



Engineering and Design Industry Sector

The Engineering and Design industry sector provides a strong foundation in engineering and design for students in California. The students are engaged in an instructional program that integrates academic and technical preparation and focuses on career awareness, career exploration, and career preparation in five pathways. To prepare students for the vast scope of job opportunities in this field, middle schools, high schools, regional occupational centers and programs, apprenticeship programs, community colleges, and four-year colleges and universities provide education and training in engineering-related occupations. The demand for engineers in a variety of specializations throughout the state and the nation will remain high.

The five pathways in this sector emphasize real-world, occupationally relevant experiences of significant scope and depth. To prepare students for continued training, advanced educational opportunities, and direct entry to a career, the engineering and design programs offer the following components: classroom, laboratory, and hands-on contextual learning; project-based and work-based instruction; internships, community classroom, and cooperative career technical education; work experience education; and leadership and interpersonal skills development.

Engineering and Design Industry Sector Pathways:

- *Architectural and Structural Engineering*
- *Computer Hardware, Electrical, and Networking Engineering*
- *Engineering Design*
- *Engineering Technology*
- *Environmental and Natural Science Engineering*

Entry Level Careers

(with high school diploma)

Junior Drafter
 CAD Technician
 Construction Apprentice
 Engineering Aide
 Drafting Apprentice
 Apprentice Electrician
 Computer Equipment Installer
 Security Equipment Installer

Technical Level Careers

(with AA or AS degree or certificate)

Drafter/Designer
 Plan Checker
 Surveyor
 Estimator
 Electrical Engineering Technician
 Mechanical Engineering Technician
 Laboratory Technician
 Civil Engineering Technician
 Chemical Engineering Technician
 Aerospace Engineering Technician
 Architectural Drafters
 Telecommunications Technician
 Journeyman Electrician

Professional Level Careers

(with BS or BA degree)

Mechanical Engineer
 Aerospace Engineer
 Agricultural Engineer
 Electrical Engineer
 Computer Hardware Engineer
 Telecommunications Engineer
 Landscape Architect
 Materials Engineer
 Nuclear Engineer
 Architect
 Industrial Designer
 Civil Engineer
 Structural Engineer

College: _____
 High School(s): _____

Sector: _____
 Pathway: _____
 Program: _____

	Grade	English	Math	Science	Social Studies	Required Courses			Grade 9-12 Dual Enrollment Options
						Recommended Elective Courses	Other Elective Courses	CTE Courses	
Secondary	9								
	10								
	11								
	12								
Postsecondary	Year _____ Term _____								
	Year _____ Term _____								
	Year _____ Term _____								
	Year _____ Term _____								
	Year _____ Term _____								
	Year _____ Term _____								

Required Courses:
 Recommended Required Courses:
 Career Education Courses:
 Credit-Based Transition Programs (e.g., Dual Enrollment, Articulated Courses, 2+2+2)
 Assessments, Advising, or Additional Preparation During Summer Breaks