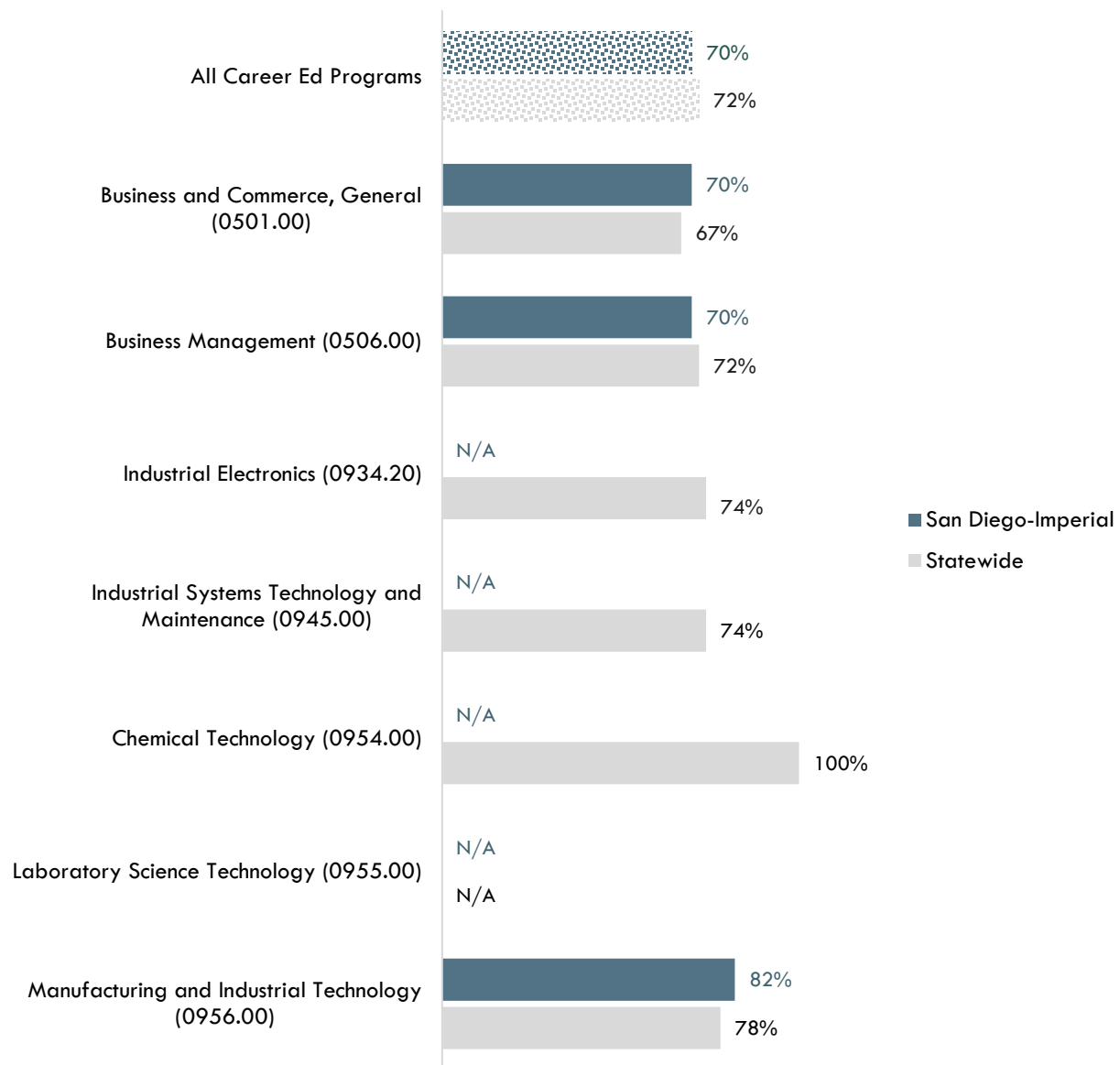
"N/A" indicates insufficient data

¹² "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹³ Among completers and skills builders who exited, the proportion of students who attained a living wage.

According to the California Community Colleges LaunchBoard, 70 to 82 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a program related to *Industrial Systems Technology Occupations*, compared to 67 to 100 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).¹⁴

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2017-18¹⁵



"N/A" indicates insufficient data

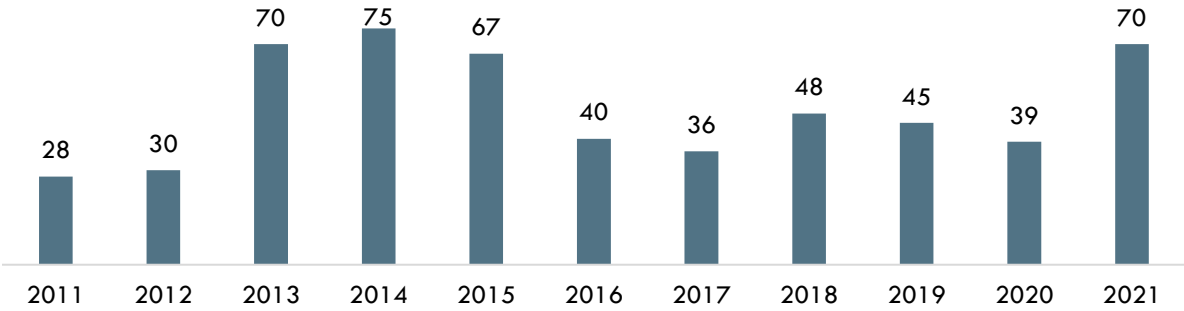
¹⁴ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹⁵ Most recent year with available data is Program Year 2017-18. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2011 and 2021, there was an average of 50 online job postings per year for *Industrial Systems Technology Occupations* in Imperial County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1 b). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 7: Number of Online Job Postings for *Industrial Systems Technology Occupations* in Imperial County (2011-2021)¹⁶



Top Employers

Between January 1, 2019 and December 31, 2021, the top five employers in Imperial County for *Industrial Systems Technology Occupations* were [Love's Travel Stops](#), [Conam Incorporated](#), [Dollar Tree](#), [Target](#), and [Heber Elementary](#) based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for *Industrial Systems Technology Occupations* in Imperial County¹⁷

Top Employers	
<ul style="list-style-type: none"> • Love's Travel Stops • Conam Incorporated • Dollar Tree • Target • Heber Elementary 	<ul style="list-style-type: none"> • Ormat Technologies Incorporated • Midamerican Energy • Grifols • Commander • Advanced Technology Services

¹⁶ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2011-2021.

¹⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2019-2021.

Education, Skills, and Certifications

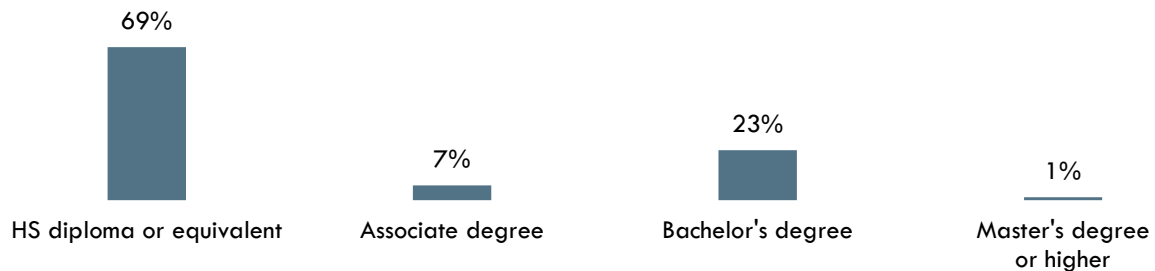
Industrial Systems Technology Occupations have a national educational attainment ranging from an associate degree to a bachelor's degree (Exhibit 9a).

Exhibit 9a: National Educational Attainment for *Industrial Systems Technology Occupations*¹⁸

Occupational Title	Typical Entry-Level Education
General and Operations Managers	Bachelor's degree
Project Management Specialists	Bachelor's degree
Chemical Technicians	Associate degree
Industrial Engineering Technologists and Technicians	Associate degree

Based on online job postings between January 1, 2019 and December 31, 2021 in Imperial County, employers posted a [high school diploma or equivalent](#) as the educational requirement for *Industrial Systems Technology Occupations* (Exhibit 9b).¹⁹

Exhibit 9b: Educational Requirements for *Industrial Systems Technology Occupations* in Imperial County²⁰



¹⁸ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

¹⁹ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2019-2021.

²⁰ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified April 9, 2021. bls.gov/emp/tables/educational-attainment.htm.

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2019 and December 31, 2021.

Exhibit 10: Top Skills for Industrial Systems Technology Occupations in Imperial County²¹

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Repair • Budgeting • Scheduling • Operations Management • Cleaning • Supervisory Skills • Lifting Ability • Store Management • Predictive / Preventative Maintenance • Occupational Health and Safety • Retail Industry Knowledge • Merchandising • Staff Management • Welding • Quality Assurance and Control 	<ul style="list-style-type: none"> • Communication Skills • Computer Literacy • Physical Abilities • Writing • Preventive Maintenance • Troubleshooting • Planning • Problem Solving • Written Communication • English • Building Effective Relationships • Leadership • Prioritizing Tasks • Teamwork / Collaboration • Listening 	<ul style="list-style-type: none"> • Microsoft Excel • Microsoft Word • Microsoft Office • Microsoft PowerPoint • Word Processing • Yardi Software • Microsoft Outlook • Microsoft Project • Vulnerability assessment • Enterprise Resource Planning (ERP) • Active Server Pages (ASP)

²¹ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2019-2021.

Exhibit 11 lists the top certification that appeared in online job postings between January 1, 2019 and December 31, 2021.

Exhibit 11: Top Certification for *Industrial Systems Technology Occupations* in Imperial County²²

Top Certification in Online Job Postings

1. First Aid CPR AED
 2. Air Brake Certified
 3. Security Clearance
 4. ServSafe
 5. Project Management Certification
 6. OSHA Forklift Certification
 7. Medical Specialist
 8. Master Project Management
 9. Heavy Truck
 10. Gaming & Vending Technician (GVT)
 11. Financial Risk Manager (FRM)
 12. Cisco Certified Network Associate (CCNA)
 13. Certified Financial Planner (CFP)
 14. Certified Energy Manager
 15. Certified Control Systems Technician (CCST)
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²² Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2019-2021.

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Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; 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 the report 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.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.