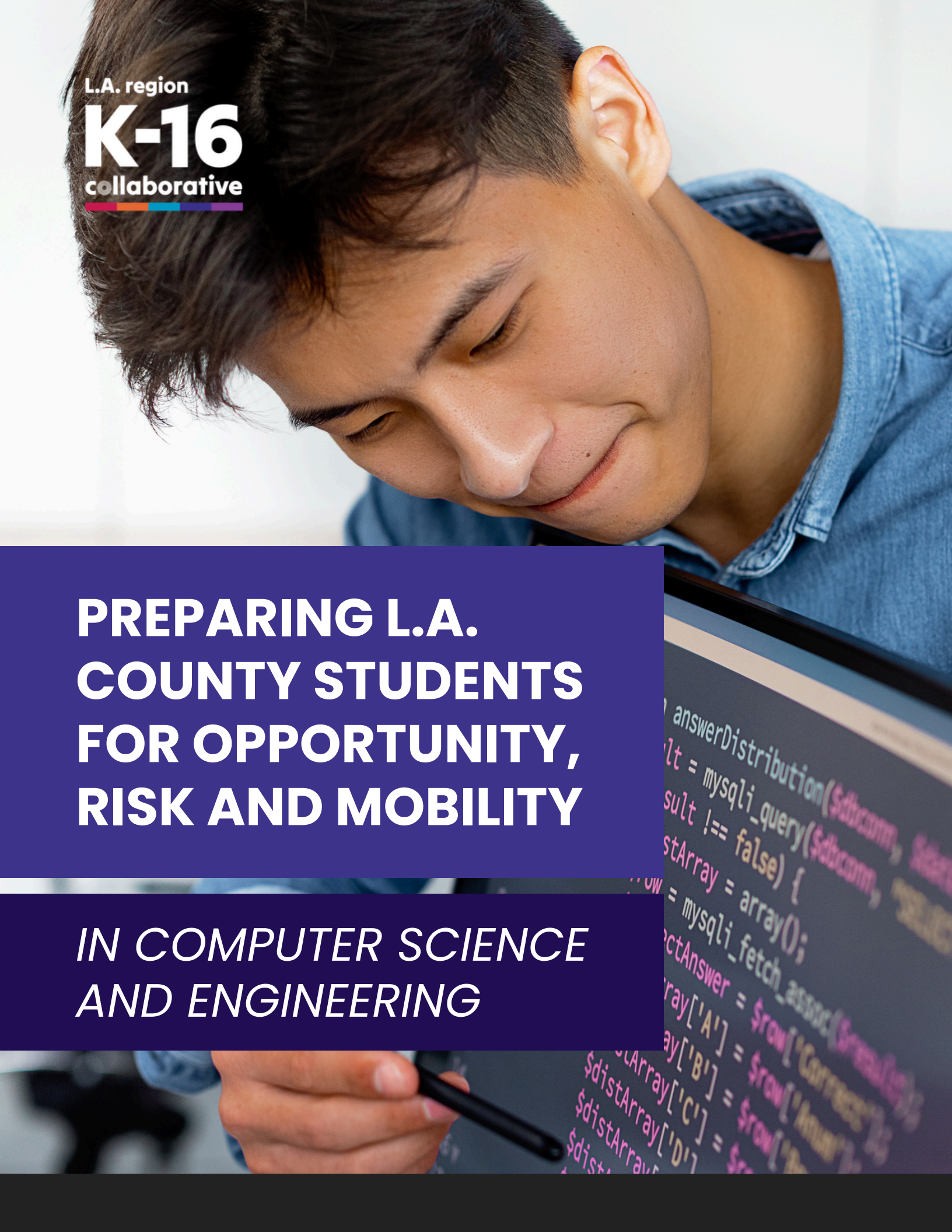




L.A. region

K-16

collaborative

PREPARING L.A. COUNTY STUDENTS FOR OPPORTUNITY, RISK AND MOBILITY

*IN COMPUTER SCIENCE
AND ENGINEERING*

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Introduction

Computer science and engineering sectors play a central role in Los Angeles County's economy and future workforce. These fields underpin innovation across industries—from health care and transportation to manufacturing, logistics, government and education—and offer access to some of the region's highest-paying jobs. As a result, computer science and engineering have become focal points of investment across K-12, community colleges and universities. Expanding access to these fields is widely understood as essential to economic mobility and regional competitiveness.

This report is coming out amidst a challenging labor market for new graduates. Overall in the United States, the recent graduate unemployment rate hit 5.6 percent in 2026.¹ Computer Science and Computer Engineering degree holders' unemployment rate are above the national average at 7 percent and 7.8 percent respectively.² In Los Angeles County, computer science employs more than 130,000 workers (2025), yet generates only a few thousand annual openings among top occupations, a relatively small number compared to its size. Engineering, smaller at just under 70,000 jobs (2025), is even more tightly gated by bachelor's-level credentialing and progression through a defined academic sequence.³

In both fields, opportunity is real—but it is unevenly distributed across occupations, industries, and credential levels. Educational pathways into these fields therefore carry both promise and risk, particularly for students navigating them without clear signals about where opportunity actually exists.

¹ Federal Reserve Bank of New York. (2025). The Labor Market for Recent College Graduates. [www.newyorkfed.org. https://www.newyorkfed.org/research/college-labor-market#--:explore:unemployment](https://www.newyorkfed.org/research/college-labor-market#--:explore:unemployment)

² Ibid.

³ QCEW Employees, Non-QCEW Employees, and Self-Employed, Lightcast, Region 6037, SOC 15 and SOC 17, LAEDC.

This concern is especially important at a time when schools are being encouraged to expand non-college career pathways and redefine what counts as postsecondary success. Recent national wage analysis reinforces that some non-bachelor's pathways can lead to strong earnings, but these opportunities are not evenly distributed or available at scale.⁴ For K-16 systems, the implication is not to privilege one pathway over another, but to be more precise: students need clear information about which careers require bachelor's completion, which offer strong sub-bachelor's entry points, and which require additional training, work experience or advancement to reach economic mobility.



Two Fields, Two Pathways: Understanding the Differences That Shape Opportunity

Computer science and engineering are often grouped together under a broad “STEM” umbrella especially in educational secondary systems, but they operate as distinct labor markets with different rules. Treating them as interchangeable obscures critical differences in how students access opportunity.

Computer science is a broad, cross-industry field with high upside, but access to opportunity is shaped by competition, applied experience, and early access to skills that differ within industries. Degrees alone are not sufficient; students must also build portfolios, networks and work experience to enter the field.

⁴ Barnum, M. (2026, June 23). Non-college career pathways have a math problem. [Chalkbeat](#).

Engineering is more tightly structured and credentialed. Pathways are defined by progression through mathematics and science coursework and completion of a bachelor's degree. Entry points are fewer but more predictable, and access depends on sustained academic progression rather than early differentiation.

In both fields, equity gaps persist. Students from historically underserved communities are less likely to reach the highest-paying roles, even when they participate in coursework or earn applicable credentials, indicating that access to classes alone does not translate into access to careers.

Los Angeles County is making significant investments in computer science and engineering pathways across the K-16 continuum. At the same time, rapid technological change—including advances in artificial intelligence—and shifting economic conditions are reshaping skill requirements, hiring practices and entry-level roles.⁵ Without alignment between education systems and the realities of the labor market, these investments risk expanding participation without expanding opportunity. Systems may overproduce credentials misaligned with demand, or leave students navigating complex pathways without clear guidance.



⁵ Camp, T. (2025). CRA update: Navigating the changing landscape of computing education—together. Computing Research Association. <https://cra.org/crn/2025/10/cra-update-navigating-the-changing-landscape-of-computing-education-together/>

Purpose of This Report

This report is designed to help K-16 leaders, intermediaries and pathway designers better understand how opportunity in computer science and engineering is structured in Los Angeles County—and how to design pathways that improve student outcomes. It aims to make three contributions:

- **Clarifies labor market dynamics**, identifying where opportunity is concentrated and how it is accessed;
- **Distinguishes computer science and engineering pathways**, enabling more precise and aligned program design; and
- **Introduces an applied pathway framework**, to understand the design of each pathway according to the education and labor market.

The goal is not to discourage development or student participation in either pathway, but to **design systems that reduce risk, expand access to applied experience and increase the likelihood that students reach high-wage, high-opportunity careers.**

A Framework for Understanding Pathways to Opportunity

This report is guided by a simple framework for understanding how education pathways connect to labor market opportunity. Across both computer science and engineering, student outcomes are shaped not only by participation, but by progression through a sequence of stages:

Exposure to foundational coursework and career exploration

Progression through increasingly advanced and aligned learning experiences

Credential attainment, particularly bachelor's-level completion for most roles

Access to employment, shaped by labor market structure, experience and competition

While both fields follow this general design, they differ in how students move through it. In computer science, access to opportunity is shaped by competition, applied experience and developing skills that differ by industry. In engineering, access depends on sustained academic progression and completion of a defined sequence leading to a bachelor's degree. Understanding where students enter—and where they exit—this sequence is critical to designing pathways that translate participation into economic mobility.

L.A. K-16 Regional Pathway Key Milestones: Computer Science and Engineering

Computer Science Pathway



Early Exposure

Computer science awareness, digital literacy, exploratory coursework



High School Preparation

ICT/computer science courses, math foundation, dual enrollment



Community College or Four-Year Entry

Transfer-oriented coursework, introductory programming, advising



Applied Experience

Projects, portfolio, internships, hackathons, work-based learning



Specialization + Bachelor's Progression

Transfer-oriented coursework, introductory programming, advising

Key Design Logic

- Broad, cross-industry opportunity
- Bachelor's degree often needed for high-wage roles
- Applied experience is critical for entry



Employment

Cross-industry computer science careers in software, data, cybersecurity, IT, government, health, logistics

Engineering Pathway



Early Exposure

Engineering awareness, design challenges, STEM identity



High School Preparation

Algebra to calculus, physics, engineering courses, dual enrollment



Community College or Four-Year Entry

Lower-division, engineering, calculus, physics, advising



Transfer Alignment

Articulation, sequenced coursework, university transfer



Bachelor's Completion

Discipline-specific pathway: civil, mechanical, electrical, aerospace, environmental

Key Design Logic

- Structured, sequenced pathway
- Math progression is foundational
- Transfer and bachelor's completion are essential



Employment

Engineering careers across infrastructure, manufacturing, energy, aerospace and public systems

Regional System Supports



Advising



Transfer Alignment



Equity Supports



Dual Enrollment



Work-Based Learning



Data Sharing + Employer Partnerships

The sections that follow unpack these dynamics in detail—first for computer science, then for engineering—before turning to how these realities impact the K-12 systems specifically. Throughout the report there are implications for K-16 educators and partners on ways systems can reduce risk and expand opportunity across the K-16 continuum. Despite the differing context in computer science and engineering, there are several implications for K-16 partners across both pathways:

For K-12 educators: Use CTE and early STEM coursework to spark interest AND keep students eligible for what comes next. In computer science, that means connecting introductory courses to applied projects, dual enrollment and clearer subfield exploration. In engineering, it means protecting access to the math and science sequences students need before they ever reach college.

For community colleges: Make the purpose of each credential unmistakable so that students are able to see whether a program is designed for transfer, direct employment, upskilling or exploration—and what additional coursework, experience or degree completion is required to reach high-wage roles. This is especially important in computer science and engineering, where associate degrees and certificates may build valuable skills but often do not function as strong workforce endpoints on their own.

For universities: Treat transfer alignment and early pathway clarity as part of the bachelor's-degree pipeline as a central access strategy. Clear major preparation expectations, predictable articulation and partnership on dual enrollment or introductory college-level experiences can help students avoid lost credits, delayed transfer and late discovery that they are missing critical prerequisites.

For intermediaries: Help partners use labor market and education data to distinguish between participation and mobility. Measure how many students enter computer science or engineering pathways and whether they progress through the milestones that matter: math readiness, advanced coursework, applied experience, transfer, bachelor's completion and access to high-wage employment.

Part 1: Computer Science in Los Angeles County—Broad Access, Narrow Entry

Computer science is often described as a sector, but in practice it functions as a cross-industry skillset embedded throughout the Los Angeles County economy. While technology firms are highly visible employers, computer science roles also appear in government, health care, logistics, manufacturing, education and other industries that increasingly rely on data systems, software, cybersecurity and digital infrastructure.

This matters for pathway design. Students are often introduced to computer science as though it leads primarily to “tech company” jobs, but regional employment patterns show a more complex picture. Computer science skills are used across many industries, and each industry carries different expectations, hiring practices, wage structures and career trajectories.

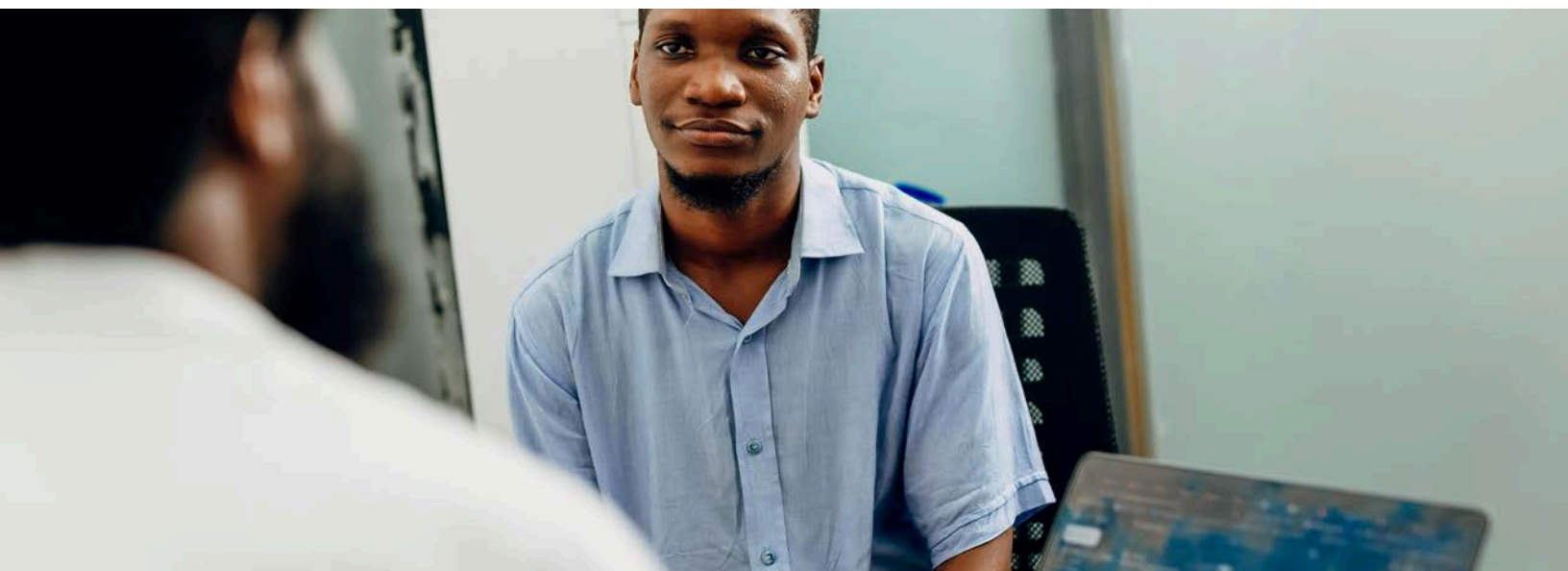
Figure 1. Number of Computer Science Annual Openings by Industry, 2022–28, in Los Angeles County



Source: QCEW Employees, Non-QCEW Employees and Self-Employed, Lightcast, Region 6037, SOC 15, LAEDC.

Figure 1 illustrates that computer science opportunity is distributed across industries rather than concentrated only in the technology sector. This expands the range of possible career destinations for students, but it also makes the pathway harder to navigate. A student preparing for a computer science career may need to understand not only technical skills, but also the differences between working in government, health care, information, logistics, manufacturing or professional services.

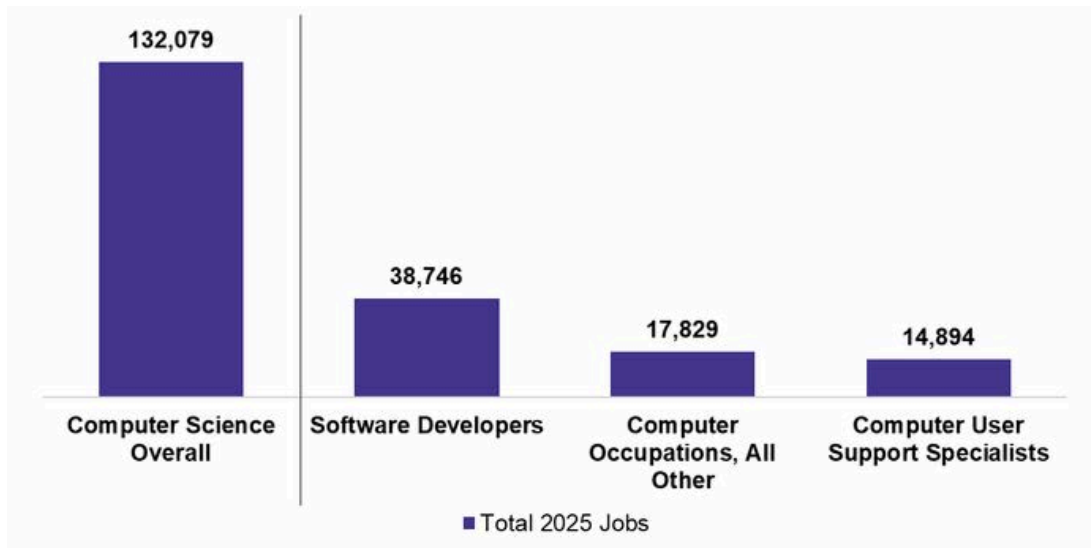
Industry context matters in computer science careers. A graduate hired by a public agency may experience greater stability but slower wage growth, while a peer hired by a private technology or logistics firm may encounter faster pay progression alongside greater volatility. Employers may also look for different signals of readiness. Some roles emphasize security clearance or sector-specific knowledge, while others prioritize portfolios, internships or evidence of applied technical work.



Broad Employment Does Not Mean Easy Entry

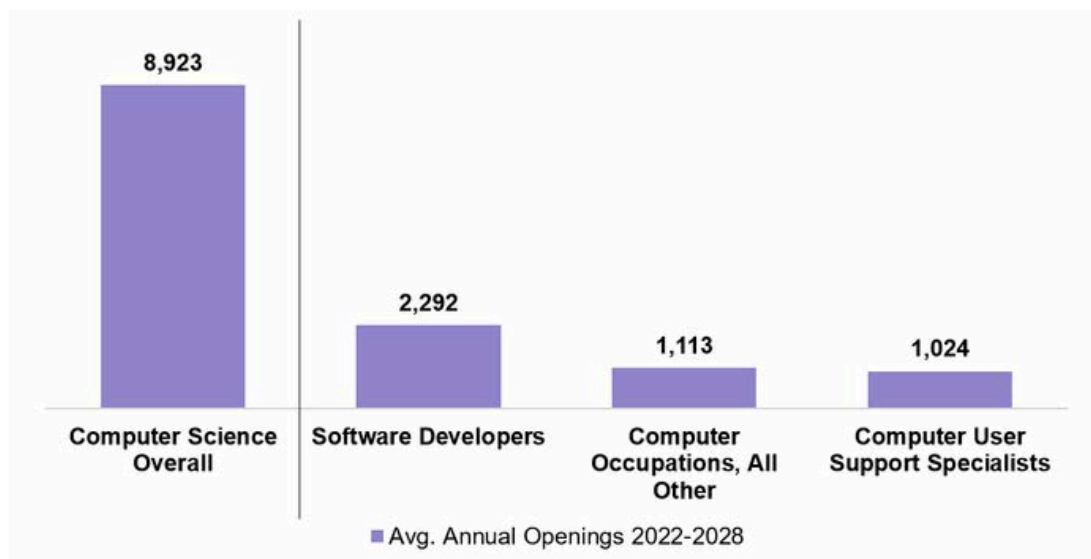
Although computer science employment is large and distributed across industries, entry into the field remains competitive. This is because total employment and annual openings tell different stories. Annual openings are concentrated in a few occupations, the three listed in Figure 3 make up 50 percent of total annual openings.

Figure 2. Total Computer Science Employment Compared to High Employment Occupations in Los Angeles County



Source: QCEW Employees, Non-QCEW Employees and Self-Employed, Lightcast, 2025 Employment Region 6037, SOC 15.

Figure 3. Total Computer Science Annual Openings Compared to High Employment Occupations in Los Angeles County



Source: QCEW Employees, Non-QCEW Employees and Self-Employed, Lightcast, 2022-28 average openings, Region 6037, SOC 15.

Figure 2 shows that more than 130,000 workers are employed in computer science-related occupations in Los Angeles County. However, the number of annual openings is much smaller than the total size of the workforce. Even software development, the region's largest computer science occupation, generates annual openings that represent only a small share of total employment.

This distinction is important for educators who may interpret the size of the field as evidence that students can easily enter it. A large workforce does not necessarily mean a large number of new openings each year. Many computer science jobs are already filled, and turnover does not occur at the same scale as total employment. As a result, students entering the labor market may face significant competition, particularly for high-wage roles.

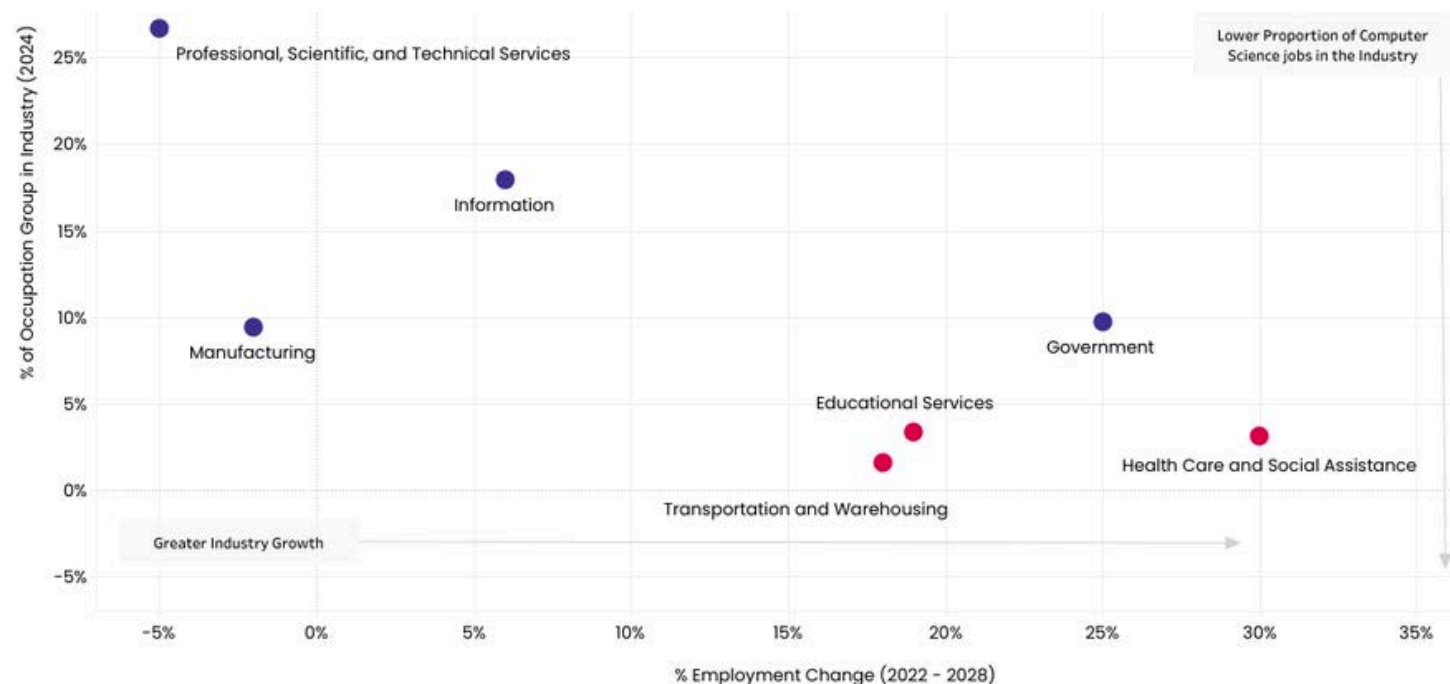
This creates a central tension in the computer science labor market: the field is broad, but entry is narrow. Opportunity exists across many industries, but students still need the credentials, experience and differentiation required to compete for a limited number of new roles.



Growth Does Not Equal Access

Projected growth in computer science occupations may appear substantial, but percentage increases alone do not determine the scale of opportunity. Figure 4 shows how computer science employment is distributed across core and emergent industries, comparing the percentage of computer science occupations in each industry with expected growth.

Figure 4. Distribution of Computer Science Employment Across Core and Emergent Industries in L.A. County



Source: Lightcast Inverse Staffing Tables, 2022-28, QCEW Employees, Non-QCEW Employees and Self-Employed, Region 6037, SOC 15.

The data reveal two important patterns.

The first is that computer science employment remains concentrated in a relatively small number of core industries. Professional, Scientific and Technical Services represents 26.7 percent of all computer science jobs in Los Angeles County, followed by Information at 17.9 percent. Manufacturing and Government each account for just under 10 percent of employment, at 9.4 percent and 9.7 percent, respectively. Together, these four industries represent more than 60 percent of the region's computer science workforce.

Second, the fastest growth is not always occurring in the industries with the largest employment base. Government is projected to grow by 25 percent, while Information is projected to grow by 6 percent. At the same time, Professional, Scientific and Technical Services and Manufacturing are projected to decline slightly, at -5 percent and -2 percent, respectively. Emerging industries such as Health Care and Social Assistance; Educational Services; and Transportation and Warehousing show stronger projected growth, at 30 percent, 19 percent and 18 percent. However, each currently accounts for a small share of computer science employment: 3.1 percent, 3.3 percent and 1.6 percent, respectively.

These data show why computer science pathways must prepare students for both concentration and change. Most jobs remain located in a few core industries, but new growth is appearing in sectors that may not be traditionally understood as computer science employers. For students, this means opportunity may depend on understanding both where jobs are today and where new roles are emerging.

For education systems, the implication is clear: computer science pathways should expose students to a range of industry contexts, not only traditional technology companies. A student interested in software development, data science, cybersecurity or systems analysis may find relevant opportunities in health care, transportation, education, government or manufacturing—but only if pathways help them connect technical preparation to these industry settings.

Entry Is Competitive and Experience-Driven

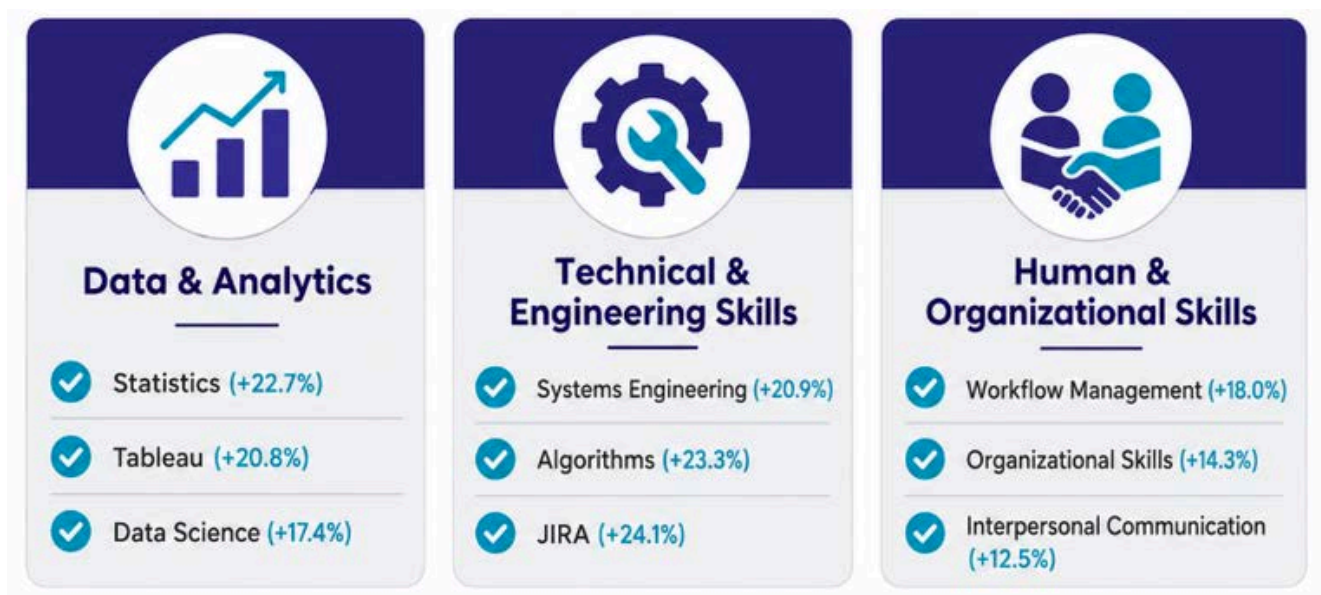
Because computer science roles are spread across industries and annual openings are limited relative to total employment, students need more than exposure to computer science concepts. They need ways to demonstrate that they can apply technical knowledge in real-world settings.

In this labor market, degrees often establish eligibility, but applied experience shapes competitiveness. Evidence reinforces that employers often look for evidence that candidates can solve problems, work on projects, collaborate with others, adapt to changing tools and contribute in applied settings.⁶ Internships, client-based projects, work-based learning, open-source contributions and portfolio projects can all serve as signals of readiness.

Students who gain relevant experience early are more likely to secure their first role and build career momentum. Students who do not may face longer job searches, accept roles that underutilize their skills or move into adjacent fields. These outcomes are rarely visible in program-level completion data, but they have significant implications for economic mobility.

⁶ Stepanova, A., Weaver, A., Lahey, J., Alexander, G., & Hammond, T. (2021). Hiring CS Graduates: What We Learned from Employers. *ACM Transactions on Computing Education*, 22(1), Article 5, 1–20. <https://doi.org/10.1145/3474623>

Figure 5. Fastest-Growing Skill Categories in Computer Science Job Postings, Los Angeles County



Source: Lightcast Job Postings Report, January 2024–October 2025, Region 6037, SOC 1.

Figure 5 reinforces this point.⁷ The fastest-growing skill categories in computer science job postings include not only technical skills, but also data and analytics skills, engineering-related skills, and human and organizational skills. Employers increasingly seek combinations of technical, analytical and interpersonal capabilities rather than programming knowledge alone. Coursework can build foundational knowledge, but applied learning helps students demonstrate how they use that knowledge. A student who has completed programming courses but has not built projects, worked with data, collaborated on technical teams or solved applied problems may struggle to show readiness in a competitive entry market.⁸

For K–16 systems, the design challenge is to build pathways that connect coursework to applied projects, work-based learning, advising and specialization so students can develop the experience and evidence needed to access high-wage roles.⁹

⁷ See Appendix A for a full account of top skills.

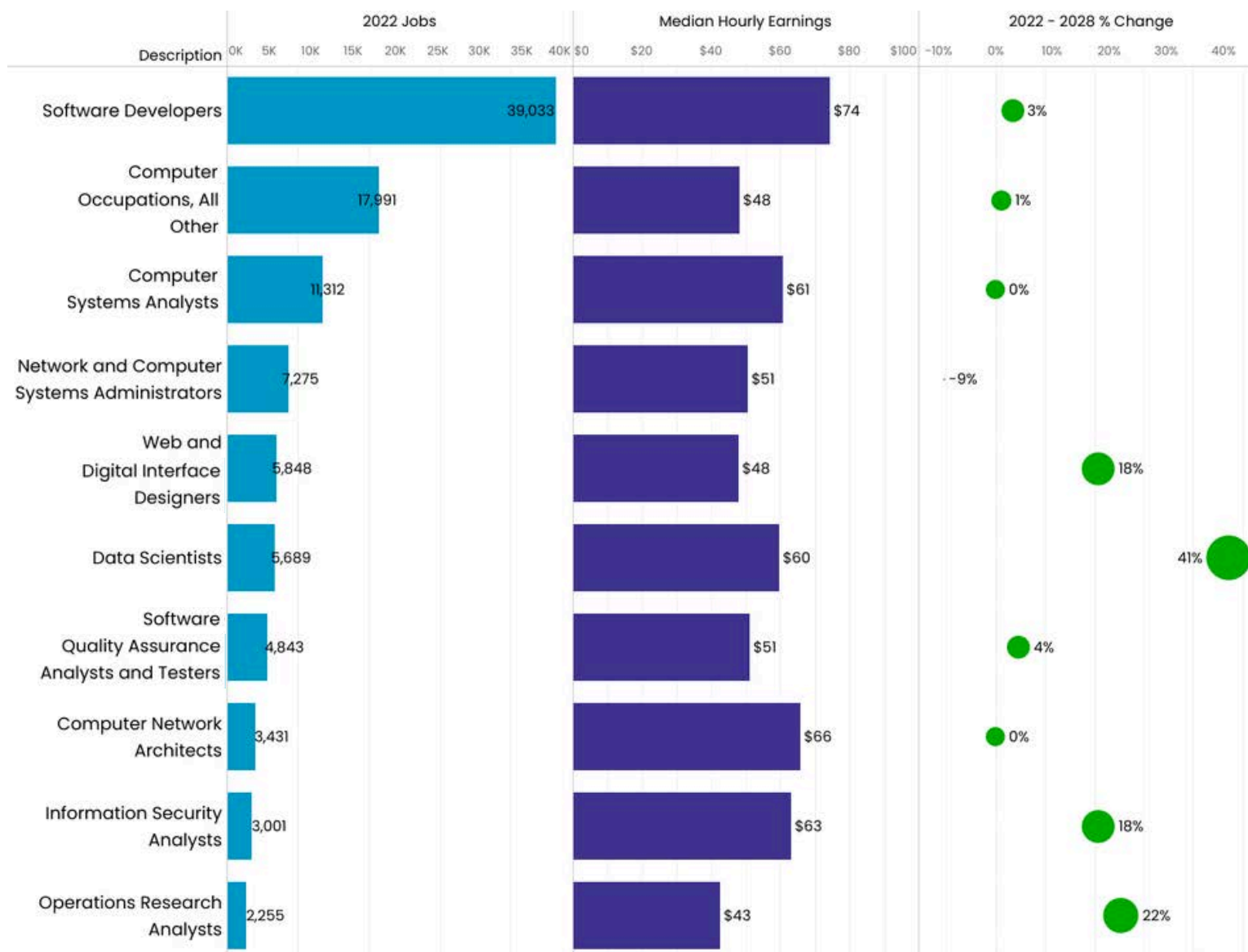
⁸ Phan, H., Kuzminykh, I., & Ghita, B. (2026). Understanding the skills gap between higher education institutions and the software engineering industry. [arXiv. doi.org](https://arxiv.org/abs/2601.00000)

⁹ Ibid.

Bachelor's Completion as the Gateway to High-Wage Computer Science Roles

Access to the highest-wage computer science roles in Los Angeles County is strongly tied to bachelor's-level preparation. While associate degrees, certificates and shorter-term training can provide valuable entry points into computer science learning, the labor market data show that many of the occupations most associated with economic mobility require a bachelor's degree and applied technical readiness.

Figure 6. Top Bachelor's Degree Computer Science Occupations in L.A. County: Jobs, Wages and Growth



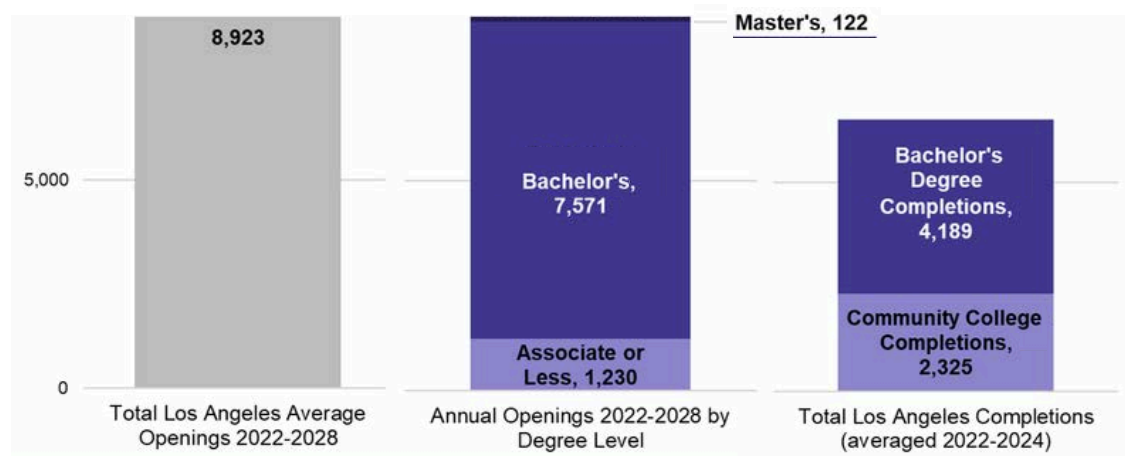
Source: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022-28, Region 6037.

Figure 6 shows that high-demand computer science occupations such as software developers, data scientists, information security analysts and computer systems analysts are concentrated in bachelor's-level roles. These occupations offer strong wages, but they also require students to complete longer academic pathways and technical readiness.

This creates an important distinction for K-16 pathway design. While associate degrees and certificates have value, the issue is that their value depends on what they are designed to do: support transfer into bachelor's programs, prepare students for a narrower set of sub-bachelor's roles or build technical skills that must be combined with further education and applied experience. Without this clarity, students may complete computer science-related credentials without understanding whether those credentials position them for the occupations they hoped to access. The relationship between degree production and labor market demand further illustrates this challenge.



Figure 7. Computer Science Degree Production Compared to Annual Openings by Degree Level in L.A. County



Sources: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022-28, Region 6037, SOC 15. Bachelor's Degree, IPEDS, 2022-24, completions by CIP 6 digit (CIP 11 and 27), including eight universities in the L.A. K-16 region. Community College Degrees and Certifications, DataMart, 2022-24, completions by TOP 6 digit (TOP 07 and 17), including 19 community colleges in the L.A. K-16 region.

Figure 7 compares annual openings with degree production across credential levels. At first glance, total degree production appears broadly aligned with the number of annual openings. Alignment estimates are cautious due to the backdrop of a five-year decline in employment in core industries like Computer Systems Design in Los Angeles County¹⁰ along with recent economic reports indicating significant and continued industry decline in information that typically hire technical computer science occupations.¹¹ However, the distribution of openings by education level reveals a more complicated picture: most annual openings require a bachelor's degree, while far fewer are accessible to individuals with an associate degree or less. Figure 7 should not be read as a simple supply-and-demand match rather as an opportunity to understand why pathway design must distinguish between credentials that lead to transfer, credentials that support direct employment, and credentials that may build useful skills but do not independently lead to high-wage roles.

Community colleges produce a substantial number of computer science-related graduates, but sub-bachelor's jobs remain limited relative to overall demand. This does not mean community college computer science programs are misaligned by default. Rather, it means their role must be communicated clearly. For many students, community college computer science programs are most valuable when they function as part of a transfer pathway leading to bachelor's completion, not as terminal workforce pathways.

¹⁰ Federal Reserve Bank of New York. (2025). [The Labor Market for Recent College Graduates - FEDERAL RESERVE BANK OF NEW YORK](https://www.frb.org/labor-market/2025/01/2025-labor-market-for-recent-college-graduates)

¹¹ U.S. Bureau of Labor Statistics. (2026). *The employment situation — June 2026* [News release]. U.S. Department of Labor. <https://www.bls.gov/news.release/pdf/empsit.pdf>

Figure 8. Computer Science Occupations Requiring an Associate Degree or Less

Description	Computer User Support Specialists	Computer Network Support Specialists
2025 Jobs	14,894	3,037
2028 Jobs	14,898	3,069
Average Annual Openings	1,024	206
2022–28 Percent Change	(5%)	(16%)
Median Hourly Earnings	\$34.19	\$35.58
Meets Living Standard 1 Adult	✓	✓
Meets Living Standard 1 Adult, 1 School-Aged Child	x	x
Pct. 10 Hourly Earnings	\$22.13	\$23.14
Typical Entry-Level Education	Some College, No Degree	Associate Degree

Sources: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022–28, Region 6037, SOC 15.

There are only two occupations in computer science that require an associate degree or less; the remaining 19 occupations all require bachelor's degrees or advanced degrees. In the figure above, the median hourly salary for both of these occupations meet the standard of living for one adult, but they do not meet the standard of living for an adult and a school aged child. Further, both of these occupations are expected to decline in employment by 2030. If we continue to project employment through 2030, employment in these occupations still is in decline. Opportunities for computer science occupations with an associate degree or certificate are limited, and are projected to remain limited.¹²

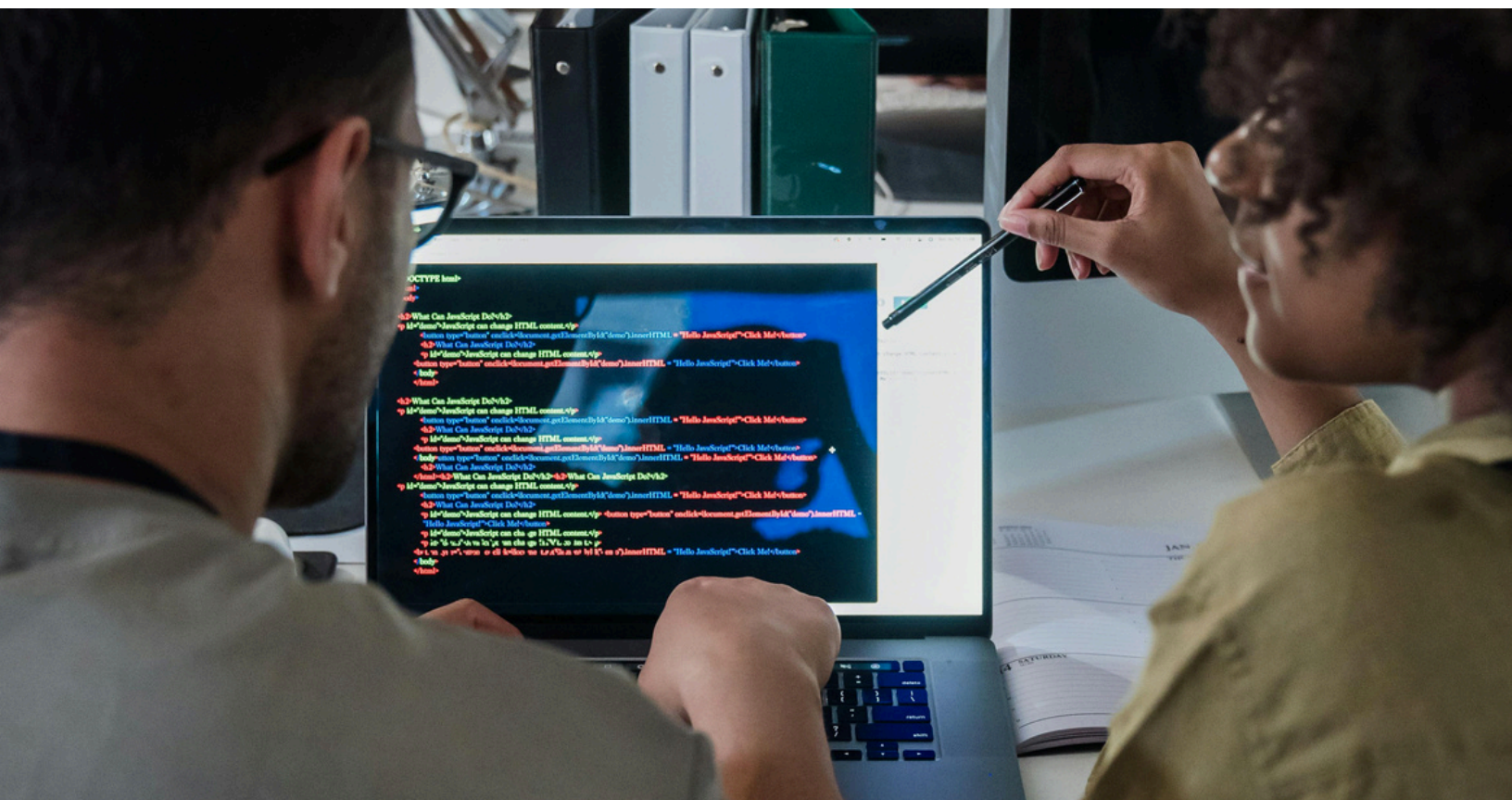
¹² Two occupations relevant to community colleges do not provide a quality base for conducting supply and demand. Overall industry and occupational indicators demonstrate that transfer into a bachelor's degree is the primary strategy to support career growth for students.

Figure 9. Computer Science Occupations Requiring an Associate Degree or Less through 2030

Description	2025 Jobs	2030 Jobs	Average Annual Openings	2023–30 Percent Change
Computer User Support Specialists	14,894	14,322	971	(2%)
Computer Network Support Specialists	3,037	2,967	188	(15%)

Sources: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022–28, Region 6037, SOC 15.

The available data cannot fully show which students complete associate degrees for transfer purposes, which students enter the workforce directly or which students successfully complete bachelor's degrees after beginning at a community college. This limitation matters; without better visibility into transfer intent and transfer outcomes, degree production data can be misread as workforce supply when some of those credentials may actually represent students moving through a longer academic pathway.

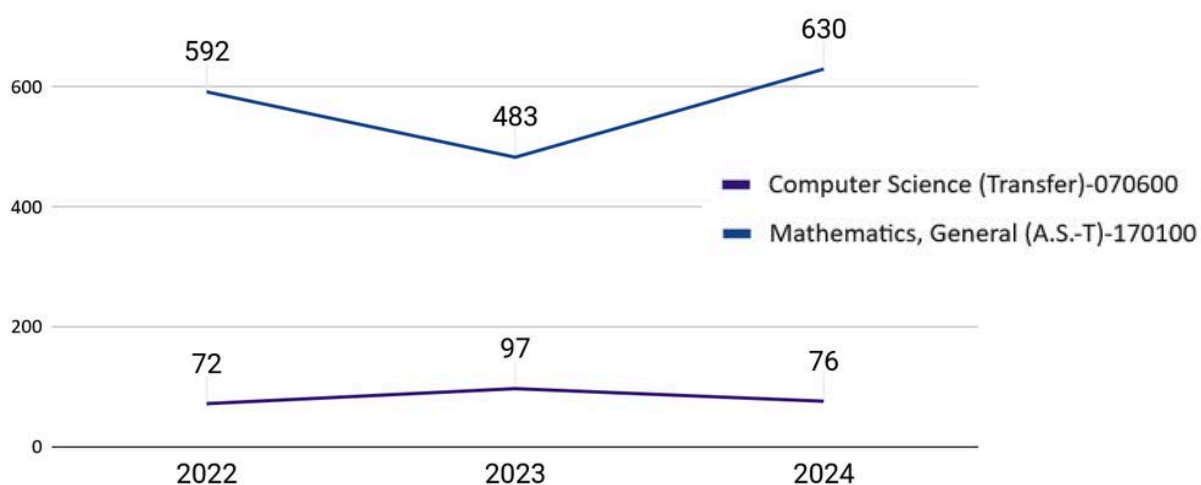


Community College Credentials Need Clearer Transfer and Workforce Signals

For students who begin at community colleges, transfer is one of the most important mechanisms for accessing high-wage computer science roles. Associate Degrees for Transfer (ADTs) were designed to reduce transfer friction by creating clearer alignment between California community colleges and California State University (CSU) campuses. In fields where ADTs are widely available and well aligned to receiving majors, they can help students understand which coursework counts, transfer with junior standing, and reduce excess credit accumulation.

However, computer science and other STEM pathways present a more complicated transfer challenge. STEM majors often require sequenced mathematics, science, and technical courses that must be completed in a particular order, and major preparation requirements can vary across receiving institutions. As a result, transfer preparation in computer science is often less transparent than degree completions alone suggest. Students may transfer successfully with or without an ADT, but they need clear advising, articulation, course sequencing and program maps that show whether a community college credential is functioning as a transfer bridge, a direct-employment pathway or technical preparation that requires additional education and experience.

Figure 10. Computer Science Transfer Degrees in L.A. County



Source: CCCCCO, DataMart, 2022–24, for 19 community colleges in the L.A. region all TOP codes under 11 and 27.

Figure 10 shows that transfer-oriented computer science degree production is relatively modest and uneven across recent years. Mathematics transfer degrees are more common than Computer Science transfer degrees, which may reflect mathematics' role as a pathway into computer science and related fields. However, the figure also reinforces a key limitation: transfer preparation is difficult to interpret from degree completions alone.

Figure 11. Community College Computer Science TOP Codes by Credential Type

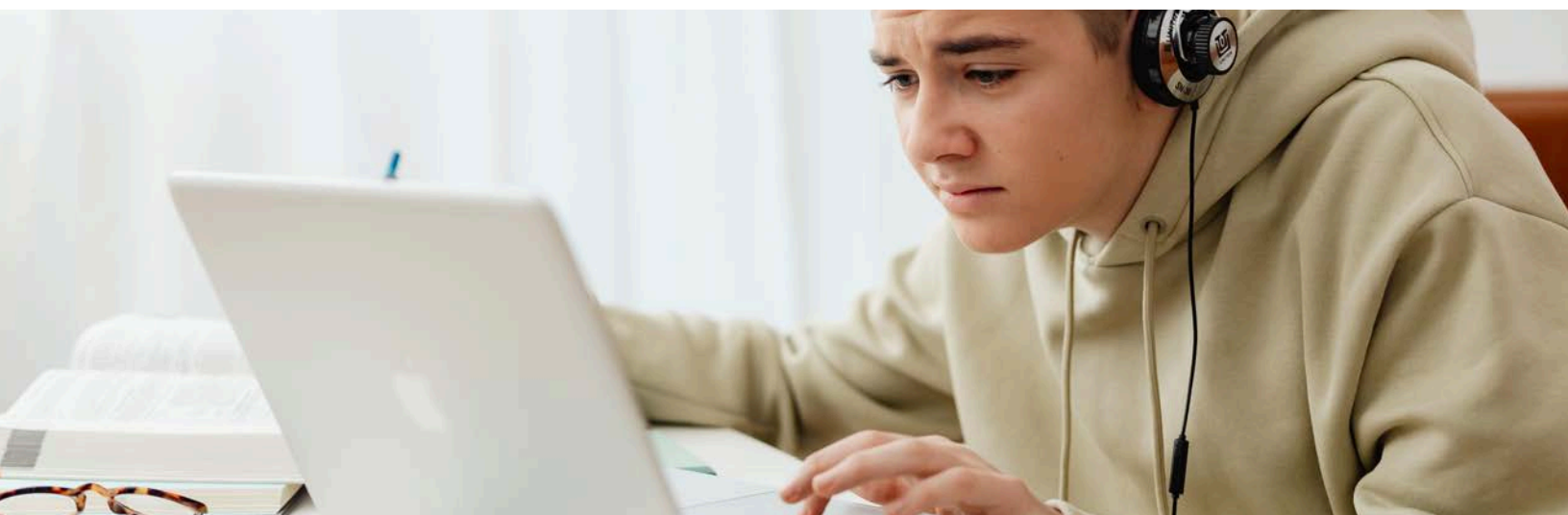
Top Program Title	Associate in Science for Transfer (AST)	Associate of Arts (AA)	Associate of Science (AS)	Certificate
Computer Information Systems		●	●	●
Computer Infrastructure and Support			●	●
Computer Networking		●	●	●
Computer Programming		●	●	●
Computer Science (Transfer)	●	●	●	●
Computer Software Development				●
Computer Support			●	●
Computer Systems Analysis				●
Database Design and Administration			●	●
E-Commerce (Technology Emphasis)				●
Information Technology, General		●	●	●
Mathematics, General (AST)	●	●	●	
Other Information Technology			●	●
Software Applications		●	●	●
World Wide Web Administration		●	●	●

Source: CCCCCO, DataMart, 2022–24, for 19 community colleges in the Los Angeles region all TOP codes under 11 and 27.

Figure 11 maps the community college computer science TOP codes within a wide range of program areas and credential types, including Associate of Arts, Associate of Science, Associate in Science for Transfer and certificates. Many programs offer an Associate of Science and/or certificate, while far fewer offer clearly identified transfer degrees. This variation matters for students and advisors. A student may see “computer science,” “computer programming,” “information technology,” “computer networking,” “computer support” or “software applications” and assume these programs lead to similar outcomes. In reality, these credentials may connect to different occupations, different wage levels, different transfer options and different advancement prospects.

For K–16 pathway designers, the implication is to continue to grow options and make their purposes more transparent. Students need clear information about which credentials are designed for transfer, which may lead to direct employment, which build technical skills but require additional education, and which are unlikely to provide access to high-wage roles without further preparation.

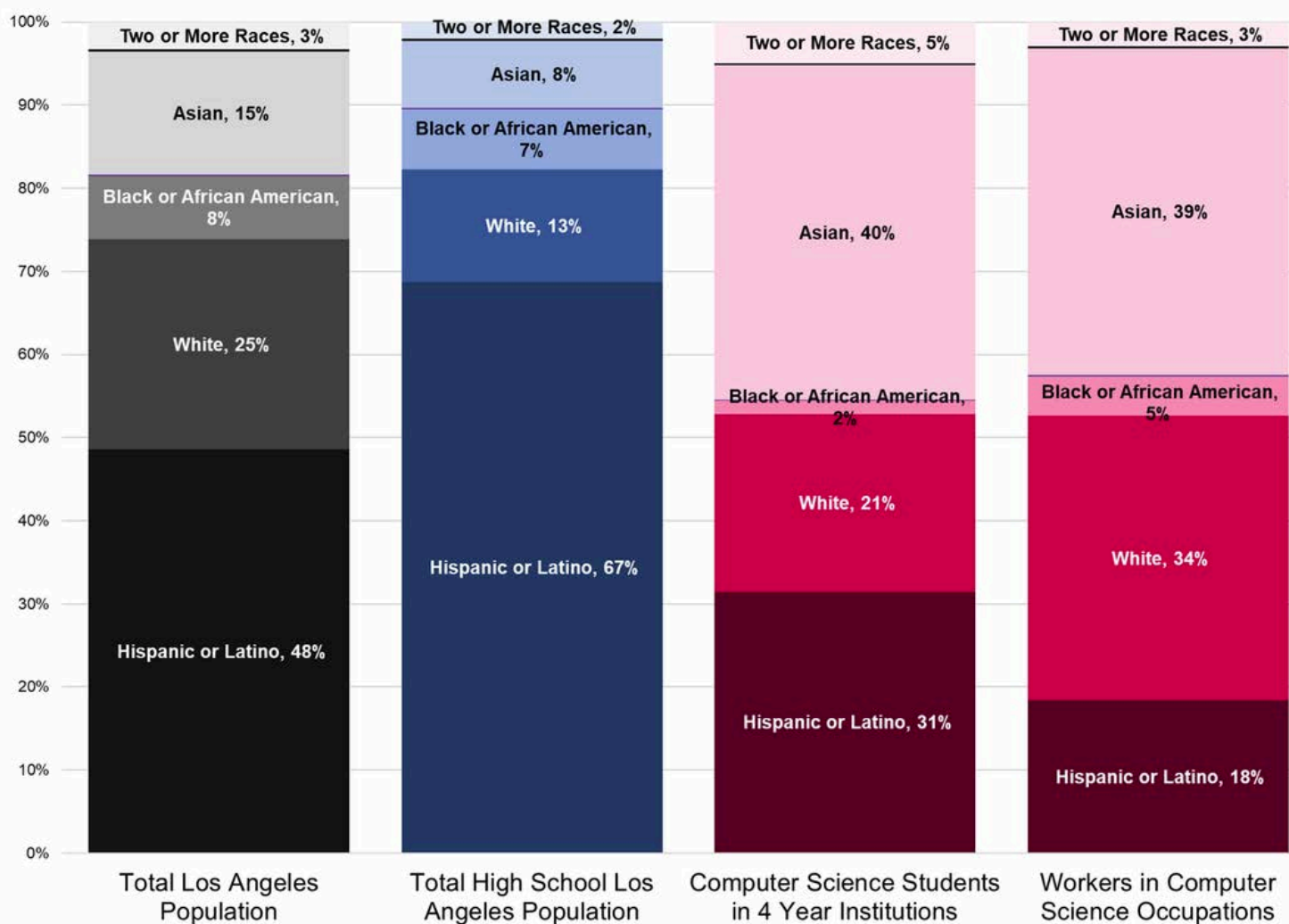
In a labor market where bachelor’s completion is the gateway to many high-wage computer science roles, unclear credential signals create risk. Students may complete programs that build useful skills but do not position them for the occupations they expected to access. Stronger advising, clearer program maps and better alignment between high school, community college and university pathways can help ensure that associate-level computer science programs function as effective bridges rather than unintended endpoints.



Who Accesses Computer Science Opportunity— and Who Doesn't

Access to computer science opportunities is uneven across the pathway from high school to postsecondary education to employment.

Figure 12. Demographic Composition of the Los Angeles Computer Science Workforce Compared to Los Angeles High School and County Population



Sources: Census: Population data retrieved from DP05, 2023. Five-year estimate ACS demographic and housing estimate tables for Los Angeles County High School: Graduation metric retrieved from CDE ACGR 2025 report. Four-Year Institutions: IPEDS data completions by CIP 6 (2 digit, 11 and 27), for eight universities in the Los Angeles region. Occupations: Lightcast occupations by location report, 2025-26, for Los Angeles County. Occupations for Engineering include all 6 digit SOC codes within the computer science 15 cluster.

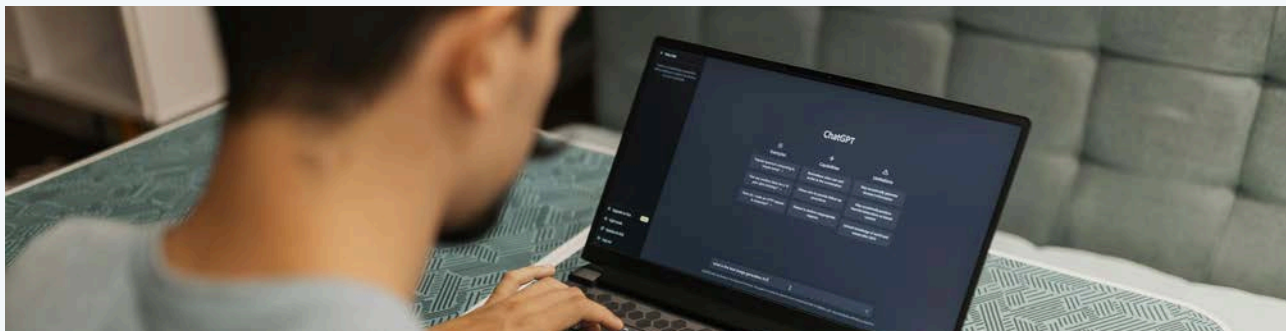
Figure 12 illustrates that Hispanic or Latino individuals comprise 67 percent of Los Angeles County high school graduates, yet represent 31 percent of computer science students in four-year institutions and only 18% of workers in computer science occupations. By contrast, White and Asian individuals are overrepresented in computer science employment relative to their share of the high school graduate population. Asian individuals comprise 8 percent of high school graduates but account for 40 percent of computer science students in four-year institutions and 39 percent of workers in computer science occupations.

These disparities signal that inequities in computer science are not limited to initial exposure or enrollment. Representation narrows across the pathway, particularly between high school completion, four-year degree attainment and workforce participation. This matters for economic mobility because the highest-wage roles in computer science are strongly tied to bachelor's completion, applied experience and access to professional networks.

It also matters because computer science increasingly shapes the systems through which people live, work, learn, receive services and make decisions. Software, data systems, algorithms and artificial intelligence are embedded in education, health care, transportation, public administration, hiring, housing, finance and communication. When the workforce designing these systems does not reflect the communities most affected by them, the consequences extend beyond individual career opportunity. A less representative computer science workforce can narrow the perspectives shaping technology design, limit attention to how tools operate across different communities and increase the risk that systems reproduce or deepen existing inequities.

For K–16 leaders, this means representation in computer science should be understood as both an economic mobility issue and a civic design issue. Expanding access to introductory coursework alone is unlikely to change who reaches the roles with the greatest influence over technology development. Without intentional support for transfer, bachelor's completion, applied learning, internships and professional networks, students from historically underserved communities may remain underrepresented not only in high-wage occupations, but also in the design decisions that shape the future of public and private systems.

Artificial Intelligence and the Future of Computer Science Work¹³



The rapid development of generative artificial intelligence is introducing a new layer of uncertainty into computer science career pathways. Tools such as large language models are increasingly capable of writing code, debugging programs and assisting with software design tasks that were previously performed by human developers.

Early research suggests that a substantial share of tasks performed in computer-related occupations could be affected by generative AI. These effects do not translate neatly into job loss or job growth. AI may increase productivity in some roles while reducing demand for routine tasks in others. Recent California evidence reinforces the need for caution and adaptability. A 2026 California Policy Lab analysis of unemployment insurance claims found no statewide surge in claims from AI-exposed occupations after the release of ChatGPT-3.5, but did find elevated claims among college-educated workers, workers in technology-heavy sectors whose occupations have high AI exposure. These findings are descriptive rather than causal, but they suggest that AI-related disruption may emerge unevenly across regions, industries and education levels.¹⁴

¹³ Brynjolfsson, E., Chandar, B., & Chen, R. (2025).

[Canaries in the coal mine? Six facts about the recent employment effects of artificial intelligence](#). Stanford Digital Economy Lab; Kinder, M., Kendall, J., Lee, M., & Gimbel, M. (2023).

[Generative AI, the American worker, and the future of work](#). Brookings Institution; De Liban, K., [The inescapable AI transformation of work](#). Techtonic Justice. (2024).

Davis, J. S. (2026). AI is simultaneously aiding and replacing workers, wage data suggest. Federal Reserve Bank of Dallas. <https://www.dallasfed.org/research/economiccomputer science/2026/0224>

¹⁴ Hyman, B., von Wachter, T., Herrera, D., Moghadam, R., Morris, J., Motghare, S., & Segal, K. (2026). [Tracking AI-related job loss using unemployment insurance claims data in California](#). California Policy Lab.

Since the release of ChatGPT, employment across the U.S. in the computer science sector declined by 5 percent (Dallas Fed, 2026). National analyses estimate that more than 30 percent of workers could see at least half of their job tasks impacted by generative AI tools, while up to 85 percent of workers could experience some degree of task disruption. At the same time, the wages of computer science jobs that remain have continued to grow since ChatGPT was released.

This uncertainty is especially important for education systems. If routine technical tasks become more automated, students may need stronger preparation in higher-order capabilities such as system design, problem framing, data interpretation, cybersecurity awareness, human-AI collaboration and interdisciplinary problem solving. The value of applied experience may also increase, because students will need to show that they can use AI-enabled tools effectively in real-world contexts rather than simply demonstrate isolated technical knowledge.

The equity implications are also significant. If AI reshapes entry-level computer science work, students without access to strong advising, applied projects, internships and professional networks may face even greater difficulty gaining early traction in the field. At the same time, as AI systems become more central to social and economic life, it becomes even more important that the people building, testing, governing and improving these systems reflect the communities affected by them.

The long-term effects of AI on computer science employment remain uncertain. For K–16 leaders, the appropriate response is not to retreat from computer science pathways, but to design them with more adaptability. Students need foundations that allow them to learn new tools, apply technical knowledge across contexts and build the judgment required to work alongside evolving technologies in ways that are both effective and socially responsible.

Design Considerations for K–16 Education Systems

The computer science labor market in Los Angeles County requires education systems to move beyond simply expanding access to computer science coursework. Participation is an important starting point, but it does not guarantee access to the most stable or high-wage roles in the field. Preparing students for computer science careers requires pathways that connect foundational learning to transfer, applied experience, specialization and competitive labor market entry.

Help Students Understand Where CS Pathways Lead¹⁵

“Computer science” is not a single destination. Students benefit from early exposure to subfields such as data science, cybersecurity, software engineering, information systems and artificial intelligence because these pathways lead to occupations with different wage levels, hiring norms, growth trajectories, credential expectations and applied experience requirements. Advising should help students understand how these subfields connect to industries and employment opportunities so they can build direction and depth without being forced to specialize too early. Without this clarity, students may complete coursework without understanding how CS pathways diverge—or what additional preparation is required to access higher-wage roles.

Design Pathways Around Bachelor’s Degrees as the Baseline for High-Wage Roles

Many high-wage computer science occupations in Los Angeles County require bachelor’s-level preparation, and the available openings are concentrated at that level, as shown in Figures 6 and 7. The sub-bachelor’s occupation analysis further suggests that associate degrees and certificates may provide useful technical preparation, but offer limited access to the strongest CS labor market opportunities without transfer, bachelor’s completion or applied experience. For this reason, high schools and community colleges should communicate clearly which credentials are designed for transfer, which may lead to direct employment and which require additional education or experience to access stronger labor market outcomes. Treating all computer science credentials as equivalent can mislead students about the value of different pathways.

¹⁵ Arne Güllich et al. (2025). Recent discoveries on the acquisition of the highest levels of human performance.

Integrate Applied Experience into the Pathway¹⁶

In computer science, applied experience is not an optional add-on. Internships, client-based projects, portfolios, work-based learning and sustained technical projects help students demonstrate readiness in a competitive labor market. Pathways should embed applied learning early and consistently, especially for students who may not have access to professional networks outside of school.

Prepare Students to Work with Rapidly Evolving AI Tools¹⁷

Generative AI is changing the nature of technical work and may reshape entry-level roles over time. Computer science pathways should help students develop adaptable skills, including problem framing, system design, ethical reasoning, human-AI collaboration and applied problem solving. These skills will help students remain competitive as tools and employer expectations continue to evolve.

Treat Representation as Both an Economic Mobility and Technology Design Issue

Expanding representation in computer science matters not only because these careers offer strong wages, but because computer science workers help design the systems that increasingly shape how people learn, work, receive services, access information and make decisions.¹⁸ As shown in Figure 12, representation narrows substantially between high school completion, four-year computer science degree attainment and employment in computer science occupations, suggesting that inequities accumulate across the pathway. K–16 systems should treat equitable access to advanced coursework, transfer pathways, applied experience and professional networks as central to both economic opportunity and responsible technology development.

Expanding access to computer science is an important first step, but access must be designed to lead somewhere. When systems treat computer science primarily as

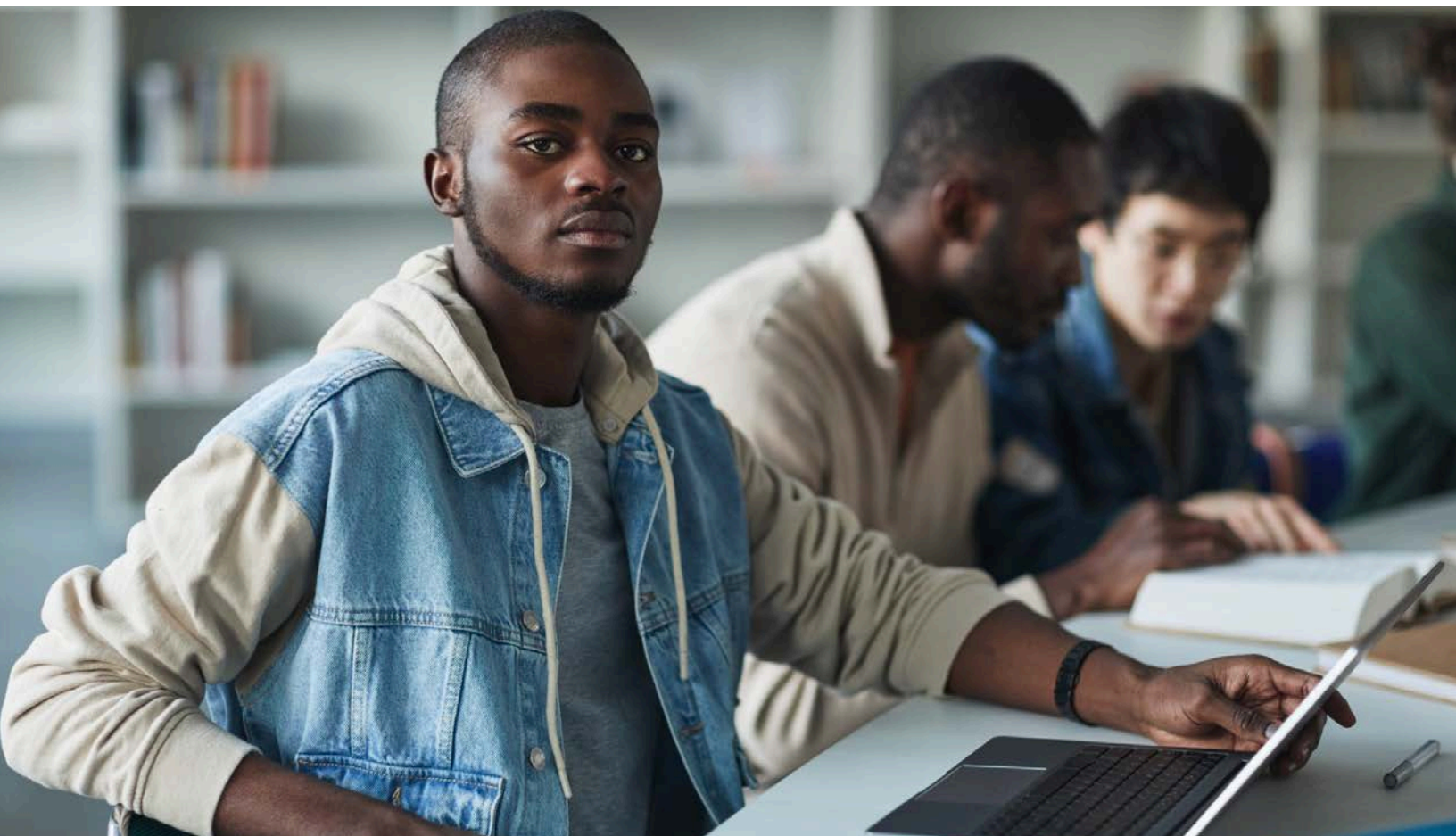
¹⁶ National Association of Colleges and Employers. (2026). [Employer use of skills-based hiring practices grows](#).

¹⁷ World Economic Forum. (2026). [Shaping the future of learning: Education readiness for the age of AI](#) (Insight Report).

¹⁸ Office of Science and Technology Policy. (2022). [Blueprint for an AI Bill of Rights: Making automated systems work for the American people](#). The White House; National Institute of Standards and Technology. (2023). [Artificial intelligence risk management framework](#). U.S. Department of Commerce.

exposure, they may widen participation without widening opportunity. When K–16 partners design pathways that support progression, applied experience, credential completion and clear labor market navigation, computer science can become a pathway to durable economic mobility and meaningful participation in shaping the technologies that affect everyday life.

Computer science is broad, competitive and rapidly changing, with careers distributed across industries and shaped by evolving expectations. Engineering, by contrast, follows a more structured and degree-dependent pathway. Understanding these differences gives K–16 leaders a clearer design challenge: reduce risk, make pathways more transparent and ensure investments in both fields expand not only participation, but real opportunity.





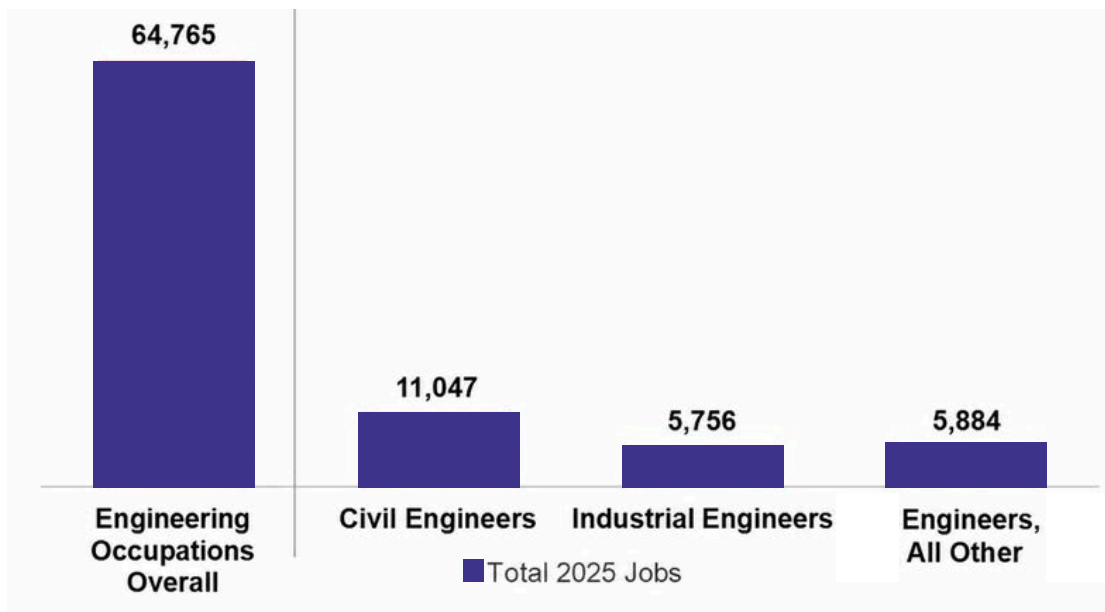
Part 2: Engineering Pathways in Los Angeles County—Structured Opportunities, Narrow On-Ramps

While computer science skills appear across many industries and roles, engineering occupations are more tightly connected to specific industries and professional disciplines, creating a labor market that is smaller and more structured. Entry into engineering roles typically requires completion of a defined academic sequence, beginning with advanced mathematics in high school and continuing through a bachelor's degree in a specialized field such as civil, mechanical, electrical or aerospace engineering.

As a result of the fixed structure, the **engineering pathway tends to be more predictable than computer science, but also less flexible**. Students who successfully progress through the academic sequence often enter stable, well-compensated careers. Students who leave the pathway early, however, face limited opportunities.

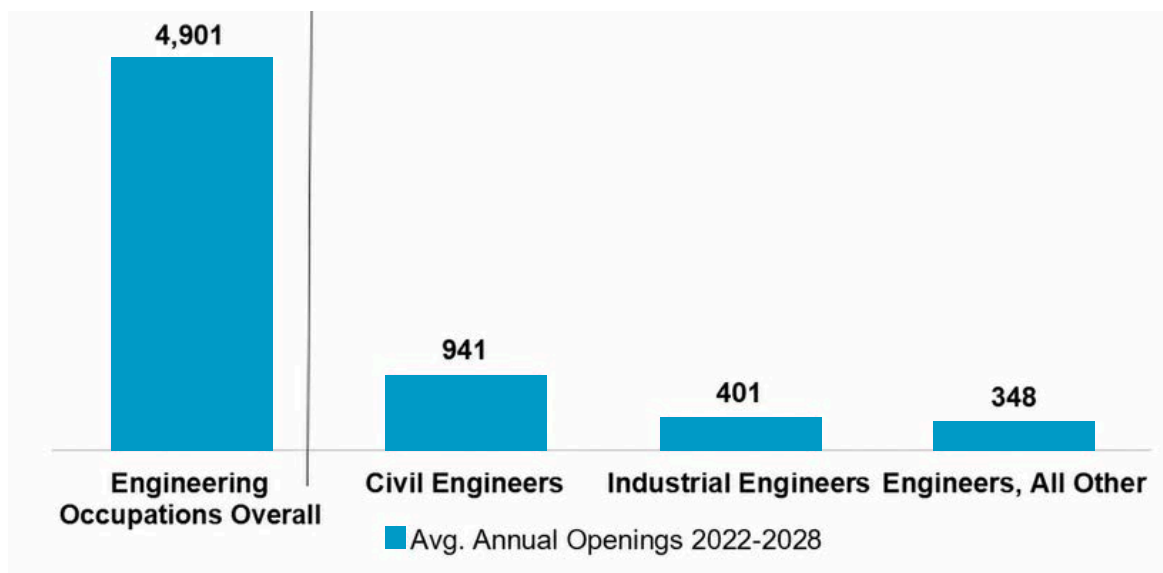
As seen in Figure 13, engineering employment in Los Angeles County is relatively stable, with modest annual openings compared to total employment. Engineering annual openings are not as concentrated in a few occupations as computer sciences. In Figure 13A, the top three occupations with the highest annual openings represent 34 percent of annual openings compared to 50 percent in computer science.

Figure 13. Total Engineering Employment Compared to Occupations with the Highest Employment (2025)



Source: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022-28, Region 6037, SOC 17.

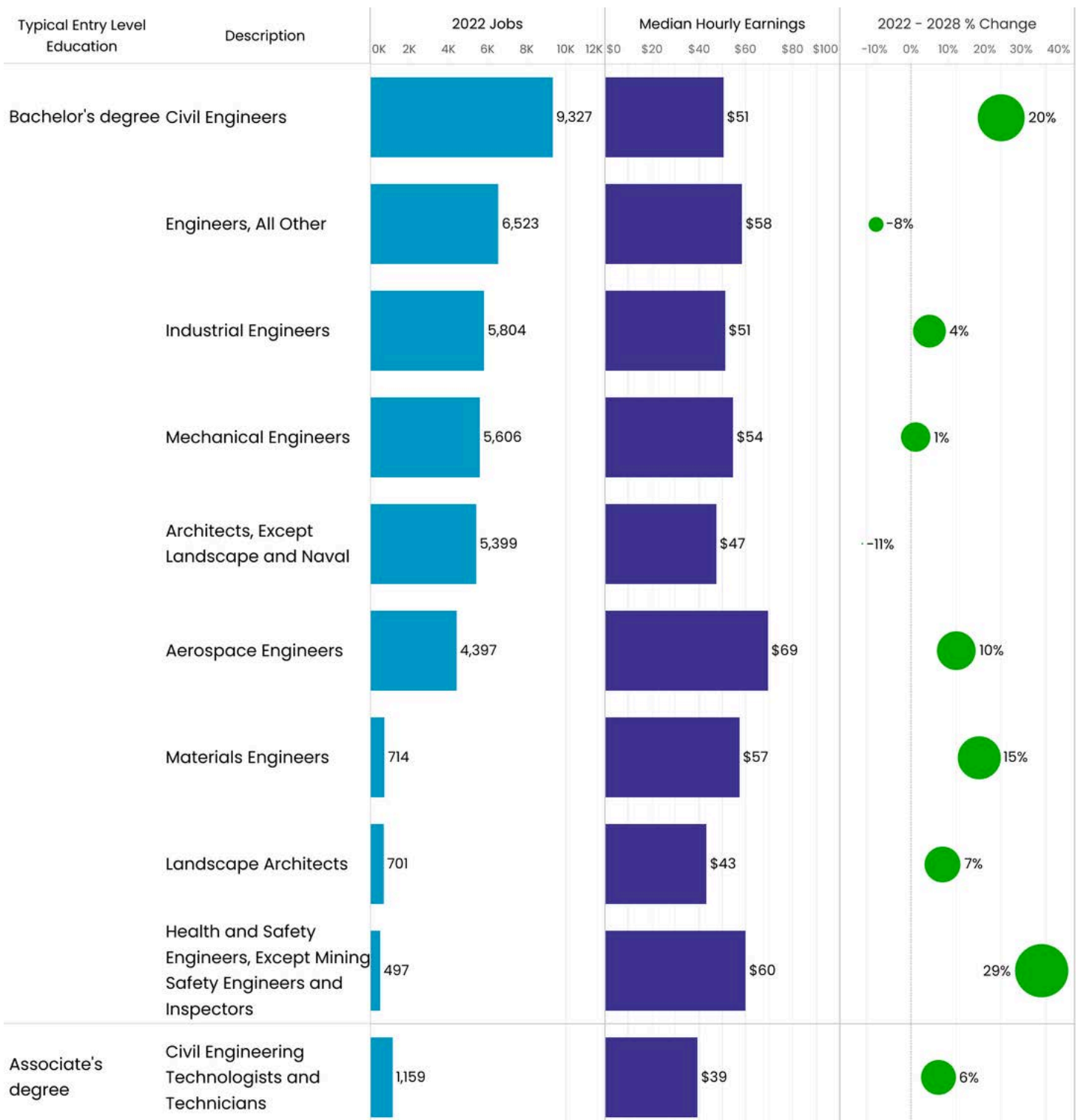
Figure 13A. Total Engineering Annual Openings Compared to Occupations with the Highest Annual Openings (2025)



Source: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022-28, Region 6037, SOC 17.

As seen in Figure 14, the engineering labor market in Los Angeles County is concentrated within a relatively small number of occupations. Civil engineers, mechanical engineers, industrial engineers and aerospace engineers together account for the vast majority of the total regional engineering employment.

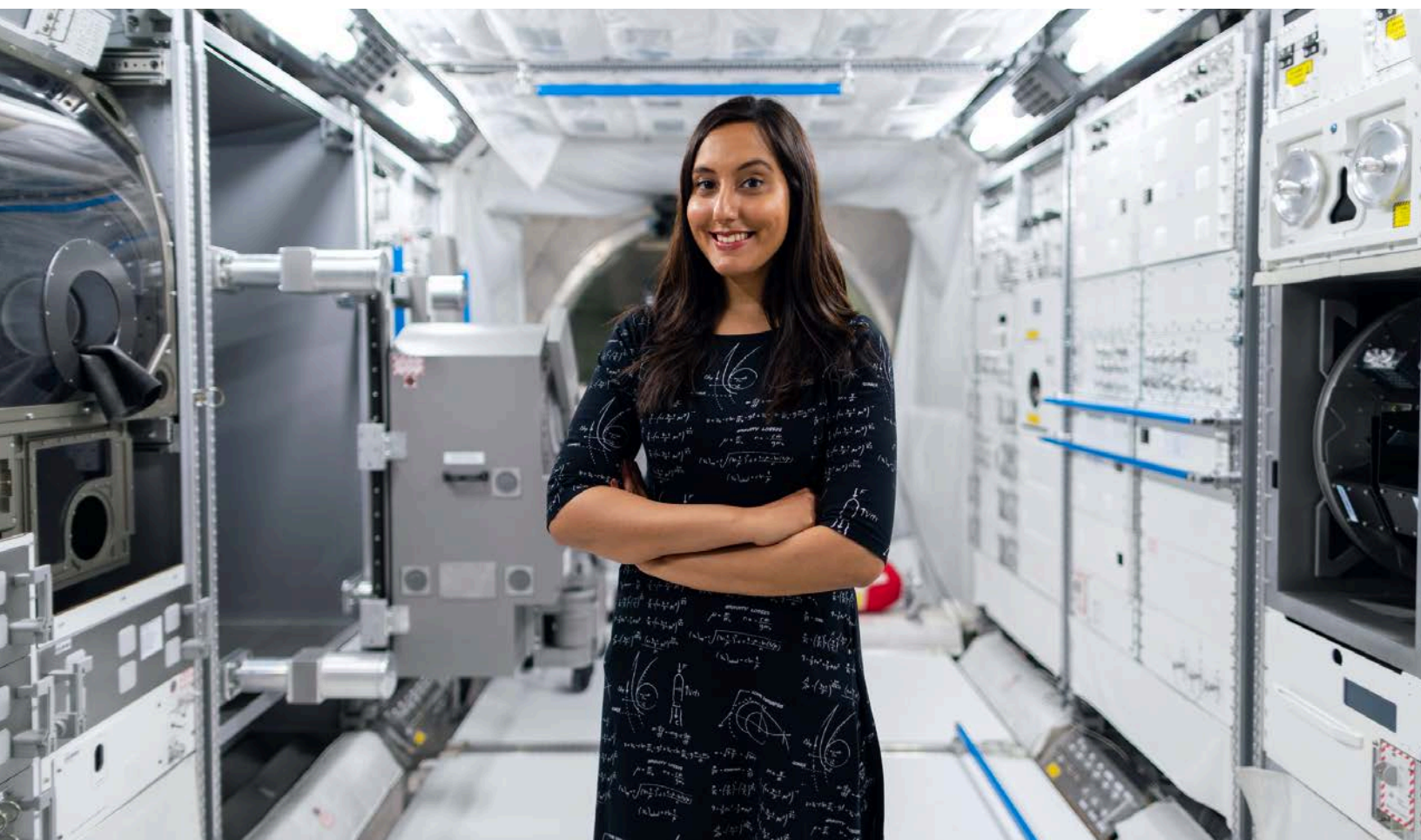
Figure 14. Top Engineering Occupations in L.A. County: Jobs, Growth and Median Wages



Source: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022–28, Region 6037, SOC 17.

Several patterns emerge from the occupational data. Engineering employment is distributed across specialized disciplines rather than a single dominant role. Civil engineering shows the strongest growth, reflecting infrastructure investment and environmental regulation, while aerospace remains regionally significant due to Southern California's long-standing industry base.

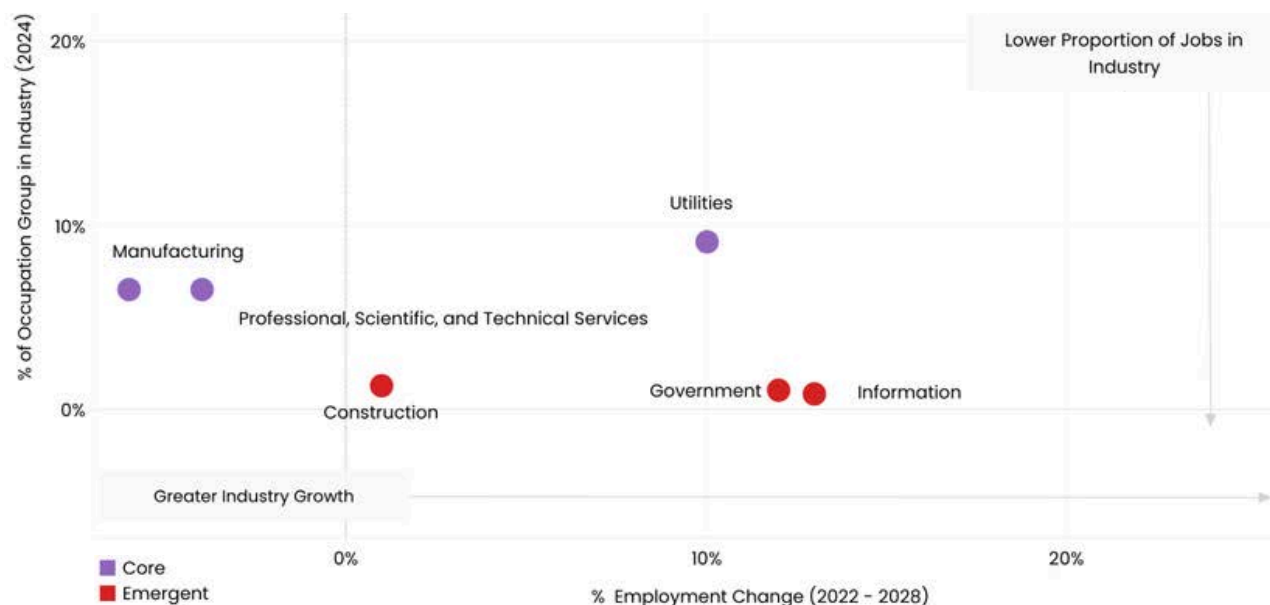
Wages across most engineering occupations remain consistently high. Median hourly earnings exceed \$50 per hour in many fields, placing engineering among the most reliable pathways to long-term wage growth, yet employment growth is uneven across subfields. While civil and safety engineering are expanding, other occupations—including architecture and general engineering roles—are declining.



Job Growth Is Subfield-Specific, Not Sector-Wide

Engineering employment is closely tied to the industries that rely on technical design, infrastructure development and advanced manufacturing.

Figure 15. Distribution of Employment Across Core and Emergent Industry in Engineering in L.A. County



Source: Lightcast Inverse Staffing Tables, 2022-28, QCEW Employees, Non-QCEW Employees and Self-Employed, Region 6037, SOC 17.

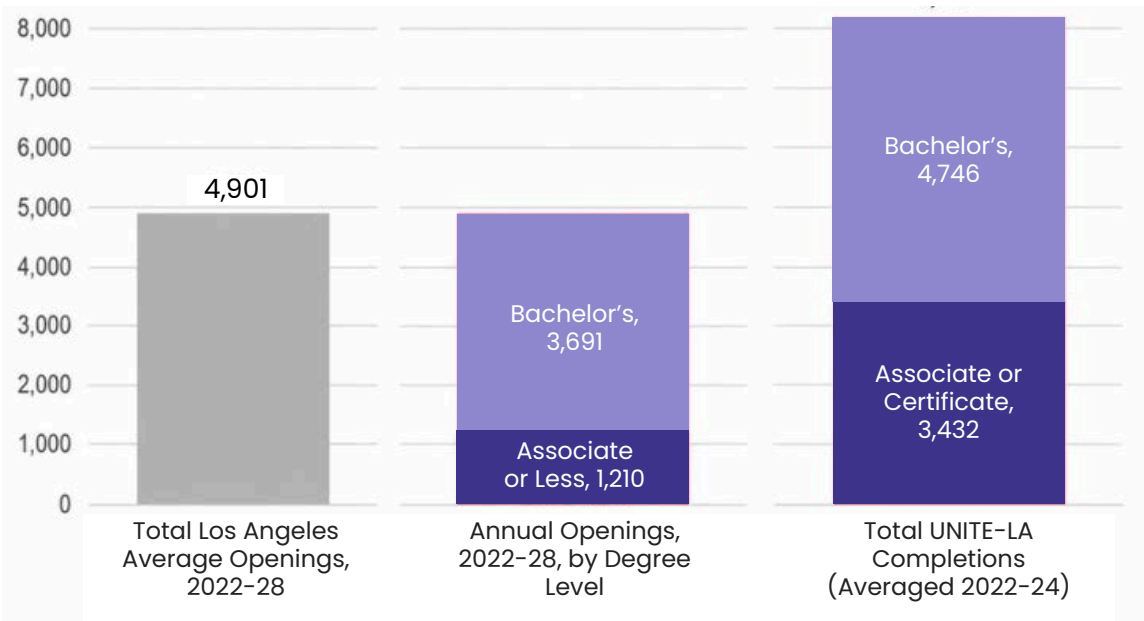
Unlike computer science, where roles appear across nearly every sector, engineering employment clusters within industries such as utilities (9.1 percent of total engineering jobs), manufacturing (6.5 percent of total engineering jobs) and professional technical services (6.5 percent of total engineering jobs), with emerging growth in construction (1.3 percent of total engineering jobs) and government (1 percent of total engineering jobs). These patterns explain why engineering opportunities expand unevenly. Infrastructure investment drives civil engineering demand. Manufacturing cycles shape mechanical and industrial engineering. Aerospace hiring reflects federal investment and regional industry presence.

Several patterns emerge from the occupational data. Engineering employment is distributed across specialized disciplines rather than a single dominant role. Civil engineering shows the strongest growth, reflecting infrastructure investment and environmental regulation, while aerospace remains regionally significant due to Southern California's long-standing industry base.

For K-16 educational systems, this means that engineering pathways cannot be designed as broad “STEM” programs. Each engineering discipline connects to a different industry ecosystem, with distinct employers, regulatory environments and hiring cycles. Aligning educational pathways with these specific industries is essential if programs are to translate into real employment opportunities.

A high-level comparison of job openings in Los Angeles County compared to average completions shows an overproduction of degrees and certificates. Figure 16 below compares projected annual job openings in Los Angeles (2022–28) against degree completions from L.A. K-16 institutions (averaged 2022–24). Of the 4,901 total annual openings, 3,691 require a bachelor’s degree and 1,210 require an associate degree or less. Completions across both credential levels (8,178 total) exceed openings, with bachelor’s completions (4,746) outpacing bachelor’s-level demand (3,691) and associate/certificate completions (3,432) nearly tripling associate-level openings (1,210). This provides a rough comparison of the education field to the anticipated labor market in Los Angeles County and demonstrates that planning conversations need to shift from degree production focus to skills alignment and job placement.

Figure 16. Engineering Degree Production Compared to Annual Openings by Degree Level in L.A. County



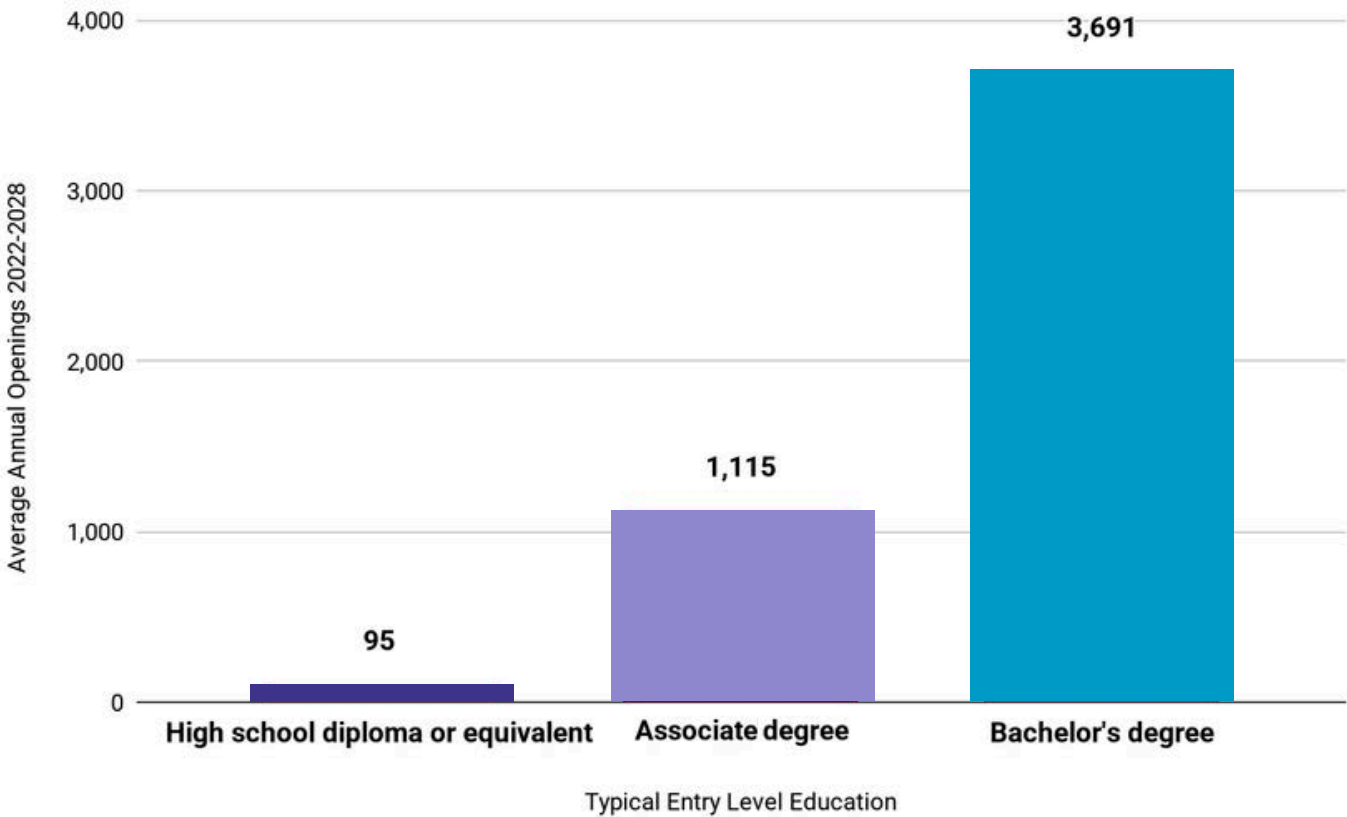
Sources: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022-28, Region 6037, SOC 17. Bachelor's Degree, IPEDS, 2022-24, Completions by CIP 6 digit (CIP 14 and 15), including eight universities in the UNITE-LA region. Community College Degrees and Certifications, DataMart, 2022-24, completions by TOP 6 digit (TOP 09), including 19 community colleges in the UNITE-LA region.

Figure 16 should not be read as a simple supply-and-demand match rather as an opportunity to understand why pathway design must distinguish between credentials that lead to transfer, credentials that support direct employment and credentials that may build useful skills but do not independently lead to high-wage roles.

Engineering Opportunities Overwhelmingly Require Bachelor’s Degrees

As established earlier, the majority of high-opportunity roles remain bachelor’s dependent.

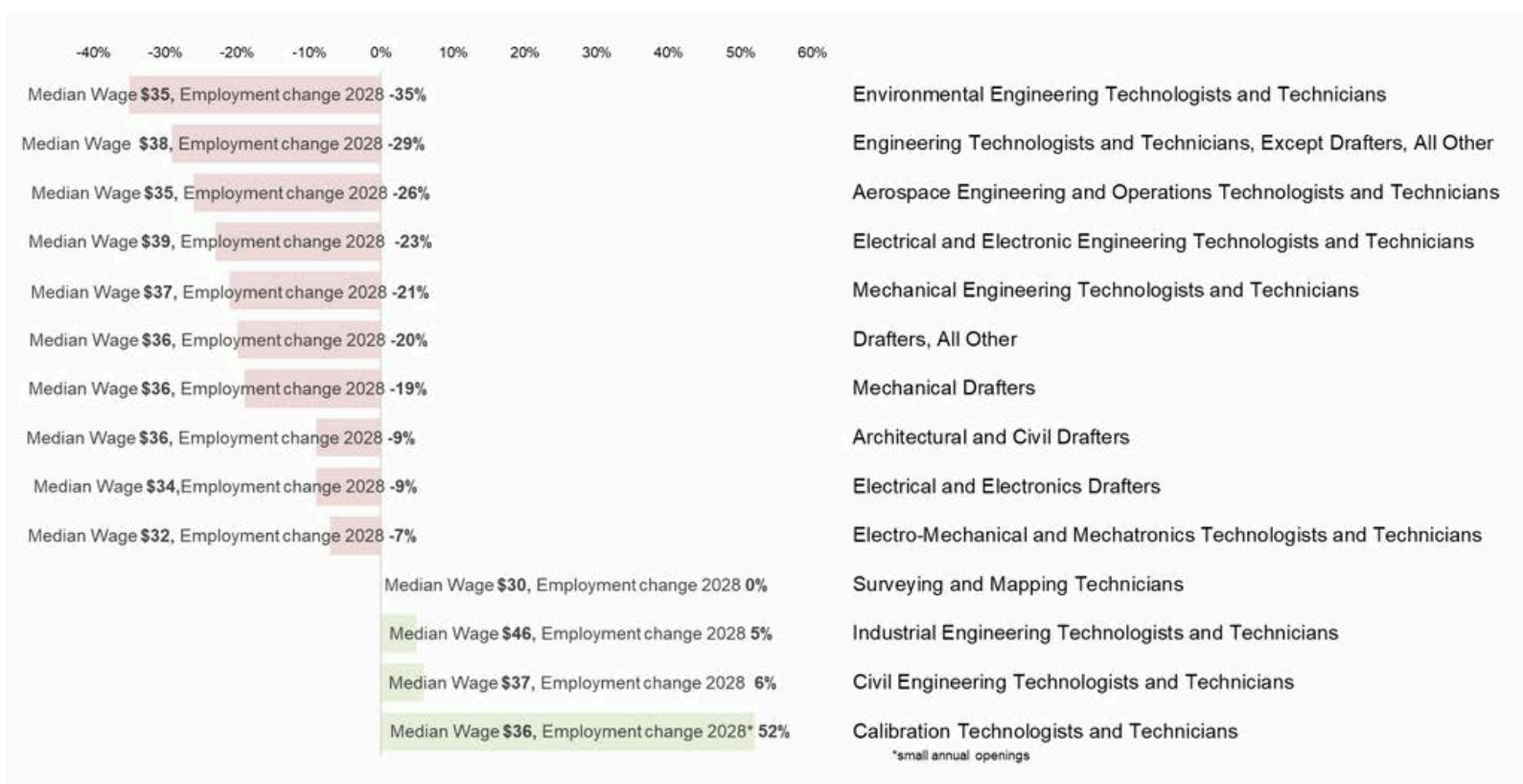
Figure 17. Share of Total Engineering Average Annual Openings Requiring Bachelor’s Degree vs. Associate-Level Entry



Source: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022-2028, Region 6037, SOC 17.

As illustrated in Figure 18, there are 14 engineering occupations that require an associate degree or less. Similar to computer science, these occupations meet the living standard in Los Angeles for one adult, but not for one adult and one child. Further, the majority of these associate degree level occupations are expected to decline through 2028.

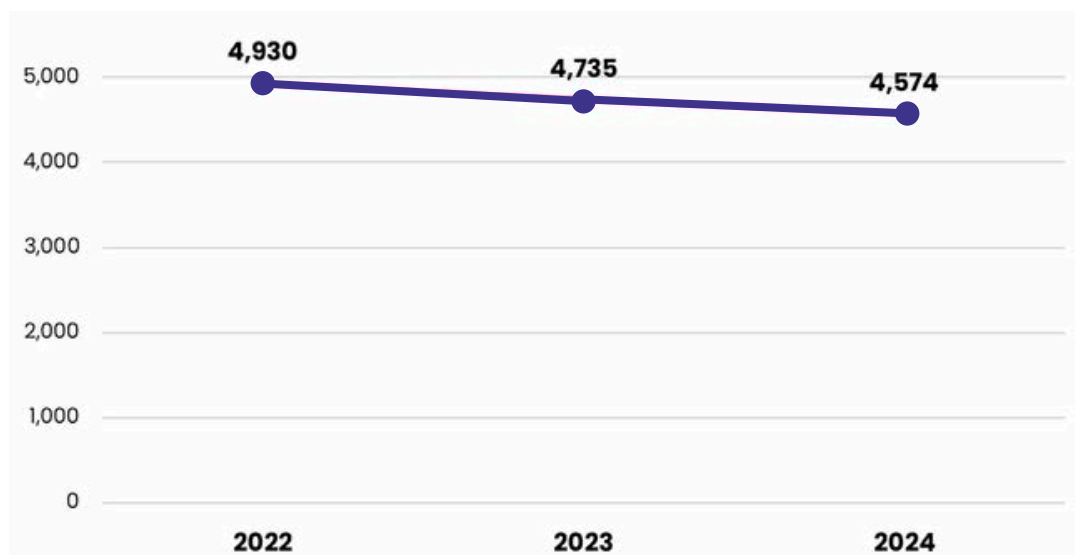
Figure 18. Occupations that Require an Associate Degree or Less



Source: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022-28, Region 6037, SOC 17.

Only one of the top 10 occupations (see Figure 14) —civil engineering technologists and technicians—offers entry at the associate level, representing a small share of total employment. In practical terms, this means that only a small fraction of engineering jobs are accessible without completing a four-year degree. Obtaining a bachelor's degree is not simply an employer preference—it reflects the high stakes nature of the work. Engineers design systems that affect public safety, infrastructure and environmental outcomes which explains why employers rely on formal academic preparation as a signal of readiness.

Figure 19. Engineering Bachelor's Degree Completion in Regional CSU/UC Campuses



Source: Bachelor's Degree, IPEDS, 2022–24, Completions by CIP 6 digit (CIP 14 and 15), including eight universities in the L.A. K-16 region.

Because engineering pathways are highly structured, students benefit from early exposure not only to engineering concepts, but also to college-level expectations and academic sequencing. Dual enrollment can play an important role in this process by helping students build familiarity with university environments, develop engineering identity, and begin accumulating transferable coursework before high school graduation. In engineering, where delayed entry into calculus, physics, or foundational engineering sequences can extend time to degree or derail transfer altogether, early alignment across K12, community colleges, and universities can significantly reduce pathway friction.¹⁹

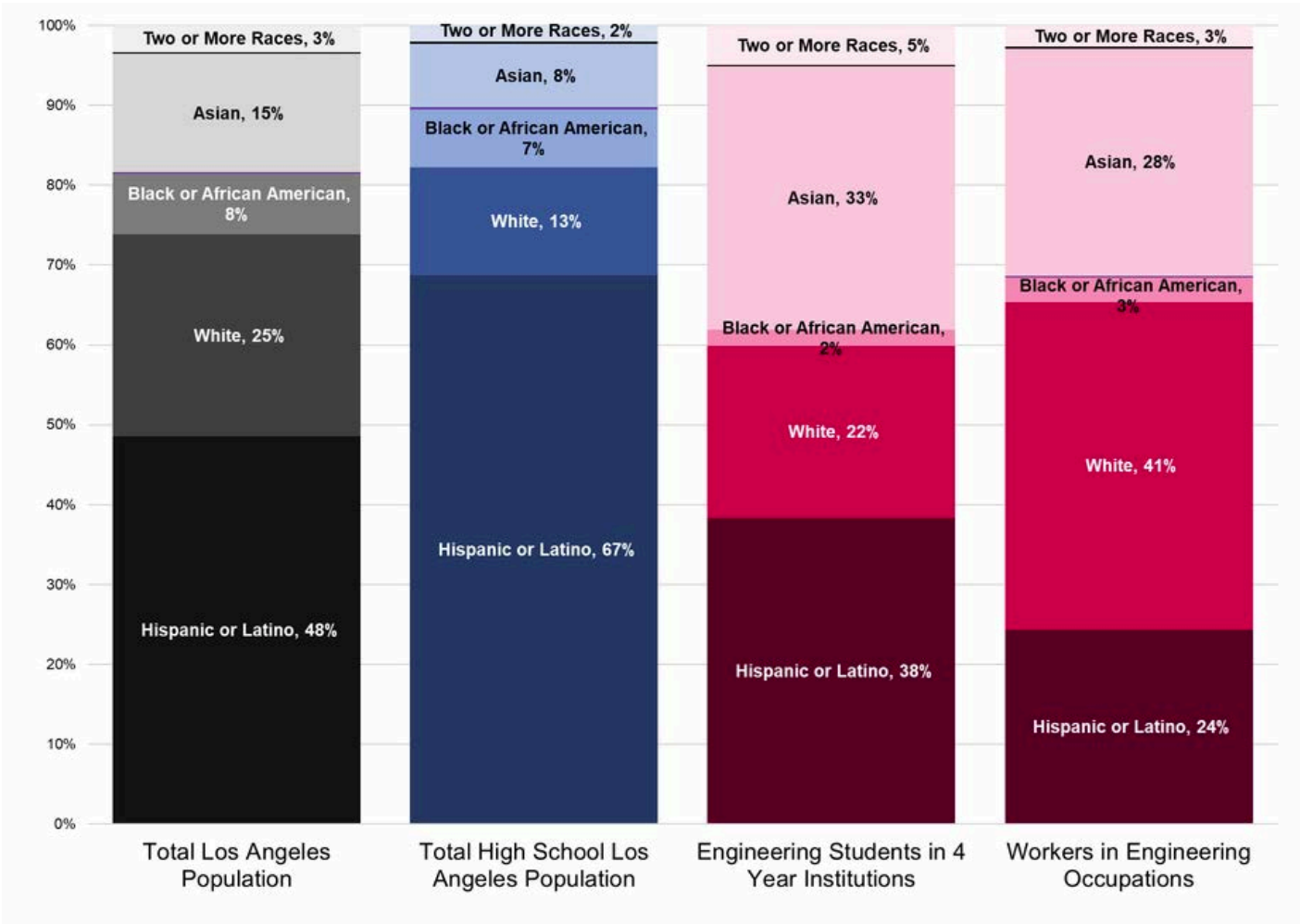
With bachelor's degrees foundational to engineering jobs, the pathway from community college to university becomes the central mechanism for accessing opportunity. Los Angeles County is home to 21 community colleges that prepare students for transfer into bachelor's degrees, playing a vital role in expanding access to engineering occupations. Effective transfer pathways need to be clearly aligned—through coordinated course sequences, articulation agreements, and proactive advising. Barriers to transfer directly equate to lost economic opportunity.

¹⁹ See Part 3 for a case study on engineering-focused dual enrollment in Long Beach.

Who Accesses Engineering Opportunity— and Who Doesn't

Figure 20 illustrates how representation changes across the engineering pathway from the broader Los Angeles County population to engineering education and workforce participation.

Figure 20. L.A. County Comparison of Demographic Makeup (Race as a Percentage of Total) between the Total Population (Census), K-12 Education (High School), Higher Education Completions (Four-Year Institutions) and the Engineering Labor Market (Occupations).



Sources: Census: Population data retrieved from DP05, 2023, five-year estimate demographic and housing estimate tables for Los Angeles County; High School: Graduation metric retrieved from CDE ACGR 2025 report; Four-year Institutions: IPEDS data completions by CIP 6 (2 digit 14 and 15), for eight universities in the Los Angeles region; Occupations: Lightcast occupations by location report, 2025-26, for Los Angeles County. Occupations for Engineering include all 6 digit SOC codes within the computer science 17 cluster. Note: In this chart in many cases American Indian or Alaska Native and Native Hawaiian or Other Pacific Islander are listed as 0 percent due to rounding.

Figure 20 illustrates how representation in engineering changes across the pathway—from population to education to employment. The data reveal where access narrows or expands, highlighting key points where students are either supported into or filtered out of engineering careers:

- While Hispanic or Latino individuals make up a substantial portion of the population in Los Angeles County (48 percent in the census data and 67 percent of high school graduates in this specific dataset), their representation falls sharply in engineering, comprising only 38 percent of four-year institution degrees and dropping further to 24 percent in engineering occupations.
- White individuals appear underrepresented in high school metrics compared to the County’s general population (13 percent and 25 percent respectively) but are significantly overrepresented in the engineering pipeline, holding 38 percent of four-year degrees and 41 percent of engineering occupations.
- While Asian individuals make up a small portion of the baseline populations (15 percent in the census data and roughly 8 percent of high school graduates), they are significantly overrepresented in the engineering field, holding 33 percent of four-year engineering degrees and 28 percent of engineering occupations.



Design Considerations for K–16 Education Systems

Engineering pathways operate under a different set of conditions than many other technical fields. While engineering careers offer strong wages and stable long-term demand, the majority require bachelor’s-level completion and sustained preparation in mathematics and science. As a result, the challenge for educators is not simply to expand engineering exposure, but ensure students can move through the full academic sequence required to access engineering careers. Several system conditions are particularly important for K–16 leaders designing engineering pathways:

Protect Early and Sustained Access to Advanced Mathematics

Engineering access begins long before college. Placement into Algebra I, progression through calculus and advising into STEM course sequences in high school determine whether students remain eligible for engineering majors later.²⁰ Exposure to engineering concepts without parallel math preparation may spark interest, but it does not sustain access to engineering careers.

Design Community College Engineering Programs Primarily as Transfer Pathways

In Los Angeles County, most engineering occupations require a bachelor’s degree. Currently there are no ADTs in engineering in California.²¹ Associate-level engineering degree programs that do not lead to transfer offer limited opportunity with a small share of engineering jobs with few providing advancement in L.A. County. Because engineering pathways are highly sequenced, community college engineering programs must be designed with transfer alignment as its central goal. Misalignment in calculus, physics or foundational engineering coursework can delay transfer, increase excess credit accumulation or push students off the pathway entirely. Clear articulation agreements, aligned lower-division coursework and proactive advising are therefore essential components of effective community college engineering pathway design.

²⁰ Just Equations. (2021). [Charting a New Course: Investigating Barriers on the Calculus Pathway to STEM](#).

²¹ [Associate Degree for Transfer Major and Campus Search | CSU](#).

Integrate Early College Exposure and Dual Enrollment Opportunities

Dual enrollment can play an important role in strengthening engineering pathways by helping students build familiarity with college expectations, engineering identity and transfer systems earlier in the pipeline. As discussed in Part 3, engineering-focused dual enrollment can help students build early engineering identity and understand the academic sequence required for transfer and bachelor's completion.

Measure Progression, Not Just Participation

Expanding engineering enrollments alone does not indicate expanded opportunity. More meaningful indicators include progression through advanced mathematics, completion of concentrator and capstone coursework, successful transfer into university engineering programs and bachelor's degree attainment. These milestones better reflect whether students are successfully navigating the pathway required to access engineering careers.

Address Inequities Earlier in the Pipeline

Because engineering access is mediated so heavily by mathematics preparation and bachelor's completion, disparities in representation often emerge well before students enter college. Protecting access to advanced math coursework, strengthening advising, making transfer expectations transparent and expanding early engineering exposure are critical to broadening participation in engineering careers.

Looking at these considerations together suggest that engineering pathways must be designed as sequenced systems rather than isolated programs. Engineering careers offer strong wages and relatively stable demand, but only for students who successfully traverse the academic bridge from high school through bachelor's completion. Expanding exposure without strengthening progression systems risks increasing participation without increasing access to engineering careers.



Part 3: K–12 Preparation, Pathway Progression and Postsecondary Alignment

Many of the barriers that shape long-term opportunity in computer science and engineering careers emerge long before students reach college. Along with student interest and exposure, student success is heavily dependent on a students' ability to move through a specific sequence of academic, technical and postsecondary milestones.

Academic Readiness as the First Gatekeeper

Mathematics proficiency and A–G completion are two important indicators of intent to pursue a four-year college degree. A recent LAUSD study found that students who complete four years of math in high school are more likely to enroll in a four-year college.²² Approximately 39 percent of students in Los Angeles County met or exceeded state math standards in 2024–25,²³ while 54 percent of students complete A–G requirements the same academic year,²⁴ meaning nearly half of high school graduates are not eligible for direct admission into University of California (UC) or CSU systems after high school graduation.²⁵ These indicators are often discussed as college readiness measures, but in computer science and engineering they also function as gatekeepers to pathway access.

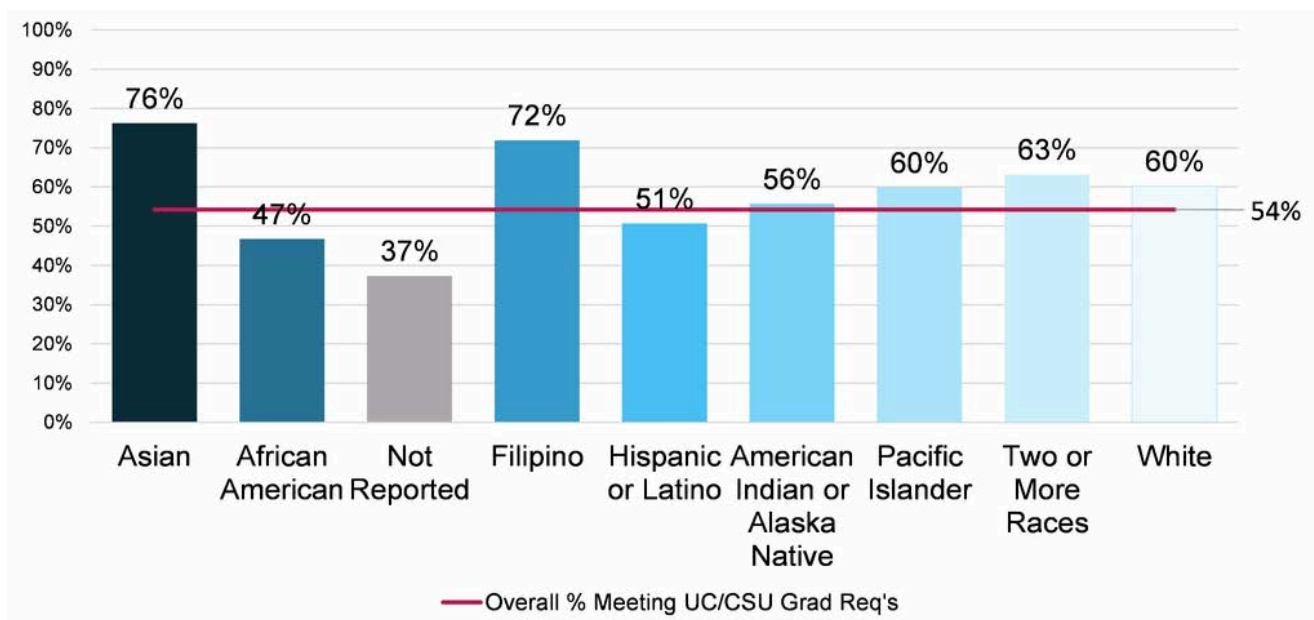
²² Wainstein, L., Miller, C. E., Phillips, M., Yamashiro, K., & Melguizo, T. (2023). [Twelfth grade math and college access](#) (LAERI Research Report). Los Angeles Education Research Institute.

²³ Los Angeles County Office of Education. (2025). [2024–25 California Assessment of Student Performance and Progress results](#).

²⁴ California Department of Education. (2025). [CAASPP Smarter Balanced test results: Los Angeles County \(2024–25\)](#).

²⁵ California Department of Education. (2024). [Graduation Requirements – High School](#).

Figure 21. Percent of Students Meeting UC/CSU Requirements in the 2024-25 School Year, Los Angeles County



Source: California Department of Education Adjusted Cohort Graduation Rate ACGR for 2024-25. Measuring the completion rate by race and ethnicity for students who “Met UC/CSU Grad Requirements,” using the count variable measuring “total number of cohort graduates who met all A-G requirements for admission into a University of California (UC) or California State University (CSU) school.”

These outcomes are not evenly distributed across student populations. As illustrated in Figure 21, African American and Hispanic/Latino students complete A–G requirements at lower rates than the County average, reinforcing disparities that appear further in the pipeline of computer science and engineering degree attainment and workforce participation. Addressing representation in these fields therefore requires attention not only to who enrolls in pathway courses, but who remains eligible to continue into the postsecondary programs that lead to high-wage roles.

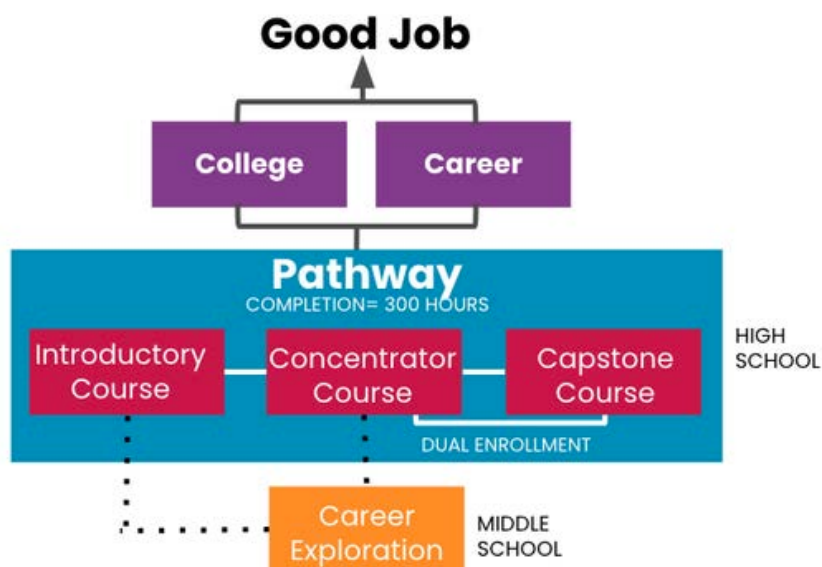


CTE Pathways: Strong Exposure, Uneven Progression

Career Technical Education (CTE) provides an important entry point into computer science and engineering in the K-12 system. CTE introduces students to technical concepts, career possibilities and applied learning experiences that may not otherwise be available in traditional academic coursework. In this sense, CTE plays a critical role in expanding early access.

However, data suggest that many students are not moving past introductory coursework. This pattern matters because introductory exposure alone does not prepare students equally for the next stage of computer science or engineering pathways. Both fields require progression, but the type of progression differs.

Figure 22. Anatomy of the K-12-Focused CTE Pathway

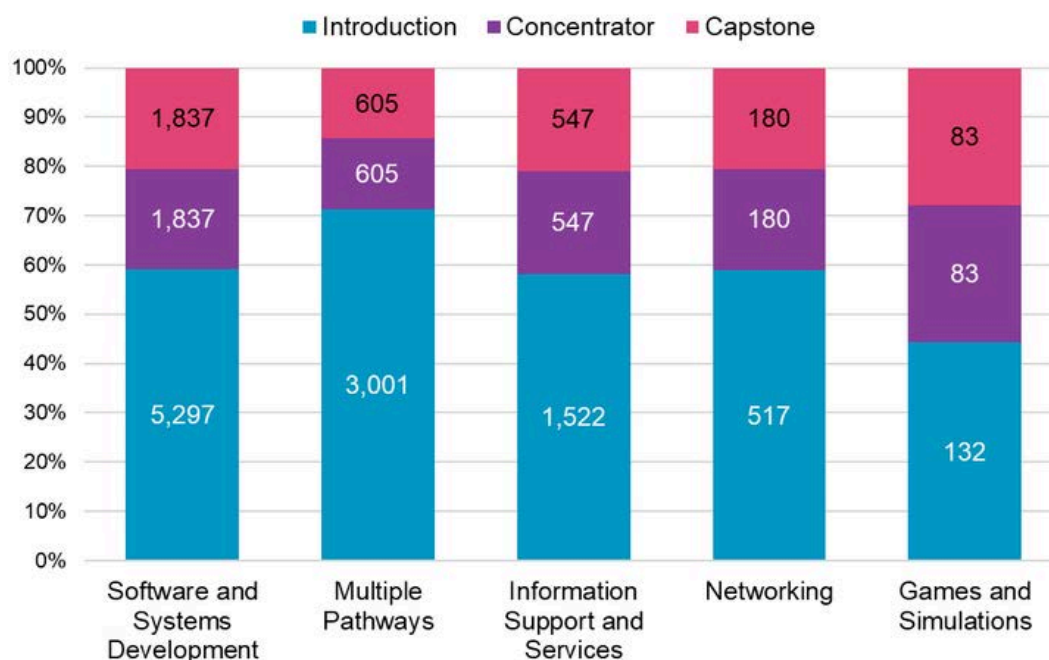


There are structural reasons that students aren't moving past introductory courses, including scheduling issues; courses competing with other electives or advanced work; or course availability due to teacher shortage, lack of equipment, labs, etc. Among these challenges, the design question for K-12 systems is whether CTE pathways are, or could be, structured to help students move beyond exposure into the next milestones required by each field.

Computer Science K-12 CTE Pathways

Information and Communication Technologies (ICT) pathways,²⁶ the CTE pathway aligned with computer science occupations, enroll large numbers of L.A. County students, particularly in Software and Systems Development and broader exploratory ICT coursework. These enrollment patterns in Figure 23 reflect the pattern of many ICT pathways whereby a large share of students participate in introductory or exploratory courses designed to build awareness of digital tools, computing concepts and career options. These courses are valuable, particularly for expanding digital literacy and introducing students to a field they may not have otherwise considered.

Figure 23. Information and Communication Technologies (ICT) Enrollment by Course Level, 2018-19



Source: California Department of Education Staff and Course Enrollment files for the most recent available year, 2018-28.

²⁶ California Department of Education. (2017). [California Career Technical Education Model Curriculum Standards: Information and Communication Technologies](#).

The data suggest that introductory ICT coursework is not consistently leading students into concentrator or capstone experiences where they can build deeper technical skills, apply learning to real problems or develop evidence of readiness. This creates a misalignment with the computer science labor market, where students often need to demonstrate applied capability through projects, internships, portfolios, work-based learning or specialized technical experience. Students who remain at the exploratory level may gain valuable foundational awareness, but without applied progression, they may be underprepared for the technical depth and differentiation associated with higher-wage computer science occupations.

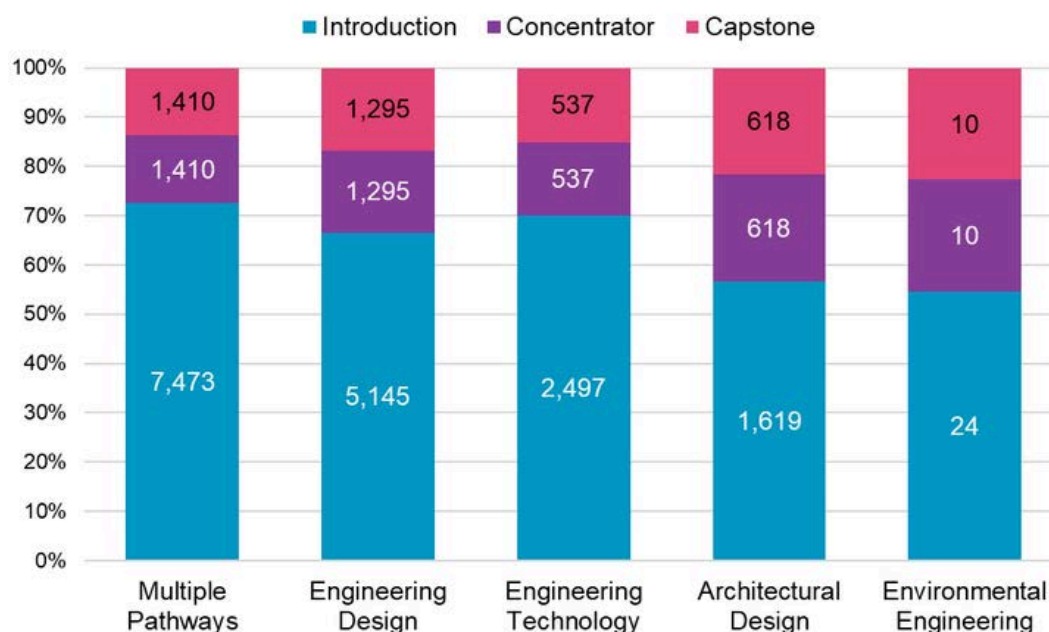
Dual enrollment can help strengthen this pathway when it is used strategically. College-level computer science coursework can expose students to postsecondary expectations, introduce specialized areas such as cybersecurity, data science, software development and artificial intelligence, and help students begin to understand how high school coursework connects to transfer and bachelor's-level pathways. However, dual enrollment should not be treated as an isolated acceleration strategy. To support mobility, it must be connected to advising, credential maps, applied projects and clear next steps into postsecondary programs.



Engineering K-12 CTE Pathways

Many Los Angeles County students in engineering and architecture pathways remain concentrated in introductory coursework, with fewer students progressing into concentrator or capstone experiences.²⁷ Within engineering, this progression gap is important because, similar to computer science, early exposure does not translate into career access unless students continue through the academic sequence required to be an engineering major. As a result, introductory engineering CTE coursework can create interest, but it does not by itself create access.

Figure 24. L.A. County Engineering and Architecture Enrollment by Course Level, 2018-19



Source: California Department of Education Staff and Course Enrollment files for the most recent available year, 2018-28.

For engineering pathways, dual enrollment can be especially valuable when it helps students experience college-level engineering expectations early and understand the sequence ahead. Because engineering pathways are highly structured, early college experiences can help students build engineering identity, gain confidence navigating university-oriented coursework and see how their high school preparation connects to transfer and bachelor's completion.

²⁷ California Department of Education. (2017). [California Career Technical Education Model Curriculum Standards: Engineering and Architecture](#).

Case Study: **CSULB ENGR 101 Dual Enrollment Initiative²⁸**



California State University, Long Beach (CSULB), through the L.A. Region K–16 Collaborative, launched ENGR 101: Introduction to Engineering, the university’s first dual enrollment engineering course designed specifically for high school students. The initiative was created to address a common challenge in engineering pathways: many students, particularly students without family or community exposure to STEM careers, do not encounter engineering early enough to position themselves for engineering majors.

The pilot enrolled high school students directly into a CSU engineering course alongside bachelor’s-level students. Of the 39 students who enrolled, 29 completed the course and earned CSU credit, a substantially higher retention rate than program leaders initially anticipated. Students reported increased understanding of engineering fields, stronger interest in engineering majors and greater confidence in applying to CSULB.

²⁸ <https://www.unitela.com/new-pathways-new-possibilities-csulb-engr-101>

Importantly, the course was intentionally designed as an authentic introduction to engineering learning and problem solving, moving beyond mere exposure to the field. Students participated in hands-on projects, microcontroller programming using Arduino hardware, collaborative presentations and applied engineering problem solving. The initiative also strengthened coordination across K-12 districts, community colleges and university partners around recruitment, scheduling, articulation and transfer alignment.

The ENGR 101 model illustrates how dual enrollment can function as more than accelerated coursework. In engineering pathways specifically, early college experiences can help students build confidence, understand the sequenced nature of engineering preparation and begin navigating transfer-oriented systems before major transition points occur.

Transfer and Bachelor's Completion Must Be Visible Earlier

As discussed earlier, ADTs can reduce transfer friction by creating clearer pathways between community colleges and CSU campuses. However, computer science and engineering pathways often require additional transfer infrastructure because STEM major preparation is highly sequenced and varies across receiving institutions. What appears to be a straightforward solution to increasing transfer depends on multiple conditions aligning across systems, including course availability; articulation agreements; advising; math placement and progression; and clear communication about major preparation requirements.

Why are ADTs Less Common in STEM Pathways?²⁹



Transfer is one of the most important routes into bachelor's-level computer science and engineering careers, especially for students who begin at community colleges. Associate Degrees for Transfer (ADTs) were designed to reduce transfer friction by creating clearer alignment between California community colleges and CSU campuses. When they work well, ADTs help students understand which courses count, transfer with junior standing and reduce excess units, time and cost.

In STEM fields, however, ADTs are harder to develop and scale. Computer science, engineering and other high-unit STEM majors often require sequenced mathematics, science, programming and discipline-specific coursework that must be completed in a particular order. Students may need multiple semesters of calculus, physics, computing or engineering preparation before they are ready for upper-division work. These requirements can be difficult to fit within the traditional transfer structure, particularly when students must also complete general education requirements before transfer.

STEM pathways are also complicated by variation across receiving institutions. A course that prepares a student for one university program may not satisfy requirements for another. In engineering, for example, lower-division requirements vary significantly across subfields and campuses, making it difficult to create a single statewide pathway that aligns cleanly with all receiving programs.

²⁹ Campaign for College Opportunity. *Transform Transfer: A Vision for Equitable Transfer in California Higher Education*; Academic Senate for California Community Colleges (ASCCC). *Resolution on STEM Transfer and Associate Degrees for Transfer*; EdSource/Just Equations. Reporting on STEM transfer pathways and math alignment challenges in California community colleges and universities.

Similar challenges affect computer science, where math, programming and major preparation expectations can differ across institutions and departments.³⁰

As a result, students may still transfer successfully without an ADT, but the pathway is often less transparent and more dependent on advising, articulation agreements and local course availability. This matters for equity. Students who already have access to strong advising, flexible schedules and institutional knowledge are better positioned to navigate complex transfer requirements. Students without those supports are more likely to accumulate excess units, lose credits, extend time to degree or leave the pathway before reaching bachelor's completion.

For K-16 partners, the implication is that computer science and engineering pathways require transfer infrastructure beyond the existence of a degree. Clear program maps, aligned lower-division coursework, proactive advising, strategically designed dual enrollment and stronger communication across high schools, community colleges and universities can help students understand the sequence ahead and stay connected to bachelor's-level pathways that lead to high-wage careers.

Clarity about computer science and engineering pathways needs to be visible to students early. Students need to understand not only which courses to take, but why those courses matter, how they connect to postsecondary requirements and what milestones keep them on track. For engineering students, that includes math sequencing and transfer-aligned coursework. For computer science students, that includes transfer options, applied experience and specialization.

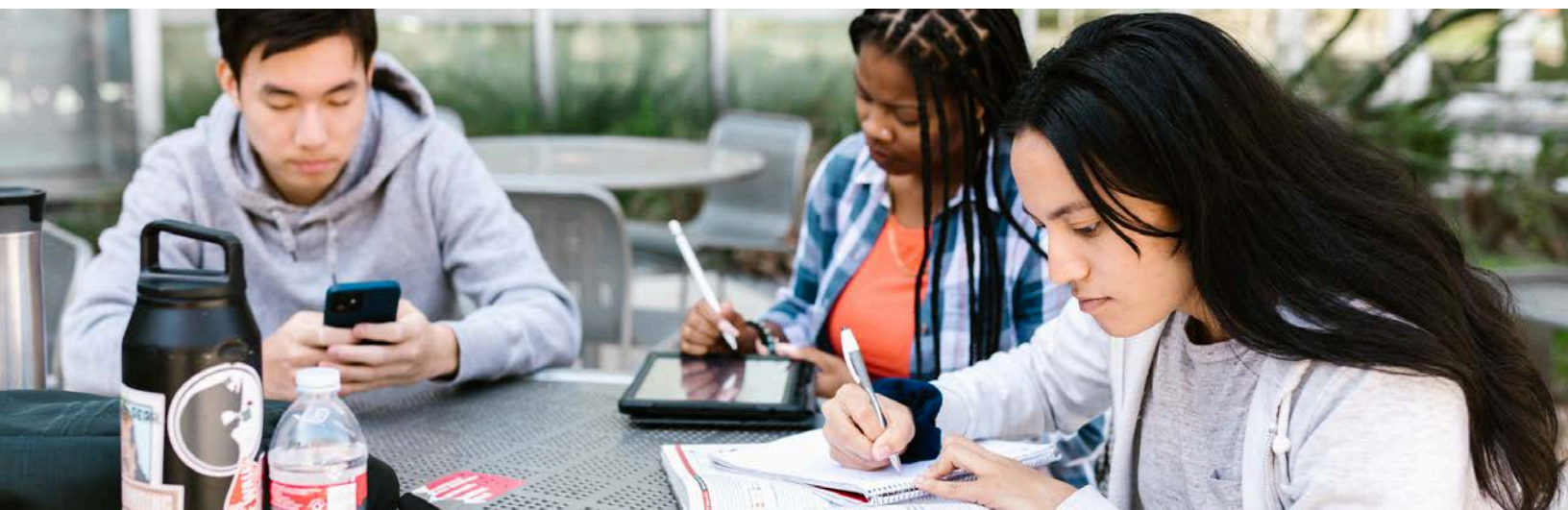
Making transfer visible earlier also helps clarify the role of dual enrollment. Dual enrollment should not simply add college units to a student's transcript. It should help students make progress toward meaningful pathway milestones, including transfer eligibility, college-level expectations, applied learning and informed choice of field.

³⁰ EdSource/Just Equations. Reporting on STEM transfer pathways and math alignment challenges in California community colleges and universities.

From Exposure to Progression

Data suggest that students are being exposed to computer science and engineering through introductory CTE courses, but are not consistently sustaining students through the academic milestones required for university access, transfer success and workforce entry. The barriers differ somewhat by field. In computer science, students often need clearer pathways from introductory coursework into advanced study, applied learning and transfer- or university-aligned preparation. In engineering, progression depends even more heavily on sustained math preparation, transfer-aligned sequencing and persistence through rigorous bachelor's-level requirements. In both fields, students benefit from early exposure not only to the disciplines themselves, but also to the academic rigor and sequencing expectations tied to long-term success.

This distinction matters because education participation alone is not enough to produce workforce access. Students must remain connected to the broader academic and postsecondary pathways required in each field. For students who plan to enroll directly in a four-year university after high school, that often means getting “on track” as early as 9th grade through math progression, A–G completion and aligned pathway coursework. At the same time, transfer remains one of the most important onramps into bachelor's-level computer science and engineering careers. But the community college transfer pathway is not a lower-rigor alternative; it also requires careful sequencing, strong advising and sustained academic momentum, particularly in math, science and technical coursework.



For K-16 Partners, Several Cross-Cutting Design Priorities Emerge Across Both Pathways:

Prioritize academic readiness as pathway access. Math progression, A–G completion and early college-level preparation should be understood not only as college readiness indicators, but as access points into computer science and engineering pathways. In engineering, advanced math is central to eligibility. In computer science, math and A–G completion help keep students connected to transfer and bachelor’s-level options.

Make bachelor’s (and transfer) expectations visible early. Many high-wage roles in both fields require bachelor’s completion. Students should understand which pathways are designed for direct university entry, which require transfer and which associate degrees or certificates are best understood as bridges rather than endpoints.

Make CTE pathways and dual enrollment an opportunity for progression, not only exposure. Introductory CTE coursework plays an important role in expanding awareness and interest, but pathways should also support movement into concentrator, capstone, dual enrollment, applied learning and transfer-aligned coursework. The goal is not simply more students trying computer science or engineering, but more students reaching the milestones that keep these careers accessible.

Differentiate pathway design by field. Computer science and engineering should not be treated as interchangeable STEM pathways. In computer science, students need opportunities to build applied experience, explore subfields, develop portfolios, prepare for AI-enabled work and stay connected to bachelor’s-level progression. In engineering, students need sustained math and science preparation, aligned lower-division coursework, clear transfer pathways and support through bachelor’s completion. Designing pathways around these field-specific requirements helps students understand what each pathway demands and reduces the risk that broad STEM participation fails to translate into long-term opportunity.

Measure progression, not just participation. Enrollment growth alone does not show whether pathways are producing opportunity. Stronger indicators include progression through advanced math, completion of concentrator and capstone coursework, participation in dual enrollment, successful transfer, bachelor's completion, applied learning participation and access to internships or project-based experiences.

Center equity earlier in and throughout the pathway. Representation gaps in computer science and engineering are shaped long before students enter the workforce. K-16 systems will need to protect access to advanced coursework, clarify transfer expectations, expand applied learning and ensure that students from historically underserved communities can access the academic and professional networks that support long-term mobility.





The data point to a clear equity challenge for computer science and engineering pathway development in Los Angeles County: the region is not only losing students in computer science and engineering pathways; it is disproportionately losing the students these pathways are intended to serve. **Hispanic or Latino students make up the majority of Los Angeles County high school graduates, yet they are substantially underrepresented among four-year computer science and engineering degree earners and even more underrepresented in the workforce.** These gaps suggest that inequity is not only about who gets exposed to computer science or engineering; it is about who remains eligible, who advances into deeper coursework, who transfers successfully, who completes a bachelor's degree, who gains applied experience and who ultimately accesses the best jobs. **For UNITE-LA and K-16 partners, the next phase of work is to identify where students are losing momentum across the pathway and build the advising, transfer alignment, applied learning, math progression and professional networks needed to ensure that expanded access leads to real economic mobility.**

Appendix

Appendix A. Skill or Qualification in Computer Science Job Postings, Los Angeles County

Skill or Qualification	Los Angeles Skill Concentration Compared to National Skills		Projected Skill Growth	Skill Growth Relative to Market	Interdisciplinary Skill
	Ratio	Value			
Systems Engineering	1.06	Above Average	20.9%	Rapidly Growing	
Mathematics	1.05	Above Average	20.2%	Rapidly Growing	✓
C++ (Programming Language)	1.05	Above Average	10.0%	Growing	
C (Programming Language)	1.04	Above Average	10.1%	Growing	
SAP Applications	0.99	Average	21.6%	Rapidly Growing	
User Experience (UX)	0.96	Average	20.9%	Rapidly Growing	
Microsoft PowerPoint	0.94	Average	26.1%	Rapidly Growing	✓
Organizational Skills	0.93	Average	14.3%	Growing	✓
Marketing	0.93	Average	23.0%	Rapidly Growing	✓
Microsoft Excel	0.92	Average	17.7%	Growing	✓
Security Clearance	0.91	Average	1.5%	Lagging	✓
Tableau (Business Intelligence Software)	0.90	Average	20.8%	Rapidly Growing	✓
Coordinating	0.87	Below Average	14.7%	Growing	✓
Verbal Communication Skills	0.86	Below Average	4.1%	Lagging	✓
JIRA	0.86	Below Average	24.1%	Rapidly Growing	
Algorithms	0.85	Below Average	23.3%	Rapidly Growing	✓
Multitasking	0.85	Below Average	18.4%	Growing	

Skill or Qualification	Los Angeles Skill Concentration Compared to National Skills		Projected Skill Growth	Skill Growth Relative to Market	Interdisciplinary Skill
	Ratio	Value			
Cascading Style Sheets	0.84	Below Average	21.4%	Rapidly Growing	
Statistics	0.84	Below Average	22.7%	Rapidly Growing	✓
Data Science	0.83	Below Average	17.4%	Growing	
Workflow Management	0.83	Below Average	18.0%	Growing	✓
Detail Oriented	0.83	Below Average	7.1%	Stable	✓
Interpersonal Communications	0.82	Below Average	12.5%	Growing	✓

Source: Lightcast Job Postings Report, January 2024–October 2025, Region 6037, SOC 15.

Appendix B. Industry Definitions

Industry titles referenced in this report, including Figure 2, come from the North American Industry Classification System codes. With the exception of Public Administration, which we changed to Government to ensure readers associated the industry with public government administration and services. “NAICS is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy. It was developed to allow for a high level of comparability in business statistics among the three North American countries.”³¹

Industry	NAICS	NAIcomputer Science Industry Definition
Education	61	The Educational Services sector comprises establishments that provide instruction and training in a wide variety of subjects. This instruction and training is provided by specialized establishments, such as schools, colleges, universities and training centers. These establishments may be privately owned and operated for profit or not for profit, or they may be publicly owned and operated. They may also offer food and/or accommodation services to their students.
Government (Public Administration)	92	The Public Administration sector consists of establishments of federal, state and local government agencies that administer, oversee and manage public programs and have executive, legislative or judicial authority over other institutions within a given area. These agencies also set policy, create laws, adjudicate civil and criminal legal cases, and provide for public safety and for national defense. In general, government establishments in the Public Administration sector oversee governmental programs and activities that are not performed by private establishments. Establishments in this sector typically are engaged in the organization and financing of the production of public goods and services, most of which are provided for free or at prices that are not economically significant.

³¹ U.S. Census Bureau. (2022). Understanding NAIcomputer science: Industry classification. <https://www.census.gov/programs-surveys/economic-census/year/2022/guidance/understanding-naicomputer-science.html#industry-classification>

Industry	NAICS	NAIcomputer Science Industry Definition
Health Care	62	The Health Care and Social Assistance sector comprises establishments providing health care and social assistance for individuals. The sector includes both health care and social assistance because it is sometimes difficult to distinguish between the boundaries of these two activities. The industries in this sector are arranged on a continuum starting with establishments providing medical care exclusively, continuing with those providing health care and social assistance and finally finishing with those providing only social assistance.
Information	51	The Information sector comprises establishments engaged in the following processes: (a) producing and distributing information and cultural products, (b) providing the means to transmit or distribute these products as well as data or communications and (c) processing data. The main components of this sector are motion picture and sound recording industries; publishing industries, including software publishing; broadcasting and content providers; telecommunications industries; computing infrastructure providers, data processing, web hosting and related services; and web search portals, libraries, archives and other information services.
Manufacturing	31–33	The Manufacturing sector comprises establishments engaged in the mechanical, physical or chemical transformation of materials, substances or components into new products. The assembling of component parts of manufactured products is considered manufacturing, except in cases where the activity is appropriately classified in Sector 23, Construction. Establishments in the Manufacturing sector are often described as plants, factories or mills and characteristically use power-driven machines and material handling equipment. However, establishments that transform materials or substances into new products by hand or in the worker's home and those engaged in selling to the general public products made on the same premises from which they are sold, such as bakeries, candy stores and custom tailors, may also be included in this sector.

Industry	NAICS	NAIcomputer Science Industry Definition
Professional, Scientific and Technical Services	54	The Professional, Scientific and Technical Services sector comprises establishments that specialize in performing professional, scientific and technical activities for others. These activities require a high degree of expertise and training. The establishments in this sector specialize according to expertise and provide these services to clients in a variety of industries and, in some cases, to households. Activities performed include: legal advice and representation; accounting, bookkeeping and payroll services; architectural, engineering and specialized design services; computer services; consulting services; research services; advertising services; photographic services; translation and interpretation services; veterinary services; and other professional, scientific and technical services.
Transportation	48-49	The Transportation and Warehousing sector includes industries providing transportation of passengers and cargo, warehousing and storage for goods, scenic and sightseeing transportation and support activities related to modes of transportation. Establishments in these industries use transportation equipment or transportation-related facilities as a productive asset. The type of equipment depends on the mode of transportation. The modes of transportation are air, rail, water, road and pipeline.

Appendix C. Bachelor's Degree as the De Facto Entry Credential

Growth is not evenly distributed even within computer science, concentrated within a relatively small number of occupations, including software developers, data scientists, information security analysts, computer systems analysts and network and systems administrators. This suggests that broad computer science enrollment does not guarantee alignment with the occupations expanding most rapidly.

Top Bachelor's Degree Computer Science Occupations in Los Angeles County: Jobs, Wages and Degree Requirements

SOC	Description	2022 Jobs	2028 Jobs	Average Annual Opening	2022-28 Change	2022-28 % Change	Median Hourly Earnings
15-1252	Software Developers	39,033	40,197	2,292	1,165	3%	\$74.49
15-1212	Information Security Analysts	3,001	3,544	269	543	18%	\$63.29
15-1241	Computer Network Architects	3,431	3,432	201	1	0%	\$65.75
15-1255	Web and Digital Interface Designers	5,848	6,899	620	1,051	18%	\$47.87
15-2031	Operations Research Analysts	2,255	2,761	255	506	22%	\$42.71
15-2051	Data Scientists	5,689	8,011	781	2,322	41%	\$59.85
15-1253	Software Quality Assurance Analysts and Testers	4,843	5,042	330	199	4%	\$51.12
15-1299	Computer Occupations, All Other	17,991	18,111	1,113	119	1%	\$48.21
15-1211	Computer Systems Analysts	11,312	11,278	715	(35)	(0%)	\$60.78
15-1244	Network and Computer Systems Administrators	7,275	6,609	357	(666)	(9%)	\$50.60

Source: Lightcast, QCEW Employees, Non-QCEW Employees and Self-Employed, 2022-2028, Region 6037.

Appendix D. Computer Science Degrees

Appendix D includes all computer science community college degrees and certificates and bachelor’s degrees in computer science from universities in the Los Angeles region for 2024, the most recent year in IPEDS.

Bachelor’s Degrees

CIP Code	CIP Code Degree Title	Sum Completions
27.0301	Applied Mathematics, General	151
27.0303	Computational Mathematics	95
11.0199	Computer and Information Sciences, Other	127
11.0101	Computer and Information Sciences, General	0
11.0204	Computer Game Programming	49
11.0701	Computer Science	2551
27.0305	Financial Mathematics	36
11.0104	Informatics	89
11.0401	Information Science/Studies	0
11.0103	Information Technology	152
27.0503	Mathematics and Statistics	54
27.0101	Mathematics, General	597
27.0199	Mathematics, Other	104
11.0804	Modeling, Virtual Environments and Simulation	46
27.0501	Statistics, General	224

Source: Four-Year Institutions: IPEDS data completions by CIP 6 (2 digit 11 and 27), for eight universities in the Los Angeles region for the 2024 year.

Los Angeles Universities
California State Polytechnic University-Pomona
California State University-Dominguez Hills
California State University-Fullerton
California State University-Long Beach
California State University-Los Angeles
California State University-Northridge
University of California-Irvine
University of California-Los Angeles

Community College Degrees and Certificates

Top Description	Degree Type	Sum Completions
Mathematics, General-170100	Associate in Science for Transfer (AST)	630
Mathematics, General-170100	Associate of Arts (AA)	132
Mathematics, General-170100	Associate of Science (AS)	86
Computer Programming-070710	Associate of Arts (AA)	3
Computer Programming-070710	Associate of Science (AS)	119
Computer Programming-070710	Certificate	159
Computer Science (Transfer)-070600	Associate in Science for Transfer (AST)	76
Computer Science (Transfer)-070600	Associate of Arts (AA)	20
Computer Science (Transfer)-070600	Associate of Science (AS)	78
Computer Science (Transfer)-070600	Certificate	93
Computer Infrastructure and Support-070800	Associate of Science (AS)	93
Computer Infrastructure and Support-070800	Certificate	164
Computer Information Systems-070200	Associate of Arts (AA)	48
Computer Information Systems-070200	Associate of Science (AS)	69
Computer Information Systems-070200	Certificate	98
Computer Networking-070810	Associate of Arts (AA)	6
Computer Networking-070810	Associate of Science (AS)	50
Computer Networking-070810	Certificate	130
Information Technology, General-070100	Associate of Arts (AA)	22
Information Technology, General-070100	Associate of Science (AS)	33
Information Technology, General-070100	Certificate	84
Computer Support-070820	Associate of Science (AS)	11
Computer Support-070820	Certificate	39
Software Applications-070210	Associate of Arts (AA)	1
Software Applications-070210	Associate of Science (AS)	16
Software Applications-070210	Certificate	30
World Wide Web Administration-070900	Associate of Arts (AA)	7
World Wide Web Administration-070900	Associate of Science (AS)	11
World Wide Web Administration-070900	Certificate	27
Database Design and Administration-070720	Associate of Science (AS)	19
Database Design and Administration-070720	Certificate	26
Computer Systems Analysis-070730	Certificate	32
Other Information Technology-079900	Associate of Science (AS)	4
Other Information Technology-079900	Certificate	22
Computer Software Development-070700	Certificate	13
E-Commerce (Technology Emphasis)-070910	Certificate	1

Source: Community College Degrees and Certifications, DataMart, 2024, completions by TOP 6 digit (TOP 07 & TOP 17), including 19 community colleges in the UNITE-LA region.

Los Angeles Community Colleges

Cerritos
Citrus
Compton
East L.A.
El Camino
Glendale
L.A. City
L.A. Harbor
L.A. Mission
L.A. Pierce
L.A. Southwest
L.A. Trade
L.A. Valley
Long Beach
Mt. San Antonio
Pasadena
Rio Hondo
Santa Monica
West L.A.

Appendix E. Engineering Degrees

Appendix E includes all engineering community college degrees and certificates and engineering bachelor's degrees from universities in the Los Angeles region for 2024, the most recent year available in IPEDS.

Bachelor's Degrees

CIP Code	CIP Code Degree Title	Sum Completions
14.0201	Aerospace, Aeronautical and Astronautical/Space Engineering, General	362
14.0301	Agricultural Engineering	0
14.0501	Bioengineering and Biomedical Engineering	242
14.0701	Chemical Engineering	215
14.0801	Civil Engineering, General	808
15.1201	Computer Engineering Technology/Technician	2
14.0901	Computer Engineering, General	518
14.0903	Computer Software Engineering	56
15.1001	Construction Engineering Technology/Technician	137
14.1001	Electrical and Electronics Engineering	638
15.0303	Electrical, Electronic and Communications Engineering Technology/Technician	27
15.0000	Engineering Technologies/Technicians, General	10
14.0101	Engineering, General	0
15.1501	Engineering/Industrial Management	9
14.1401	Environmental/Environmental Health Engineering	16
14.3901	Geological/Geophysical Engineering	1
14.3501	Industrial Engineering	64
15.0612	Industrial Technology/Technician	22
14.3601	Manufacturing Engineering	37
15.0613	Manufacturing Engineering Technology/Technician	0
14.1801	Materials Engineering	50
14.1901	Mechanical Engineering	1316
15.0805	Mechanical/Mechanical Engineering Technology/Technician	43
15.0702	Quality Control Technology/Technician	1

Source: Four-Year Institutions: IPEDS data completions by CIP 6 (2 digit 14 and 15), for eight universities in the Los Angeles region for the 2024 year.

Los Angeles Universities

California State Polytechnic University-Pomona
California State University-Dominguez Hills
California State University-Fullerton
California State University-Long Beach
California State University-Los Angeles
California State University-Northridge
University of California-Irvine
University of California-Los Angeles

Community College Degrees and Certificates

Top Description	Degree Type	Sum Completions
Aeronautical and Aviation Technology-095000	Associate of Science (AS)	44
Alternative Fuels and Advanced Transportation Technology-094840	Associate of Science (AS)	11
Alternative Fuels and Advanced Transportation Technology-094840	Certificate	35
Architectural Drafting-095310	Associate of Science (AS)	6
Architectural Drafting-095310	Certificate	47
Automotive Collision Repair-094900	Associate of Arts (AA)	2
Automotive Collision Repair-094900	Associate of Science (AS)	11
Automotive Collision Repair-094900	Certificate	69
Automotive Technology-094800	Associate of Arts (AA)	14
Automotive Technology-094800	Associate of Science (AS)	95
Automotive Technology-094800	Baccalaureate of Science (BS)	5
Automotive Technology-094800	Certificate	913
Automotive Technology-094800	Certificate	14
Aviation Airframe Mechanics-095010	Certificate	102
Aviation Airframe Mechanics-095010	Other Credit Award	4
Aviation Powerplant Mechanics-095020	Certificate	97
Biomedical Instrumentation-093460	Associate of Science (AS)	9
Biomedical Instrumentation-093460	Certificate	6
Carpentry-095210	Associate of Science (AS)	8
Carpentry-095210	Certificate	51
Chemical Technology-095400	Associate of Science (AS)	5
Chemical Technology-095400	Certificate	2
Civil and Construction Management Technology-095700	Associate of Science (AS)	14
Civil and Construction Management Technology-095700	Certificate	25
Civil Drafting-095320	Certificate	1
Computer Electronics-093410	Associate of Science (AS)	16
Computer Electronics-093410	Certificate	34
Computer Electronics-093410	Other Credit Award	31
Construction Crafts Technology-095200	Associate of Science (AS)	12
Construction Crafts Technology-095200	Certificate	48
Construction Crafts Technology-095200	Noncredit Award	13
Construction Crafts Technology-095200	Noncredit Award	97
Construction Inspection-095720	Associate of Science (AS)	3
Construction Inspection-095720	Certificate	6
Diesel Technology-094700	Associate of Science (AS)	15
Diesel Technology-094700	Certificate	91
Drafting Technology-095300	Associate of Arts (AA)	9
Drafting Technology-095300	Associate of Science (AS)	18
Drafting Technology-095300	Certificate	88
Electrical-095220	Associate of Arts (AA)	21
Electrical-095220	Associate of Science (AS)	44
Electrical-095220	Certificate	131

Top Description	Degree Type	Sum Completions
Electronics and Electric Technology-093400	Associate of Arts (AA)	1
Electronics and Electric Technology-093400	Associate of Science (AS)	81
Electronics and Electric Technology-093400	Certificate	180
Electronics and Electric Technology-093400	Noncredit Award	145
Energy Systems Technology-094610	Associate of Science (AS)	8
Energy Systems Technology-094610	Certificate	48
Engineering Technology, General (Requires Trigonometry)-092400	Associate of Arts (AA)	319
Engineering Technology, General (Requires Trigonometry)-092400	Associate of Science (AS)	8
Engineering Technology, General (Requires Trigonometry)-092400	Certificate	59
Engineering, General (Requires Calculus) (Transfer)-090100	Associate of Science (AS)	130
Engineering, General (Requires Calculus) (Transfer)-090100	Certificate	35
Environmental Control Technology-094600	Associate of Science (AS)	47
Environmental Control Technology-094600	Certificate	136
Heavy Equipment Maintenance-094720	Certificate	13
Industrial and Occupational Safety and Health-095670	Certificate	7
Industrial and Occupational Safety and Health-095670	Noncredit Award	253
Industrial and Occupational Safety and Health-095670	Noncredit Award	279
Industrial Systems Technology and Maintenance-094500	Associate of Science (AS)	14
Industrial Systems Technology and Maintenance-094500	Certificate	161
Laboratory Science Technology-095500	Associate of Science (AS)	4
Laser and Optical Technology-093480	Certificate	2
Machining and Machine Tools-095630	Associate of Arts (AA)	6
Machining and Machine Tools-095630	Associate of Science (AS)	18
Machining and Machine Tools-095630	Certificate	84
Machining and Machine Tools-095630	Certificate	1
Manufacturing and Industrial Technology-095600	Associate of Arts (AA)	1
Manufacturing and Industrial Technology-095600	Associate of Science (AS)	8
Manufacturing and Industrial Technology-095600	Certificate	36
Mechanical Drafting-095340	Associate of Science (AS)	3
Mechanical Drafting-095340	Certificate	9
Mechanical Drafting-095340	Other Credit Award	1
Mill and Cabinet Work-095250	Associate of Arts (AA)	2
Mill and Cabinet Work-095250	Associate of Science (AS)	6
Mill and Cabinet Work-095250	Certificate	24
Motorcycle, Outboard and Small Engine Repair-094830	Certificate	10

Top Description	Degree Type	Sum Completions
Other Engineering and Related Industrial Technologies-099900	Noncredit Award	8
Plastics and Composites-095420	Associate of Arts (AA)	9
Plastics and Composites-095420	Certificate	2
Plumbing, Pipefitting and Steamfitting-095230	Associate of Science (AS)	16
Plumbing, Pipefitting and Steamfitting-095230	Certificate	33
Railroad and Light Rail Operations-094740	Associate of Science (AS)	2
Railroad and Light Rail Operations-094740	Certificate	4
Sheet Metal and Structural Metal-095640	Associate of Science (AS)	5
Sheet Metal and Structural Metal-095640	Certificate	3
Surveying-095730	Certificate	5
Surveying-095730	Other Credit Award	3
Telecommunications Technology-093430	Associate of Science (AS)	4
Telecommunications Technology-093430	Certificate	4
Water and Wastewater Technology-095800	Associate of Science (AS)	34
Water and Wastewater Technology-095800	Certificate	32
Welding Technology-095650	Associate of Arts (AA)	2
Welding Technology-095650	Associate of Science (AS)	92
Welding Technology-095650	Certificate	338
Welding Technology-095650	Noncredit Award	1
Welding Technology-095650	Noncredit Award	4

Los Angeles Community Colleges

Cerritos
Citrus
Compton
East L.A.
El Camino
Glendale
L.A. City
L.A. Harbor
L.A. Mission
L.A. Pierce
L.A. Southwest
L.A. Trade
L.A. Valley
Long Beach
Mt San Antonio
Pasadena
Rio Hondo
Santa Monica
West L.A.

L.A. region K-16 collaborative

The Los Angeles Region K-16 Collaborative advances regional strategies to increase equitable degree attainment and align education pathways with labor market needs in health care, computer science and engineering. The Collaborative brings together K-12 districts, community colleges, universities and employers to strengthen transfer pathways, expand dual enrollment and scale high-quality work-based learning. The Collaborative is funded through the K-16 Education Regional Collaborative Grant Program, administered by the Office of Public School Construction in the California Department of General Services.



Over the past 28 years, UNITE-LA has been a trusted business intermediary, dedicated to supporting the development of an effective local public education system, so that all children and youth succeed in college, career and beyond. Through the intersection of programming, policy, and systems change efforts, UNITE-LA works to increase access to high-quality early childhood education, develop career pathways in high-growth industries, improve college access and success, and ensure workforce readiness, especially for individuals with high barriers into the workforce. Visit www.unitela.com.