

Graphic Design and Promotional Printing

Inland Empire/Desert Region (Riverside and San Bernardino counties)

This workforce demand report uses state and federal job projection data 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.

Summary

- The community college digital media program provides the knowledge, skills, and abilities that lead to three occupations; referred to as the graphic design and printing occupational group in this report.
- The combined graphic design and printing occupational group is projected to have 219 annual job openings and flat growth (0%) through 2024. All job openings are replacement jobs.
- The 50th percentile, median hourly earnings for these occupations are between \$18.08 and \$21.23 per hour, below the regional \$21.78 per hour self-sustainable standard for a single adult with one child in the region.
- Regional community college graphic design programs are coded across four TOP programs, conferred an annual average of 98 awards over the last three academic years. Please note that 37 awards were issued from two colleges that specifically offer graphic design programs related to print media.
- The COE **cautiously recommends** expanding existing graphic design programs due to the graphic design and printing occupations' median hourly earnings not meeting the \$21.78 hourly self-sustainability standard.

Introduction

This report provides occupational information related to graphic design and promotional printing entrepreneurs. Regional community college graphic design programs utilize four program codes related to digital media and graphic design. This potential code misalignment presents a challenge to assign one program code that captures graphic designers' community college supply. As a result, this report's student completion portion contains award information from regional graphic design programs regardless of the program code. The entrepreneurial aspect of graphic design and promotional printing entrepreneur is addressed in a [self-employment](#) section.

The knowledge, skills, and abilities trained by programs related to graphic design lead to the occupations that would benefit from a graphic design and promotional printing program, collectively referred to as the graphic design and printing occupational group in this report:

- Graphic Designers (SOC 27-1024)
- Desktop Publishers (49-9031)
- Prepress Technicians and Workers (51-5111)

Please note that the graphic designers occupation typically requires workers to obtain a bachelor's degree to employment, indicating that community college program completers may not be fully qualified for employment. However, national-level educational attainment data suggest that 27% of workers in this field have completed some college or an associate degree as their highest educational attainment level.

Job Opportunities

In 2019, there were 2,422 combined graphic design and printing group jobs in the region. This occupational group is projected to have 219 annual job openings to backfill jobs that workers are permanently vacating (includes occupational transfers and retirements). Graphic designers will have the most annual job openings in this group, 198 annual job openings, accounting for 91% of job openings. New job growth in this group will be flat over the next five years, indicating that all job openings will be replacement jobs. Prepress technician employment will fall by 13%, and desktop publishers will fall by 4%. Exhibit 1 displays five-year projected job growth for each occupation.

Exhibit 1: Five-year projections, 2019-2024

Occupation	2019 Jobs	2024 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Graphic Designers	2,228	2,230	0%	1,190	198	22%
Prepress Technicians and Workers	145	126	(13%)	91	15	23%
Desktop Publishers	49	47	(4%)	31	5	21%
Total	2,422	2,403	(0%)	1,312	219	22%

Source: Emsi 2021.1

Self-Employment

Approximately 30% of workers in the graphic design and printing occupational group are self-employed. Self-employment appears to be most common for desktop publishers at 46% of workers and the least common for prepress technicians and workers at 7%; nearly one-third (31%) of graphic designers are self-employed. Exhibit 2 displays the share of self-employed workers in the graphic design and printing occupational group in 2019.

Exhibit 2: Self-employment by occupation

Occupation	2019 Self-Employed	2019 All Jobs	Percentage of Occupation Self-Employed
Graphic Designers	693	2,228	31%
Desktop Publishers	22	49	46%
Prepress Technicians and Workers	10	145	7%
Total	725	2,422	30%

Source: Emsi 2021.1

Job Advertisements

Searching online job ads for the graphic design and printing occupational group in the Inland Empire/Desert Region revealed 289 total results over the last 12 months. To ensure generalizable online job ad data was available for desktop publishers and prepress technicians and workers, the search for these occupations was expanded to include all ads in California. Regional job ads accounted for approximately 5% of the 6,110 total statewide job advertisements for the graphic design and printing occupational group. Job advertisements typically provide greater insight into the real-time needs of employers. Due to the reliance on employer-supplied information, job advertisements do not provide insight into self-employment's entrepreneurial skills in the graphic design and promotional printing field.

Time to fill information is not available for prepress technician workers and desktop publishers. Only statewide time to fill information is available for graphic designers. On average, employers in California fill online job advertisements for graphic designers within 49 days. Exhibit 3 displays the number of online job ads posted over the last 12 months for graphic design and printing occupational group and the statewide average time to fill for graphic designers.

Exhibit 3: Job ads and time to fill

Occupations	Job Ads	Regional Average Time to Fill (Days)	California Average Time to Fill (Days)
Graphic Designers	273	-	49
Prepress Technicians and Workers*	337	-	-
Desktop Publishers*	62	-	-
Total	672	-	49

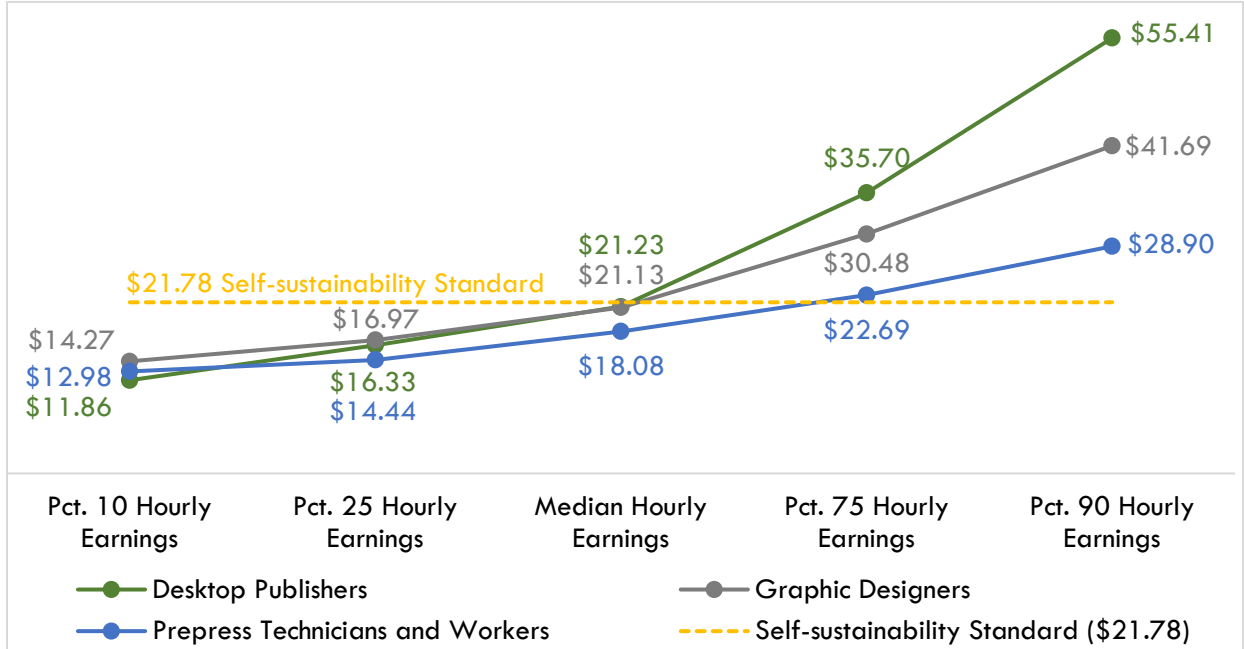
Source: Burning Glass – Labor Insights *Statewide job advertisement data displayed

Earnings and Benefits

Community colleges should ensure their training programs lead to employment opportunities that provide a self-sustainable income level. The Family Needs Calculator estimates that a self-sustainable wage for a single adult with one school-age child is \$21.78 per hour or \$45,992 annually in Riverside County, \$21.24 per hour or \$44,867 annually in San Bernardino County (Pearce, 2020). For this study, the higher hourly wage requirement in Riverside County is adopted as the self-sufficiency standard for the two-county region.

Hourly earnings for the graphic design and printing occupational group exceed the self-sustainability standard at the 75th percentile, indicating that only the top 25% of workers in the field earn a self-sustainable wage. Exhibit 4 displays the hourly earnings for the graphic design and printing occupational group in the region.

Exhibit 4: Hourly earnings by percentile



Source: Emsi 2021.1

Benefits information is only available for graphic designers. According to the occupational guides developed by the California Labor Market Information Division, employers generally offer graphic designers medical, dental, life, and vision insurance. Self-employed graphic designers must provide their own benefits and retirement (Detailed Occupational Guides, 2020).

Exhibit 5 displays advertised salary data for graphic design and printing positions listed over the last 12 months. Advertised salary information reveals that employers are willing to pay graphic design and printing positions between \$42,000 and \$63,000 annually. Advertised wages for desktop publishers are above the \$45,992 (\$21.78 hourly) required annually for a family of one adult with a school-age child to be self-sufficient in Riverside County (\$44,867 annually in San Bernardino County). Consider the salary information with caution since only 50% (339 out of 672) online job advertisements for these occupations provided salary information.

Exhibit 5: Advertised salary information

Occupations	Number of job ads	Real-Time Salary Information				Average Annual Salary
		Less than \$35,000	\$35,000 to \$49,999	\$50,000 to \$74,999	More than \$75,000	
Graphic Designers	152	34%	50%	14%	2%	\$42,000
Prepress Technicians and Workers*	163	37%	42%	17%	4%	\$43,000
Desktop Publishers*	24	12%	42%	29%	17%	\$63,000

Source: Burning Glass – Labor Insights *Statewide job advertisement data displayed

Employers, Skills, Education, and Work Experience

Exhibit 6 displays the employers posting the most online job advertisements for the graphic design and printing occupational group during the last 12 months. Displaying employer names provides some insight into where students may find employment after completing a program.

Exhibit 6: Employers posting the most online job ads

Occupations	Employers
Graphic Designers (n=273)	<ul style="list-style-type: none"> • Kalo • California Baptist University • Esri
Prepress Technicians and Workers* (n=337)	<ul style="list-style-type: none"> • Multi-Color Corporation • Sinclair Systems International LLC • Eurofins Scientific
Desktop Publishers* (n=62)	<ul style="list-style-type: none"> • Activision • Jaclyn Kennedy Publishing

Source: Burning Glass – Labor Insights

*Statewide job advertisement data displayed

Exhibit 7 displays a sample of specialized and employability skills employers seek when searching for workers to fill graphic design and printing positions. Specialized skills are occupation-specific skills that employers are requesting for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is often referred to as "soft skills." The skills requested in job ads may be utilized to guide curriculum development. The software and programming skill, Adobe Creative Suite, represents a suite of Adobe products, including Photoshop, Illustrator, InDesign, Acrobat, and others. Approximately 40% of job advertisements for the graphic design and printing occupational group sought candidates with Adobe Creative Suite skills.

Exhibit 7: Sample of in-demand skills from employer online job ads

Occupation	Specialized Skills	Employability Skills
Graphic Designers (n=258)	<ul style="list-style-type: none"> • Social Media • Web Site Design • Marketing Materials • Typesetting • Project Management 	<ul style="list-style-type: none"> • Creativity • Communication Skills • Detail-Oriented • Organizational Skills • Teamwork/Collaboration
Prepress Technicians and Workers* (n=283)	<ul style="list-style-type: none"> • Customer Service • Quality Assurance and Control • Data Entry • Scheduling • Graphic Design 	<ul style="list-style-type: none"> • Communication Skills • Detail-Oriented • Organizational Skills • Problem Solving • Physical Abilities
Desktop Publishers* (n=56)	<ul style="list-style-type: none"> • Customer Service • Graphic Design • Typesetting • Infographics • Project Management 	<ul style="list-style-type: none"> • Communication Skills • Teamwork/Collaboration • Detail-Oriented • Creativity • Bilingual (English/Spanish)

Source: Burning Glass – Labor Insights *Statewide job advertisement data displayed

Exhibit 8 displays the entry-level education typically required to enter employment in the graphic design and printing occupational group according to the Bureau of Labor Statistics (BLS), educational attainment for incumbent workers with "some college, no degree" and an "associate degree" according to the U.S. Census (2016-17) and the real-time minimum advertised education requirements from employer job ads for graphic design and printing positions.

Exhibit 8: Typical entry-level education, educational attainment, and minimum advertised education requirements

Occupation	Typical Entry-Level Education Requirement	CC-Level Educational Attainment*	Real-Time Minimum Advertised Education Requirement			
			Number of Job Ads	High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Graphic Designers	Bachelor's degree	27%	149	20%	13%	67%
Prepress Technicians and Workers**	Postsecondary nondegree award	41%	108	92%	8%	-
Desktop Publishers**	Associate degree	38%	25	12%	4%	84%

Source: Emsi 2021.1, Burning Glass – Labor Insights

*Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework

**Statewide job advertisement data displayed

Exhibit 9 displays the work experience typically required for the graphic design and printing occupational group and the real-time work experience requirements from employer job ads for graphic design and printing positions.

Exhibit 9: Work experience required and real-time work experience requirements

Occupation	Work Experience Typically Required	Real-Time Work Experience			
		Number of Job Ads	0 – 2 years	3 – 5 years	6+ years
Graphic Designers	None	139	43%	56%	1%
Prepress Technicians and Workers*	None	147	61%	29%	10%
Desktop Publishers*	None	28	39%	54%	7%

Source: Emsi 2021.1, Burning Glass – Labor Insights *Statewide job advertisement data displayed

Student Completions and Program Outcomes

Exhibit 10 displays the annual average awards for community college programs related to graphic design. Digital media (TOP 0614.00) programs are typically linked to the occupations included in this report. However, most regional digital media programs do provide training specific to graphic design. The following are the names of digital media programs offered at regional community colleges:

- Crafton Hills College: Digital Animation; Multimedia: Digital Animation
- College of the Desert: Premiere Pro
- Mt. San Jacinto College: Digital Media; Digital Communication
- Norco College: Game Development Core; Game Concept Art; 3D Game Modeling and Animation
- Palo Verde College: N/A
- Riverside City College: Graphic Design and Printing; Graphic Design and Digital Media
- Victor Valley College: Digital Media – Animation and Motion Graphics Maya

Regional colleges utilize various program codes for their graphic design programs. Regional graphic design programs are coded as digital media (TOP 0614.00), desktop publishing (TOP 0614.50), computer graphics and digital imagery (TOP 0614.60), and graphic art and design (TOP 1030.00) programs. The lack of coherence between regional graphic design programs may be evidence of code alignment issues. Annual average completion data from each graphic design program provides the best estimate of graphic designers' regional community college supply. Please note that only Riverside City College and Chaffey College offer graphic design programs that include print media training, accounting for 37 combined awards.

Exhibit 10: 2017-20, Annual average community college awards for programs related to graphic design in the Inland Empire/Desert Region

TOP Code – TOP Description College (Local Program Title)	Associate degree	Certificate requiring 30 to <60 semester units	Certificate requiring 16 to <30 semester units	Certificate requiring 6 to <18 semester units	Total CC Annual Average Awards, Academic Years 2017-2020
0614.00 - Digital Media	11	17	-	-	28
Riverside (Graphic Design and Promotional Printing, Graphic Design and Digital Media)	11	17	-	-	28
0614.50 – Desktop Publishing	0	-	1	-	1
Norco (Graphic Design)	0	-	1	-	1

TOP Code – TOP Description College (Local Program Title)	Associate degree	Certificate requiring 30 to <60 semester units	Certificate requiring 16 to <30 semester units	Certificate requiring 6 to <18 semester units	Total CC Annual Average Awards, Academic Years 2017-2020
0614.60 – Computer Graphics and Digital Imagery	6	3	2	-	11
Chaffey (Art/Digital Media – Computer Graphic Design for Print Media)	6	3	-	-	9
Crafton Hills (Computer Assisted Graphic Design)	0	-	2	-	2
Moreno Valley (Basic Graphic Design)	-	-	-	-	0
1030.00 – Graphic Art and Design	12	-	9	37	58
Riverside (Basic Graphic Design)	-	-	-	37	37
San Bernardino (Graphic Design)	12	-	9	-	21
Total	29	20	12	37	98

Source: MIS Data Mart

Recommendation

This report provides graphic design and promotional printing occupational data related to regional graphic design programs. While new job growth for the graphic design and promotional printing occupational group is expected to be flat through 2024, there will be 219 annual job openings due to the replacement need. The majority of demand for this occupational group is captured by the graphic designer occupation, accounting for 91% of job openings. Median hourly earnings for the graphic design and promotional printing occupations are below the \$21.78 per hour or \$45,992 annual self-sustainable standard for a single adult with one child in the region. Hourly earnings for the graphic design and printing occupational group exceed the self-sustainability standard at the 75th percentile, indicating that only the top 25% of workers in the field earn a self-sustainable wage.

Regional community college graphic design programs, coded within four program TOP codes, conferred an annual average of 98 awards over the last three academic years. Please note that 37 awards were issued from two colleges that specifically offer graphic design programs related to print media.

The median annual earnings of all exiters was \$22,336, and 41% attained a living wage. The lack of coherence between regional graphic design programs may be evidence of code alignment issues.

The COE **cautiously recommends** expanding existing graphic design programs due to the graphic design and printing occupations' median hourly earnings not meeting the \$21.78 hourly self-sustainability

standard. Colleges considering this program should partner with relevant employers to document their demand for graphic design and promotional printing workers and the training needed to obtain self-sustainable hourly earnings shortly after entering employment in this field.

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Appendix: Occupation definitions, sample job titles, five-year projections for graphic design and printing occupations

Graphic Designers (27-1024)

Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.

Sample job titles: Artist, Designer, Graphic Artist, Graphic Designer, Online Producer, Production Artist, Publications Designer

Entry-Level Educational Requirement: Bachelor's degree

Training Requirement: None

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 27%

Desktop Publishers (43-9031)

Format typescript and graphic elements using computer software to produce publication-ready material.

Sample job titles: Advertising Associate, Computer Typesetter, Desktop Publishing Specialist, Electronic Console Display Operator, Electronic Imager, Mac Operator

Entry-Level Educational Requirement: Associate degree

Training Requirement: Less than one month on-the-job training

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 41%

Prepress Technicians and Workers (51-5111)

Format and proof text and images submitted by designers and clients into finished pages that can be printed. Includes digital and photo typesetting. May produce printing plates.

Sample job titles: Desktop Operator, Electronic Prepress Operator (EPP Operator), Electronic Prepress Technician (EPP Tech), Plate Maker, Plate Mounter, Pre-Press Proofer, Prepress Operator, Prepress Specialist, Prepress Stripper, Prepress Technician

Entry-Level Educational Requirement: Postsecondary nondegree award

Training Requirement: None

Incumbent workers with a Community College Award or Some Postsecondary Coursework: 38%

Appendix: Program Completion and Outcome Methodology

Exhibit 10 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2017 and 2020, from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total of associate degrees and certificates issued during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variation that might be present in a single year.

Job advertisement data is limited to the information provided by employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014). Online job advertisements often do not reveal employers' hiring intentions; it is unknown if employers plan to hire one or multiple workers from a single online job ad or collect resumes for future hiring needs. A closed job ad may not be the result of a hired worker.

Table 1: 2019 to 2024 job growth, wages, education, training, and work experience required, Inland Empire/Desert Region

Occupation (SOC)	2019 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage Range (10 th to 90 th percentile)	Median Hourly Wage (50 th percentile)	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required	Work Experience Required
Graphic Designers (27-1024)	2,228	1	0%	198	\$14.27 to \$41.69	\$21.13	\$55,100	Bachelor's degree & None	None
Prepress Technicians and Workers (51-5111)	145	(19)	(13%)	15	\$12.98 to \$28.90	\$18.08	\$41,000	Postsecondary nondegree award & None	None
Desktop Publishers (43-9031)	49	(2)	(4%)	5	\$11.86 to \$55.41	\$21.23	\$64,400	Associate's degree & Less than one month	None
Total	2,422	(20)	(0%)	219	-	-	-	-	-

Source: Emsi 2021.1