

Labor Market Analysis for: 0936.00 Printing and Lithography

Inland Empire/Desert Center of Excellence, Dec 2024

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Summary

Program LMI Endorsement	All LMI Criteria Met	Some LMI Criteria Met (Proceed with Caution)	LMI Criteria NOT Met
	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Program LMI Endorsement Criteria		
Supply Gap	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments: There is projected to be 488 annual job openings throughout the Inland Empire/Desert region, which is more than the 0 annual average awards conferred by educational institutions over the last 3 years. Supply data includes both community college awards (0) and non-community college awards (0).</i>	
Living Wage	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
	<i>Comments: None (0%) of the annual job openings for these six occupations have entry-level hourly wages above the IE/D living wage of \$20.42.¹</i>	
Education	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<i>Comments: Most job postings for target occupations require a high school diploma or equivalent or associate degree (66%). See Exhibits 8 and 9 for more details.</i>	

The Inland Empire/ Desert (IE/D) Center of Excellence for Labor Market Research (IE/D COE) reviewed the following occupations to prepare this report:

- Below Middle-Skill (typically require training/education at or below a HS diploma)
 - Printing Press Operators (51-5112)
 - Data Entry Keyers (43-9021)
 - Textile, Apparel, and Furnishings Workers, All Other (51-6099)
- Middle-Skill (typically require training/education above a HS diploma but less than a bachelor's degree)
 - Desktop Publishers (43-9031)
 - Prepress Technicians and Workers (51-5111)
- Above Middle-Skill (typically require training/education at or above a bachelor's degree)
 - Graphic Designers (27-1024)

Summary of findings

Demand

- The number of jobs related to the middle-skill occupations is projected to decrease through 2028, with 488 annual job openings (new and replacement jobs).
- Hourly entry-level wages for all occupations are below living wage at the 25th percentile hourly wage ranging from \$17.09 to \$20.33 in IE/D.
- There were 576 online job postings from 180 employers over the past 12 months with the highest postings for data entry clerks and data entry specialists.
- Most job postings for target occupations require a high school diploma or equivalent (46%), followed by a bachelor's degree (33%), associate degree (20%), and above a bachelor's degree (1%).

Supply

- On average, there were 0 annual awards conferred by educational institutions over the last 3 years in related fields: 0 from community colleges and 0 from other institutions (e.g., 4-year universities, private schools).
- IE/D community college students that exited these programs in the 2021-22 academic year earned a median annual wage of \$17,836 (\$8.58 per hour).
- In California, 43% of students that exited their program in 2021-22 reported that they are working in a job closely related to their field of study. However, there was insufficient data to determine this data point for IE/D students in the most recent academic year available.

¹ The [UW self-sufficiency standard](#) is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is \$26.30 in Riverside County and \$25.17 in San Bernadino County.

- Community college programs play an important role diversifying the talent pipeline in these occupations. Most IE/D professionals in printing occupations are Hispanic/Latino or White (80%), “mid-career” or “late career” age category (67%), and female (53%). Most community college students in related programs are Hispanic/Latino (74%), “pre-career/college” age category (100%), and male (58%).

Introduction

California Community College Printing and Lithography (TOP 0936.00) programs prepare students for employment in the printing or reproduction of materials, including forms, newspapers, publications, and brochures; computerized pre-print applications, press operations, camera and stripping, and bindery and finish work are included (Taxonomy of Programs, 2023). The knowledge, skills, and abilities trained by Printing and Lithography programs lead to employment in occupations related to printing.

Job Demand

In 2023, there were 4,821 jobs in occupations related to printing in the IE/D region. Regional employment for this occupation group is projected to decrease by -1% through 2028 with 488 job openings projected annually. Exhibit 1 displays the job count, five-year projected job growth, and job openings in the region.

Exhibit 1. Five-year projections for occupations related to printing, IE/D Region, 2023-2028

Occupation	SOC	2023 Jobs	2028 Jobs	2023 - 2028 % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Graphic Designers	27-1024	2,410	2,502	4%	1,085	217
Data Entry Keyers	43-9021	1,073	1,063	-1%	639	128
Desktop Publishers	43-9031	39	39	-1%	22	4
Prepress Technicians and Workers	51-5111	143	133	-7%	86	17
Printing Press Operators	51-5112	1,029	996	-3%	537	107
Textile, Apparel, and Furnishings Workers, All Other	51-6099	127	127	0%	74	15
Total		4,821	4,860	-1%	2,442	488

SOURCE: LIGHTCAST 2024.3

Job Postings

The following analysis for occupations related to printing using online job posting data.

Important note: The data produced in this section were generated by leveraging online job posting data sourced from Lightcast, which is the labor market analytics software tool COEs use to produce these briefs. The job posting data is collected from scraping online job boards such as LinkedIn, Indeed, Glassdoor and many others. The process Lightcast uses to assemble this data does have some limitations due to methods that recruitment professionals sometimes use (e.g., posting one job to fill multiple positions). For example, the number of jobs posted is not necessarily the same as the number of job vacancies.² While not perfect, Lightcast leverages machine learning and other AI technologies to enrich, deduplicate and aggregate this information to make it a meaningful dataset.

Exhibit 2 displays the number of job ads posted for occupations related to printing over the last 12 months and the median posting duration. Over the previous 12 months, there were 576 unique job postings for occupations related to printing in the region from 291 employers.

Exhibit 2. Job ads and posting duration, IE/D Region, Dec 2023 – Nov 2024

Job Title	Job Ads	Median Posting Duration
Graphic Designers	246	26 days
Data Entry Keyers	238	20 days
Printing Press Operators	70	29 days
Prepress Technicians and Workers	21	25 days
Desktop Publishers	1	
Total	576	

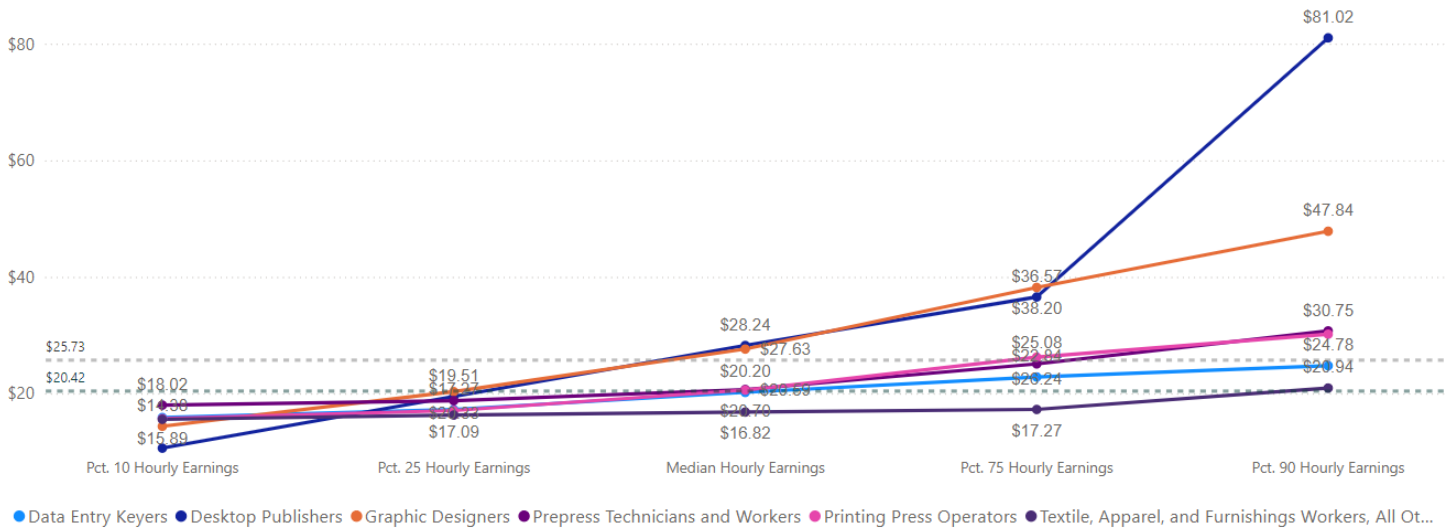
SOURCE: LIGHTCAST 2024.3

² "Job Posting Analytics (JPA) Methodology," Lightcast Knowledge Base, <https://kb.lightcast.io/en/articles/6957446-job-posting-analytics-jpa-methodology>

Earnings

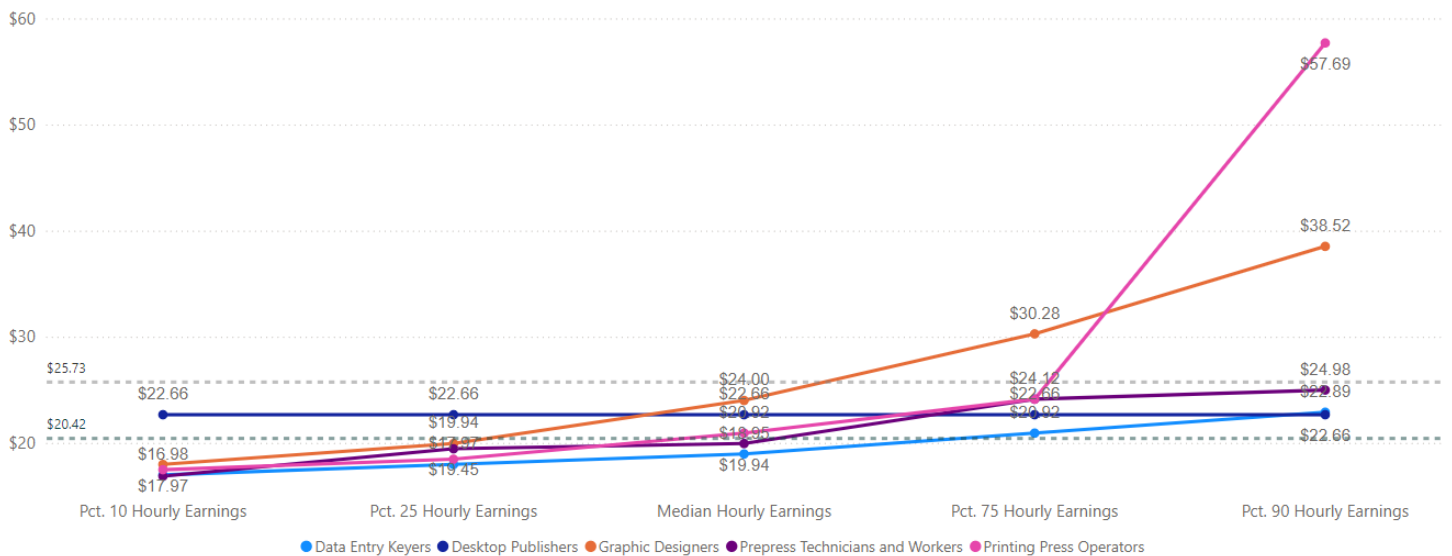
Exhibit 3a displays the hourly earnings for occupations related to printing and Exhibit 3b displays the hourly earnings for job postings of the same occupations and compares both to the UW Self-Sufficiency Standard for the IE/D³ and the MIT IE/D living wage of \$25.73.⁴ The living wage criteria is determined by using the data in Exhibit 3a but Exhibit 3b is also shown to provide regional context using job posting data.

Exhibit 3a. Projected hourly earnings by percentile, IE/D Region, 2023



SOURCE: LIGHTCAST 2024.3

Exhibit 3b. Hourly earnings of job postings by percentile, IE/D Region, Dec 2023 – Nov 2024



SOURCE: LIGHTCAST 2024.3

The projected entry-level earnings (that is, the earnings of the lowest paid 25% of employees in the IE/D) were below the UW Self-Sufficiency Standard for the IE/D (see Exhibit 3a). The occupations listed were also below the MIT living wage for an adult with no children (\$25.73) in projected entry-level earnings (see Exhibit 3a).

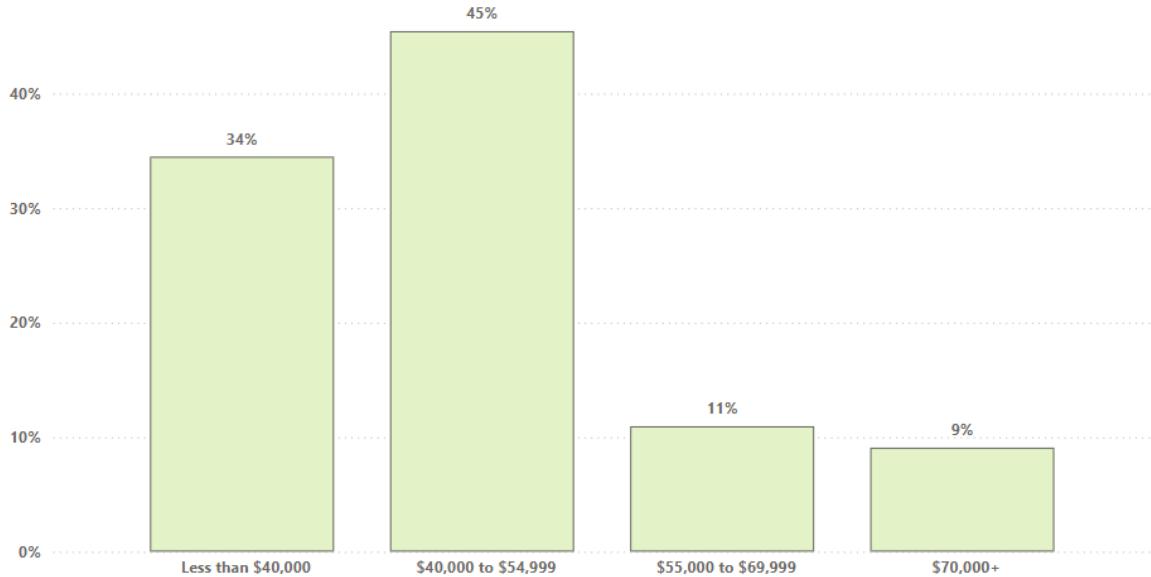
³ The UW self-sufficiency standard is currently used by the CCCO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is \$26.30 in Riverside County and \$25.17 in San Bernadino County.

⁴ *ibid.*

Advertised Salary from Online Job Ads

Exhibit 4 displays the regional online advertised salaries for the occupations related to printing over the last 12 months. Online job ad salary information data suggests most employers (79%) advertise an annual salary either less than \$40,000 (\$19.23 per hour) or equal to \$40,000 to \$54,999 (\$19.23 to \$26.44 per hour).

Exhibit 4. Online advertised salaries occupations related to printing, IE/D Region, Dec 2023 – Nov 2024



SOURCE: LIGHTCAST 2024.3

Online Job Advertisements: top job titles, skills, education & work experience.

Exhibit 5 displays the job titles most frequently used in job postings for the occupations related to printing over the last 12 months. Assessing the top advertised job titles may provide insight into the types of positions sought by employers.

Exhibit 5. Job titles most frequently used in job ads, IE/D Region, Dec 2023 – Nov 2024











Job Title	Unique Postings
Data Entry Clerks	71
Data Entry Specialists	22
Flexographic Press Operators	10
Screen Printers	10
Screen Print Operators	9
Data Entry Operators	7
Environmental Professionals	6
Order Entry Specialists	6
Printing Press Operators	6
Camera Operators	5

SOURCE: LIGHTCAST 2024.3

Exhibit 6 displays the employers posting the most job ads for this occupational group during the last 12 months. Showing employer names can provide insight into where students may find employment after completing a program and may inform job development and other employer engagement targets for faculty and staff involved in related programs. “Circle – Data Annotation” and “Columbia Packaging Group” had the highest unique job posts for this occupational group in the last 12 months. Posting intensity is the ratio of total job posts to unique job posts which are deduplicated. A higher posting

intensity can represent the level of effort and activity the organization is putting into hiring for that position. The following report comes directly from Lightcast's Job Posting Analytics dashboard.

**Exhibit 6. Employers posting the most job ads,
IE/D Region, Dec 2023 – Nov 2024**

Company	Total/Unique (Oct 2023 - Sep 2024)	Posting Intensity	Median Posting Duration
Circle - Data Annotation	18 / 10	2 : 1 	28 days
Columbia Packaging Group	30 / 7	4 : 1 	35 days
Qai Laboratories	49 / 5	10 : 1 	4 days
Oak View Group	14 / 4	4 : 1 	n/a
Heartland Label Printers, LLC.	8 / 4	2 : 1 	12 days
Valley Business Services Group	8 / 4	2 : 1 	28 days
Simply Biotech	6 / 4	2 : 1 	11 days
Garment Decor	8 / 4	2 : 1 	13 days
Meva	15 / 4	4 : 1 	40 days
Armada Staffing	7 / 4	2 : 1 	11 days

SOURCE: LIGHTCAST 2024.3

Exhibit 7 displays the top common, specialized and computer skills that were included in the job postings over the last 12 months. Today's demand is an important indicator of which skills employers are looking for in the current market. Analyzing skills from a historical perspective as well as projecting the future needs of employers may provide insight into how the job posting skills demand compares to the market as a whole. Rapidly growing skills are those that are increasing in demand at a faster rate than the market as a whole.⁵

Exhibit 7. Top 10 in-demand skills from employer job ads, IE/D Region, Dec 2023 – Nov 2024

Common skills	Total Postings	Skill Growth Relative to Market
Communication	204	Lagging
Detail Oriented	201	Stable
Microsoft Excel	106	Growing
Customer Service	101	Stable
Multitasking	92	Growing
Organizational Skills	90	Growing
Microsoft Office	78	Growing
Management	76	Stable
Sales	75	Stable
Operations	74	Stable

Specialized skills	Total Postings	Skill Growth Relative to Market
Data Entry	225	Lagging
Graphic Design	164	Growing
Adobe Illustrator	162	Growing
Adobe Photoshop	156	Growing
Marketing	115	Rapidly Growing
Adobe InDesign	102	Growing
Adobe Creative Suite	99	Growing
Typography	58	Stable
Brand Management	43	Lagging
Branding	41	Growing

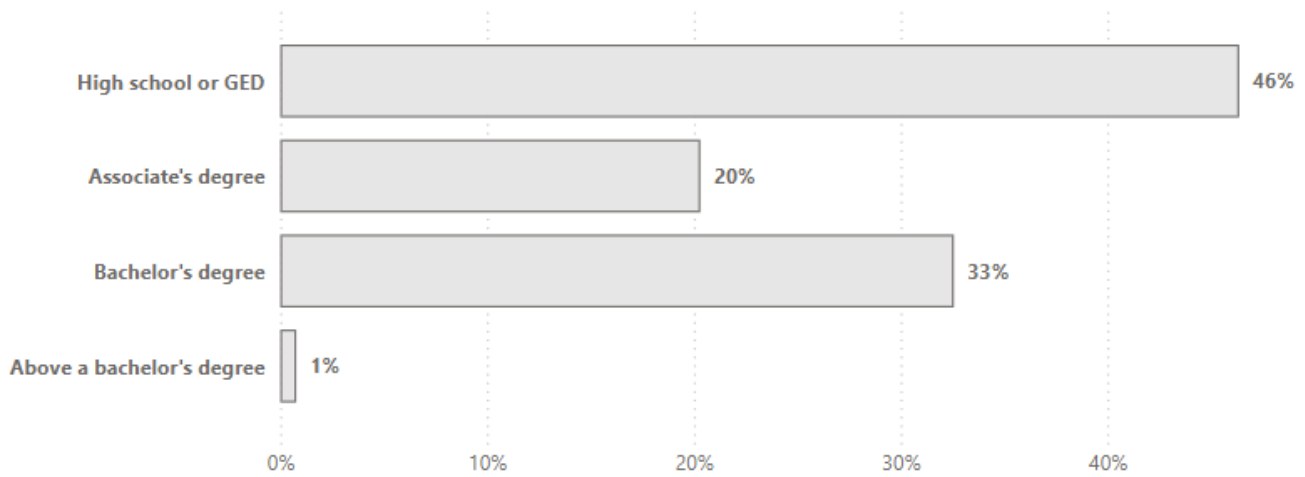
Computer Skills	Total Postings	Skill Growth Relative to Market
Adobe Illustrator	162	Growing
Adobe Photoshop	156	Growing
Microsoft Excel	106	Growing
Adobe InDesign	102	Growing
Adobe Creative Suite	99	Growing
Microsoft Office	78	Growing
Microsoft Outlook	57	Rapidly Growing
Spreadsheets	54	Rapidly Growing
Microsoft PowerPoint	47	Rapidly Growing
Microsoft Word	47	Stable

SOURCE: LIGHTCAST 2024.3

⁵ "What are Lightcast Skill Projects", Lightcast Knowledge base, <https://kb.lightcast.io/en/articles/8496296-what-are-lightcast-skill-projections>

Exhibit 8 includes the minimum educational requirements from job postings for this occupational group with high school diploma or equivalent (46%), significantly greater/lesser than bachelor's degree (33%), or associate degree (20%), or above a bachelor's degree (1%).

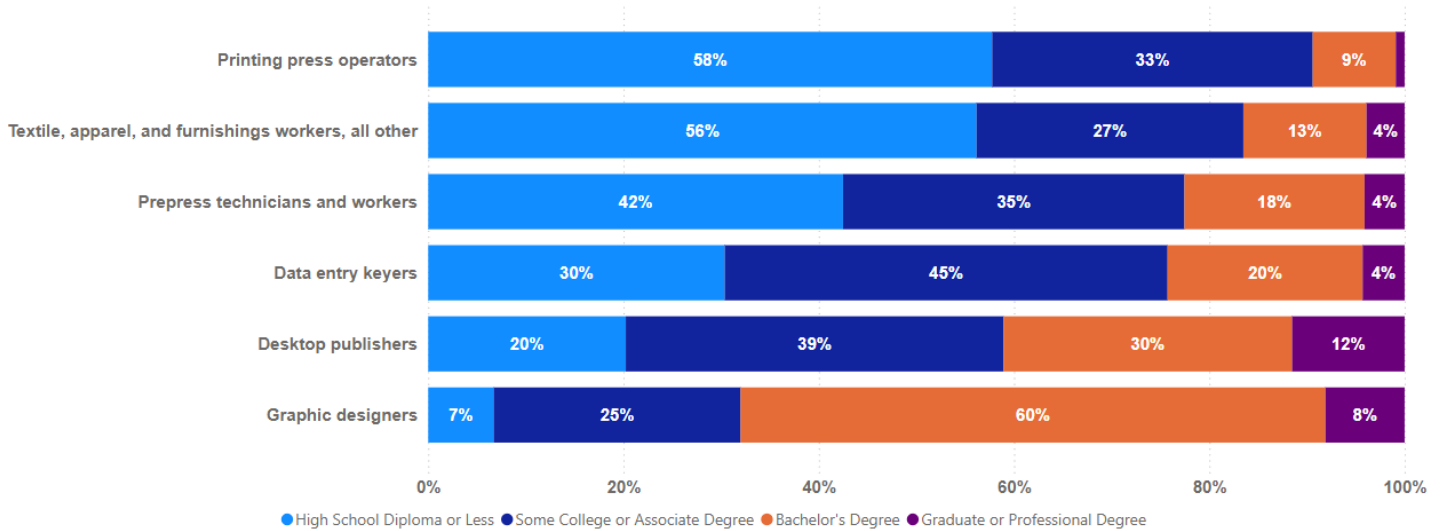
Exhibit 8 Minimum educational requirements in job postings for this occupational group, IE/D Region, Dec 2023 – Nov 2024



SOURCE: LIGHTCAST 2024.3

For the middle-skill or below middle-skill occupations, the Bureau of Labor Statistics (BLS) education attainment data in Exhibit 9 for current professionals in the occupations of interest indicates that between 25% and 45% of workers have completed some college or an associate degree as their highest level of education.

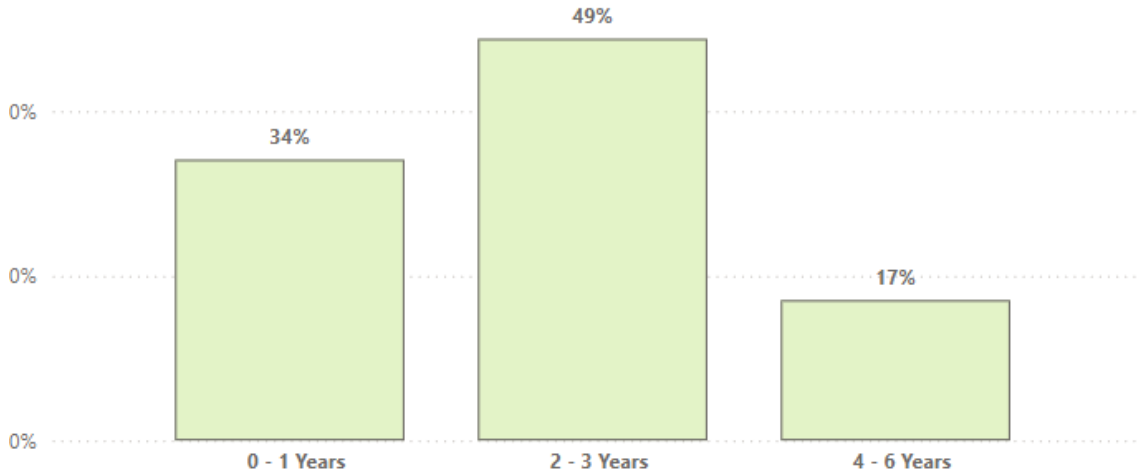
Exhibit 9 National-level Education Attainment for Occupations



SOURCE: BLS 2021

Exhibit 10 displays the work experience typically required from employer job ads for this occupational group. The majority (83%) of employers listing minimum experience requirements sought candidates with 0-1 or 2-3 years of previous work experience.

**Exhibit 10 Work experience requirements,
IE/D Region, Dec 2023 – Nov 2024**



SOURCE: LIGHTCAST 2024.3

Student Completions and Program Outcomes

No student completions for the Printing and Lithography (TOP 0936.00) programs were found over the last three academic years (2020-2023). Based on the lack of data, it appears that in the previous three academic years, 0 regional community colleges issued an average of 0 awards in relevant programs.

Non-Community College Supply

Award completion data was not found in the IE/D for other related non-community college programs: Graphic and Printing Equipment Operator, General Production (CIP 10.0305), Platemaker/Imager (CIP 10.0306), Printing Press Operator (CIP 10.0307), Computer Typography and Composition Equipment Operator (CIP 10.0308).

Based on the lack of data, it appears that in the previous three academic years 0 regional non-community college institutions issued an average of 0 awards in relevant programs.

Strong Workforce Program Outcomes

California SWP program outcome data may provide useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 11.

Exhibit 11 Printing and Lithography strong workforce program outcomes, IE/D & California, most recent academic year

Program metric title	Inland Empire/Desert	Statewide
Attained a living wage (completers and skills-builders)		70%
Completed 9+ career education units in one year	56%	42%
Job closely related to the field of study		43%
Median annual earnings (all exiters)	\$17,836	\$80,372
Students who earned a degree, certificate, or attained apprenticeship	0	17
Unduplicated count of enrolled students	55	115

SOURCE: LAUNCHBOARD

Building an Inclusive Economy

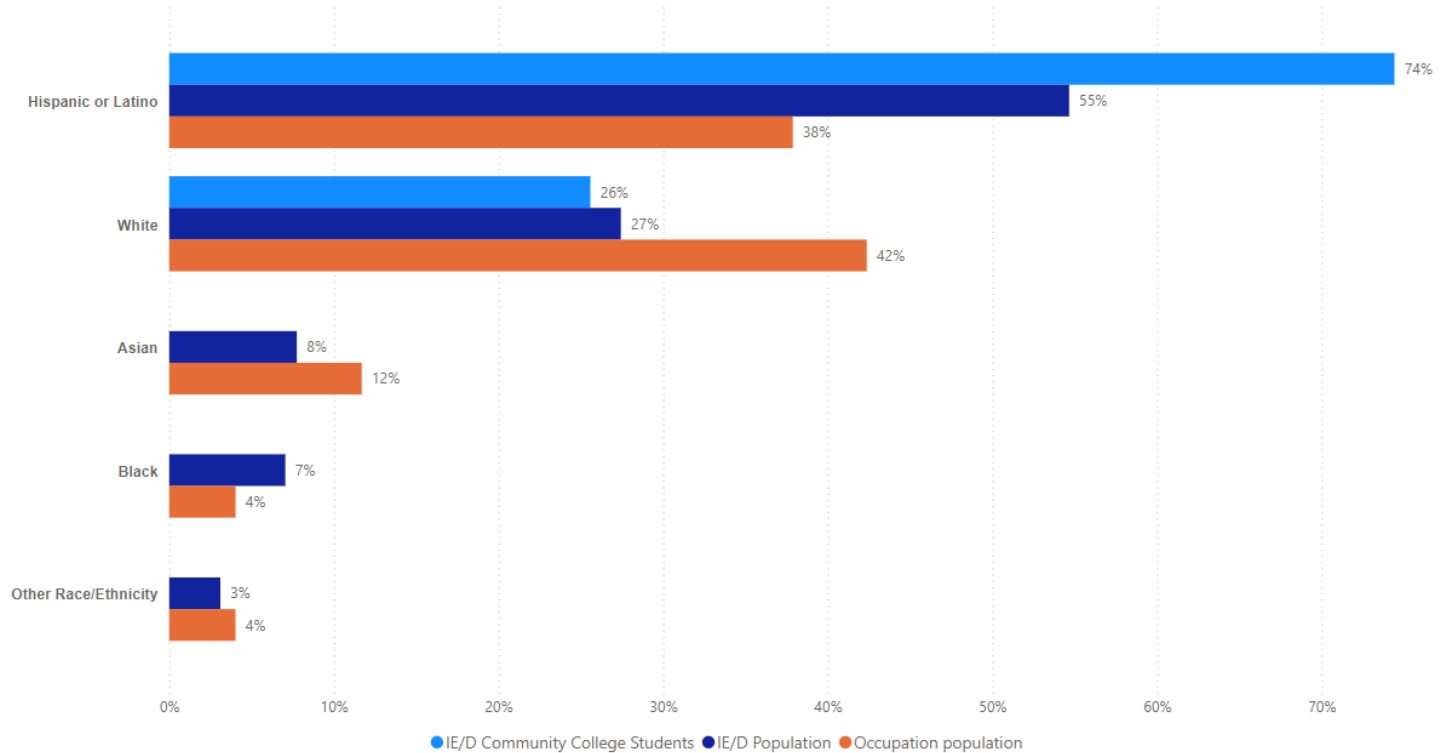
This section examines demographic data for IE/D community college students in Printing and Lithography programs compared to the IE/D population. We also include demographics for related occupation data for the four occupations related to printing. This analysis can be used to:

- Understand the community college system’s current or potential role supporting a diverse talent pipeline into the occupations of interest.
- Inform students (and the faculty and staff working with them) the extent to which individuals from similar demographic groups are over or underrepresented in the professions related to their field of study.
- Inform employers of the diverse talent pipeline coming from the community college system for the occupations analyzed.

Exhibit 12 compares the race/ethnicity of IE/D community college students enrolled in Printing and Lithography programs compared to the IE/D population.

Notably, 74% of students enrolled in Printing and Lithography programs are Hispanic/Latino, which is significantly higher than Hispanic/Latino workers in occupations related to printing in the IE/D region (38%). Additionally, 42% of the IE/D population that are employed in occupations related to printing are White, which is higher than both IE/D community college students (26%) and IE/D population (27%). Though 4% of the workers employed in occupations related to printing are Black, it appears (<1%) students in Printing and Lithography programs are Black.

Exhibit 12 Program and County Demographics by Race/Ethnicity



SOURCE: LIGHTCAST 2024.3 AND LAUNCHBOARD

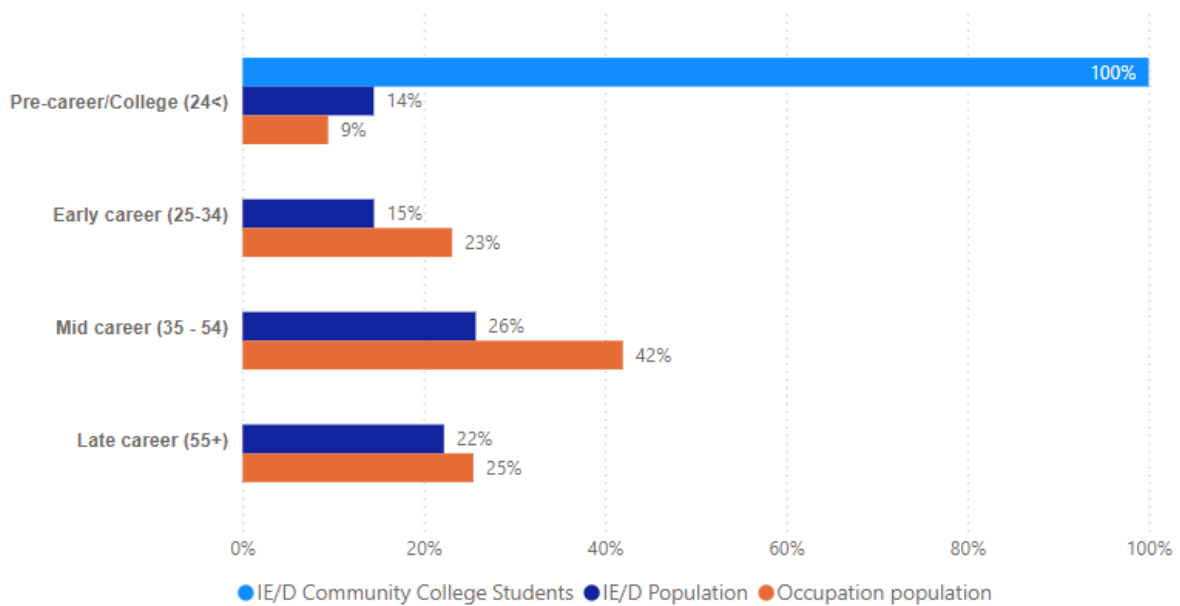
Most IE/D professionals in printing occupations are Hispanic/Latino or White (80%), “mid-career” or “late career” age category (67%), and female (53%). Most community college students in related programs are Hispanic/Latino (74%), “pre-career/college” age category (100%), and male (58%). Major takeaways:

- Community colleges are an important talent source for employers committed to greater racial/ethnic diversity, especially Hispanic/Latino professionals.
- College programs may want to consider strategies to engage more women into these programs.

Exhibit 13 compares the age of IE/D community college students enrolled in Printing and Lithography programs compared to the IE/D population.

The vast majority of students enrolled in Printing and Lithography programs are in the “pre-career/college” category (100%) as compared to IE/D population (14%) and workforce (9%) in these four occupations related to printing. These programs are an important entry point for young printing professionals.

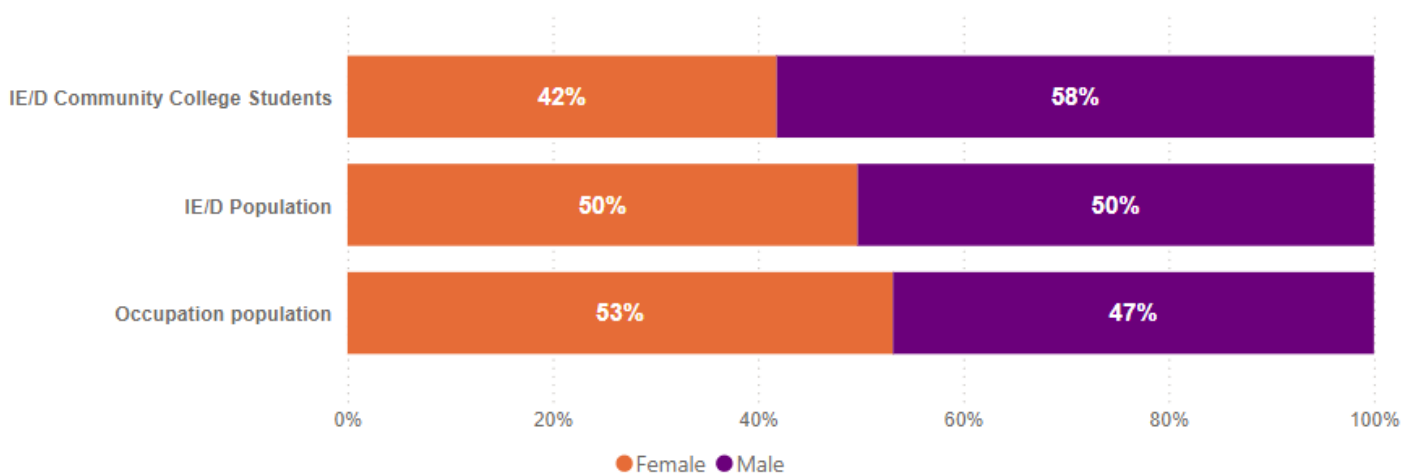
Exhibit 13 Program and County Demographics by Age



SOURCE: LIGHTCAST 2024.3 AND LAUNCHBOARD

Exhibit 14 compares the gender of IE/D Region community college students enrolled in Printing and Lithography programs compared to the IE/D population. We also include demographics for related occupation data for the four occupations related to printing to identify potential diversity and equity issues addressable by community college programs.

Exhibit 14 Program and County Demographics by Gender



SOURCE: LIGHTCAST 2024.3 AND LAUNCHBOARD

Appendix: Methodology

Exhibit 11 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2020 and 2023 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variations that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2023a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS) administered by Santa Rosa Junior College (LaunchBoard, 2023a).

Appendix: References

Type of Data	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment. https://lightcast.io/
Living Wage (UW)	Center for Women's Welfare, University of Washington. (2024). The self-sufficiency standard for California 2024. http://www.selfsufficiencystandard.org/ . This calculation measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. The living wage for one adult in San Bernardino County is \$20.07 per hour (\$42,392 annually). The living wage for one adult in Riverside County is \$20.76 per hour (\$43,854 annually). The average living wage to represent Inland Empire/Desert is \$20.42 per hour (\$43,123 annually).
Living Wage (MIT)	The living wage is derived from MIT's Living Wage Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. For more information, see: https://livingwage.mit.edu/pages/methodology The living wage for one adult in San Bernardino County is \$25.17 per hour (\$52,353.60 annually). The living wage for one adult in Riverside County is \$26.30 per hour (\$54,704 annually). The average living wage to represent Inland Empire/Desert is \$25.74 per hour (53,539.20 annually)
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions

Student Metrics and Demographics	LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx
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