

Engineering Programs CSU, UC & WUE

Field	Job Description	Job Forecast (btwn 2023-2033)	Salary Range	Options for BS in California	Western Undergrad Exchange (WUE) Options for BS	Highly Recommended	Suggested	Recommended Certificates
Aerospace	Aerospace engineers design, test, and supervise the manufacture of aircraft, spacecraft, and missiles. Those who work with aircraft are called aeronautical engineers, and those working specifically with spacecraft are astronautical engineers. CareerOneStop Aerospace Engineer	6%	US: \$77K- 168K CA: \$110K - 140K Salary Average: \$134K	CPSLO, SDSU, SJSU UCB, UCD, UCI, UCLA, UCSD	New Mexico State Univ., University of Colorado, Colorado Springs Univ. South Dakota State University: (Mechanical Engineering- Aerospace Engineering Specialization)	DESN 101, DESN 111 DESN 203	DESN 109 DESN 120 DESN 204 DESN 286	COP: 3D Modeling and Prototyping COA: Engineering Technology OR Computer-Aided Drafting and Design
Agricultural	Agricultural engineers—work on a variety of activities. These activities range from aquaculture (raising food, such as fish, that thrive in water) to land farming to forestry; from developing biofuels to improving conservation; from planning animal environments to finding better ways to process food. CareerOneStep Agricultural Engineer	8%	US: \$55K-\$127K CA: \$85K - 110K Salary Average: \$84K	CPSLO, CSUB: (B.S. Engineering Sciences w/Emphasis in Biosystems and Agricultural Engineering)	North Dakota State University South Dakota State University			

Bioengineering and Biomedical	Biomedical engineers design instruments, devices, and software used in healthcare; develop new procedures using knowledge from many technical sources; or conduct research needed to solve clinical problems. They frequently work in research and development or quality assurance. CareerOneStop Bioengineers and Biomedical Engineers	7%	US: \$71K- \$165K CA: \$95K - 125K Salary Average: \$106K	CPSLO, CSULB, SJSU UCB, UCD, UCI, UCM Biochemistry: UCD Bioengineering: UCB, UCLA, UCM, UCR, UCSD Biological Systems: UCD Biomedical: UCD, UCI Biomolecular: UCSC Biotech: UCSC	Colorado State University, University of Colorado, Denver Montana State University Bozeman Oregon State University University of Nevada Reno University of Utah Utah State University Washington State Univ			
Chemical	Chemical engineers work in manufacturing, pharmaceuticals, healthcare, design and construction, pulp and paper, petrochemicals, food processing, specialty chemicals, polymers, biotechnology, and environmental health and safety industries, among others. CareerOneStop Chemical Engineers	10%	US: \$78K- \$182K CA: \$105K - 135K Salary Average: \$121K	CPP, CSULB, SJSU UCB, UCD, UCI, UCLA, UCR, UCSB, UCSD	Colorado State University Montana State University New Mexico Institute of Mining and Technology New Mexico State Univ. Oregon State University South Dakota School of Mining University of Idaho University of Nevada Reno Univ of New Mexico University of North Dakota University of Utah University of Wyoming Utah Valley University Washington State Univ.			

Civil	Civil engineers design and supervise the construction of roads, buildings, airports, tunnels, dams, bridges, and water supply and sewage systems. CareerOneStop Civil Engineers	7%	US: \$65K-\$160K CA: \$90K - 110K Salary Average: \$99K	CPP CPSLO, CSUC, CSUEB, CSUFRES, CSUF, CSULA, CSULB, CSUN, SAC state, SDSU SFSU, SJSU UCB, UCD, UCI, UCM, UCLA	Boise State University Colorado Mesa University Colorado State University Idaho State University Univ. of Alaska Anchorage Univ of Alaska Fairbanks Northern Arizona University Univ of Colorado Denver Univ of Hawaii at Manoa University of Idaho Montana State University (+21)			
Computer	Computer engineers (or computer hardware engineers) research, design, develop, test, and oversee the manufacture and installation of computer hardware, including computer chips, circuit boards, computer systems, and related equipment such as keyboards, routers, and printers. CareerOneStop Computer Hardware Engineers	7%	US \$85K -\$223 CA: \$130K - 150K Salary Average: \$155K	CPP, CPSLO, CSUB, CSUC, CSUEB, CSUFRES, CSUF, CSULB, CSUN, SAC state, CSUSB, SDSU, SFSU, SJSU UCD, UCI, UCLA, UCR, UCSB, UCSC, UCSD Computer Science & Engineering: UCLA, UCM	Boise State University Colorado State University Fort Lewis College Metropolitan State University of Denver Montana State University Northern Arizona University North Dakota State University Portland State University South Dakota School of Mining and Technology +17			

Construction (Civil)	Construction engineers are responsible for overseeing the construction of airports, malls, schools, manufacturing facilities, highways, high-rise structures, water treatment plants and much more. Bureau of Labor Statistics Civil Engineers	6% (Shares similar avg to civil engineer)	US: \$56K- \$109K Salary Average: \$99K	CPP, SDSU Construction Mgmt: CSUC, CSUEB CSUFRES, CSULB, CSUN, SAC state	Central Washington Univ Montana State University North Dakota State University Oregon State University University of Colorado Denver Univ. of New Mexico Washington State University	DESN 101, 201, 286	DESN 111	COP: AutoCAD Certified User COA: Computer-Aided Drafting
Electrical	Electrical engineers design, develop, test, and supervise the manufacture of electrical equipment. Some of this equipment includes electric motors; machinery controls, lighting, and wiring in buildings; radar and navigation systems; communications systems; and power generation, control, and transmission devices used by electric utilities. CareerOneStop Electrical Engineers	9%	US: \$74K-\$175K CA: \$100K - 130K Salary Average: \$111K	CPP, CPSLO, CSUB, CSUFRES, CSUF, CSULA, CSULB, CSUN, CSUSM, SDSU, SFSU, SJSU, Sonoma State UCB, UCD, UCI, UCM, UCLA, UCR, UCSB, UCSC, UCSD	Boise State University Colorado State University Idaho State University Montana State University Bozeman Montana Tech Northern Arizona University Utah Tech University University of Alaska Anchorage University of Alaska Fairbanks University of Colorado, Denver University of Hawaii at Manoa University of Idaho Western Washington University +23			

Environmental	Environmental engineers use the principles of engineering, soil science, biology, and chemistry to develop solutions to environmental problems. They work to improve recycling, waste disposal, public health, and water and air pollution control. They also address global issues, such as unsafe drinking water, climate change, and environmental sustainability. CareerOneStop Environmental Engineers	7%	US: \$64K- \$161K CA: \$90K -\$115K Salary Average: \$104K	CPP, CPSLO, CSULB, CP Humboldt, SDSU UCB, UCD, UCI, UCM, UCR, UCSD	Arizona State University/ Polytechnic Campus Northern Arizona University Metropolitan State University of Denver Colorado State University Montana State University Bozeman Montana Tech University of Nevada Reno New Mexico Institute of Mining and Technology North Dakota State University Oregon State University Portland State University Utah State University			
Industrial	Industrial engineers find ways to eliminate wastefulness in production processes. They devise efficient systems that integrate workers, machines, materials, information, and energy to make a product or provide a service. CareerOneStop Industrial Engineers	12%	US: \$70K-\$157K CA: \$90K - 115K Salary Average: \$101K	CPP, CPSLO, CSUEB, SJSU UCB	Colorado State University Pueblo Montana State University Bozeman North Dakota State University Oregon State University New Mexico State University South Dakota School of Mining and Technology			

Marine	Marine engineers -also known as marine design engineers or marine mechanical engineers- and naval architects design, build, and maintain ships, from aircraft carriers to submarines and from sailboats to tankers. They are responsible for the internal systems of a ship, such as the propulsion, electrical, refrigeration, and steering systems. Naval architects are responsible for the ship design, including the form, structure, and stability of hulls. CareerOneStop Marine Engineers and Naval Architects	8%	US: \$79K- \$167K CA: \$95K - 120K Salary Average: \$105K	Cal Maritime (CSUMA)	N/A			
Materials	Materials engineers develop, process, and test materials used to create a range of products, from computer chips and aircraft wings to golf clubs and biomedical devices. They study the properties and structures of metals, ceramics, plastics, composites, nanomaterials to create new materials that meet certain mechanical, electrical, and chemical requirements. CareerOneStop Materials Engineer	7%	US: \$68- \$172K CA: \$95K - 125K Salary Average: \$108K	CPP, CSULA, CPSLO, SJSU UCB, UCD, UCI, UCLA, UCM, UCR, UCSD	Boise State University New Mexico Institute Mining Technology University of Idaho University of Nevada, Reno University of Utah Washington State University	DESN 101, 201, 286		DESN Certificates https://catalog.miracosta.edu/disciplines/design/#certificatestext

Mechanical	Mechanical engineers use the principles of energy, materials, and mechanics to design and manufacture machines and devices of all types. They create the processes and systems that drive technology and industry. CareerOneStop Mechanical Engineers	11%	US: \$68K-\$161 CA: \$107K - 115K Salary Average: \$102K	CP HUMBOLDT CPP,CPSLO, CSUC, CSUFRES, CSUF, CSULA, CSULB, CSUMA, CSUN, CSUS, SDSU, SFSU, SJSU UCB, UCD, UCI, UCLA, UCM, UCR, UCSB, UCSD	Northern Arizona University Boise State University Colorado Mesa University Colorado State University Idaho State University University of Hawaii at Manoa Portland State University +34 more	DESN 101, 111, 203	DESN 109, 120, 204, 286	COP: Engineering Design Graphics COA: Engineering Technology OR Mechanical Design
Mining	Mining and geological engineers design mines for the safe and efficient removal of minerals such as coal and metals for manufacturing and utilities. CareerOneStop Mining and Geological Engineers, Including Mining Safety Engineers	2%	US: \$62K -163K CA: \$90K - 120K Salary Average: \$102K	Material Science and Engineering: UCB UCD	Montana Tech New Mexico Institute of Mining and Technology South Dakota School of Mining and Technology University of Arizona University of Alaska Fairbanks University of Nevada Reno University of Utah			
Nuclear	Nuclear engineers research and develop the processes and instruments used to derive benefits from nuclear energy and radiation. Many find industrial and medical uses for radioactive materials—for example, in equipment used in medical diagnosis and treatment.	-1%	US: \$88K-187K CA: \$110K - 140K Salary Average: \$127K	UCB	Idaho State University University of New Mexico Oregon State University			

	Others specialize in the development of nuclear power sources for ships or spacecraft. CareerOneStop Nuclear Engineers							
Petroleum	Petroleum engineers design and develop methods for extracting oil and gas from deposits below the earth's surface. Petroleum engineers also find new ways to extract oil and gas from older wells. CareerOneStop Petroleum Engineers	2%	US: \$78K - 228K CA: \$120K - 160K Salary Average: \$141	CSUB	Montana Tech New Mexico Institute of Mining and Technology University of Alaska Fairbanks University of North Dakota University of Wyoming			
Software	Software Engineers (developers) are the creative minds behind computer programs. Some develop applications that allow people to do specific tasks on a computer or another device. Others develop the underlying systems that run the devices or that control networks. CareerOneStop Software Developers	18%	US: \$79K - 211K CA: \$125K - 160K + Salary Average: \$133K	CSUF, CSUN, CPHUMBOLDT, CPSLO, CSUMB, CSUS, CSUSM, SJSU UCI	Northern Arizona University Arizona State University / Polytechnic Campus University of Northern Colorado Montana Technological University Valley City State University Snow College Utah Valley University Utah Tech University Washington State University Everett Washington State University			

Structural	Manages and directs staff at project site. Performs engineering duties; plans, designs and oversees the construction and maintenance of buildings, bridges, and other structures. Researches and analyzes maps, blueprints, photos, charts, and other data to plan projects. Gathers information to prepare and present reports on project topics. Structural Engineers Association of California	7%	US: \$54K - \$138K CA: \$77K - 170K Salary Average: \$99K	UCSD	N/A			
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*Salary Range- Utilized www.bls.gov to collect data.

*- Data retrieved on www.payscale.com

**** To discuss recommended certificates or to create an educational plan for any engineering emphasis, please see a counselor ****

****Western Undergrad Exchange is a tuition savings program that allows students from 16 western states and territories to attend participating public colleges and universities in other member states at a reduced tuition rate. Instead of paying the full out-of-state tuition, WUE students typically pay no more than 150% of the institution's in-state tuition rate. This can result in significant cost savings, potentially saving students thousands of dollars annually compared to standard out-of-state tuition.**