

College of Engineering and Computer Science: 2020 Occupational Trends and Outlook

Overview

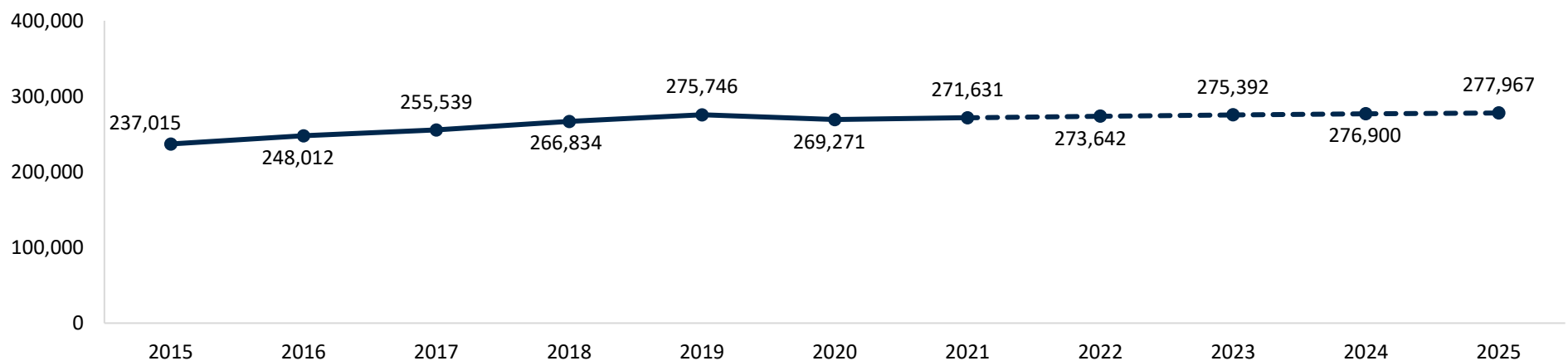
The [CSUF 2020 Occupational Trends and Outlook](#) report examines trends and outlook in occupations within the counties surrounding California State University, Fullerton (CSUF), and compares trends for occupations that can be served by CSUF, at the University level, to those that are not served by CSUF. The trend shows an 8% growth in jobs from 2015 to 2019 before experiencing a 7% decrease in jobs in 2020, which coincides with the COVID-19 pandemic. Though job recovery is expected, its growth is projected to be slow, at 2.6%, between 2020 and 2025. Similar trends are observed when looking at jobs by typical level of entry education: Bachelor's, Master's and Doctoral or professional degree.

This report looks more closely at the trend in jobs that can be served by CSUF's College of Communications. The data for this report have been compiled by Economic Modeling (EMSI), which utilizes various labor market data from government sources (e.g., US Census Bureau, Bureau of Labor Statistics), as well as real-time labor market data (e.g., job advertisements posted by employers, online profiles and resumes created by job seekers and students). The report utilizes the program-to-occupation mapping Emsi developed based on the CIP-to-SOC crosswalk developed by the National Center for Education Statistics and the U.S. Bureau of Labor Statistics¹. To identify jobs that the College can serve, each CIP is mapped to SOC codes for which its programs can prepare students.

Trend in Jobs Served by CSUF at the College Level: College of Engineering and Computer Science

Figure 1 shows a projected increase in jobs that require at least a Bachelor's degree that can be served by students who graduate from CSUF's College of Engineering and Computer Science. Overall, the number of jobs served by the College increased by 16% between 2015 and 2019 before facing a 2% decrease in 2020. Job growth is projected to be gradual, at 3%, between 2020 and 2025.

Figure 1. Trend in Jobs that Require at Least a Bachelor's Degree Served by the College of Engineering and Computer Science, 2015-2025



¹ Please note this crosswalk may not entirely reflect the career pathways that are relevant for the College's graduates. Please feel free to consult with the Office of Assessment and Institutional Effectiveness to revise this report with CIP-to-SOC mappings that more accurately reflect career pathways for students served by the College.

Trends in Jobs that Require a Bachelor's Degree

Figure 2 shows a projected increase in jobs that require a Bachelor's degree that can be served by students who graduate from CSUF's College of Engineering and Computer Science. The number of jobs served by the College increased by 16% between 2015 and 2019 before experiencing a 2% decrease in 2020. Job growth is anticipated between 2020 and 2025, by 3%.

Figure 2. Trend in Jobs that Require a Bachelor's Degree Served by College of Engineering and Computer Science, 2015-2025

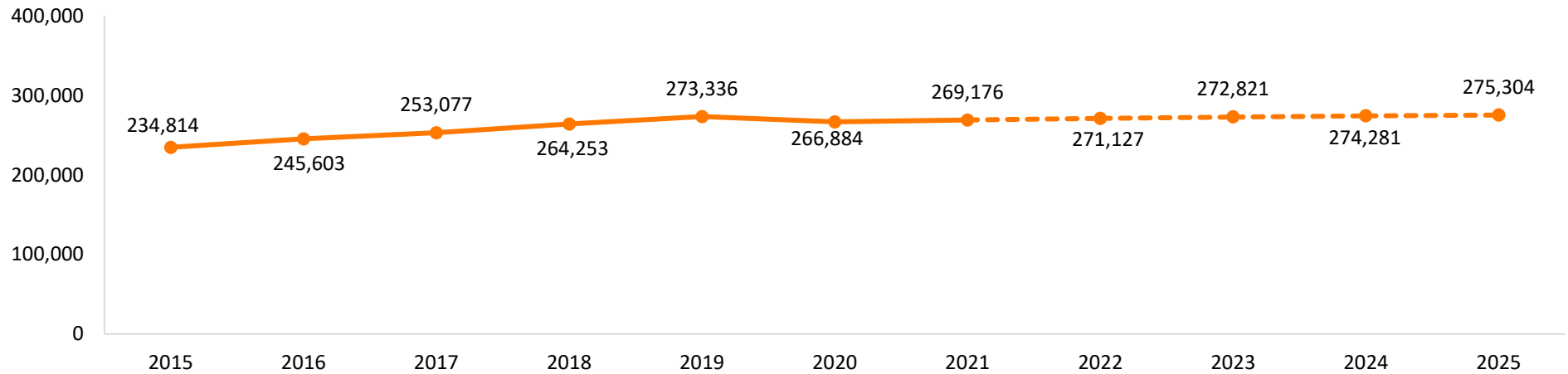


Table 1. Jobs that Require Bachelor's Degree Served by College of Engineering and Computer Science, 2015-2025

SOC	Occupation	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
11-3021	Computer and Information Systems Managers	16,050	17,058	18,384	20,621	23,338	24,153	24,343	24,507	24,653	24,777	24,871
11-9041	Architectural and Engineering Managers	10,851	10,488	10,527	11,597	12,226	12,181	12,141	12,103	12,064	12,027	11,991
13-1051	Cost Estimators	11,306	11,501	11,437	11,489	11,061	10,131	10,130	10,122	10,111	10,095	10,071
15-1211	Computer Systems Analysts	19,761	20,282	20,104	19,511	19,646	19,483	19,707	19,891	20,049	20,186	20,275
15-1212	Information Security Analysts	2,717	2,833	2,922	2,895	3,246	3,428	3,556	3,677	3,788	3,886	3,973
15-1241	Computer Network Architects	4,945	5,677	5,785	5,866	6,039	5,979	6,009	6,034	6,056	6,075	6,088
15-1244	Network and Computer Systems Administrators	16,007	15,975	15,350	14,602	13,541	12,493	12,571	12,637	12,695	12,741	12,774
15-1245	Database Administrators and Architects	4,593	4,586	4,455	4,299	5,032	5,463	5,520	5,568	5,611	5,648	5,676
15-1251	Computer Programmers	11,449	10,764	9,587	8,782	7,797	7,209	7,160	7,101	7,039	6,973	6,898

SOC	Occupation	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
15-1256	Software Developers and Software Quality Assurance Analysts and Testers	46,064	50,287	51,525	55,347	60,337	62,554	64,055	65,374	66,556	67,622	68,438
15-1299	Computer Occupations, All Other	13,660	17,860	22,327	26,732	26,584	24,009	24,117	24,205	24,278	24,341	24,380
17-2011	Aerospace Engineers	5,185	5,035	4,914	4,889	4,956	4,518	4,522	4,523	4,522	4,517	4,510
17-2021	Agricultural Engineers	152	133	135	157	136	151	150	149	148	148	147
17-2031	Bioengineers and Biomedical Engineers	1,287	1,170	1,007	767	620	617	622	625	628	630	630
17-2041	Chemical Engineers	721	723	772	711	680	594	597	597	598	600	601
17-2051	Civil Engineers	15,524	16,319	17,386	17,720	18,099	16,428	16,519	16,592	16,653	16,707	16,734
17-2061	Computer Hardware Engineers	4,148	3,807	3,562	3,287	3,473	2,803	2,807	2,808	2,808	2,807	2,801
17-2071	Electrical Engineers	8,432	8,903	8,923	9,375	9,621	9,969	9,964	9,954	9,940	9,925	9,906
17-2072	Electronics Engineers, Except Computer	9,393	9,118	9,235	8,674	7,573	6,304	6,235	6,178	6,129	6,084	6,059
17-2081	Environmental Engineers	2,868	2,913	2,944	2,876	2,869	2,403	2,415	2,425	2,430	2,437	2,438
17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	1,098	1,129	1,165	1,036	946	770	777	781	789	793	795
17-2112	Industrial Engineers	10,260	10,375	10,456	10,815	11,052	10,771	10,847	10,911	10,967	11,012	11,049
17-2121	Marine Engineers and Naval Architects	74	74	113	141	136	93	95	99	100	103	104
17-2131	Materials Engineers	1,070	1,059	1,098	1,161	1,205	1,132	1,124	1,117	1,111	1,104	1,098
17-2141	Mechanical Engineers	9,755	10,211	10,460	11,125	11,412	11,069	11,041	11,017	10,992	10,967	10,946
17-2151	Mining and Geological Engineers, Including Mining Safety Engineers	198	174	168	189	289	378	376	375	374	373	372
17-2161	Nuclear Engineers	519	510	492	172	286	394	393	392	391	391	389
17-2171	Petroleum Engineers	826	830	952	909	1,039	984	988	992	993	995	993
17-2199	Engineers, All Other	5,901	5,810	6,891	8,510	10,097	10,424	10,397	10,372	10,347	10,321	10,295
	Total	234,814	245,603	253,077	264,253	273,336	266,884	269,176	271,127	272,821	274,281	275,304

Trend in Jobs that Require a Master's Degree

Figure 3 shows a projected increase in jobs that require a Master's degree that can be served by students who graduate from CSUF's College of Engineering and Computer Science. The number of jobs served by the College increased by 17% between 2015 and 2018 before facing a 7% decline between 2018 and 2020. A 12% growth is projected between 2020 and 2025.

Figure 3. Trend in Jobs that Require Master's Degree Served by College of Engineering and Computer Science, 2015-2025

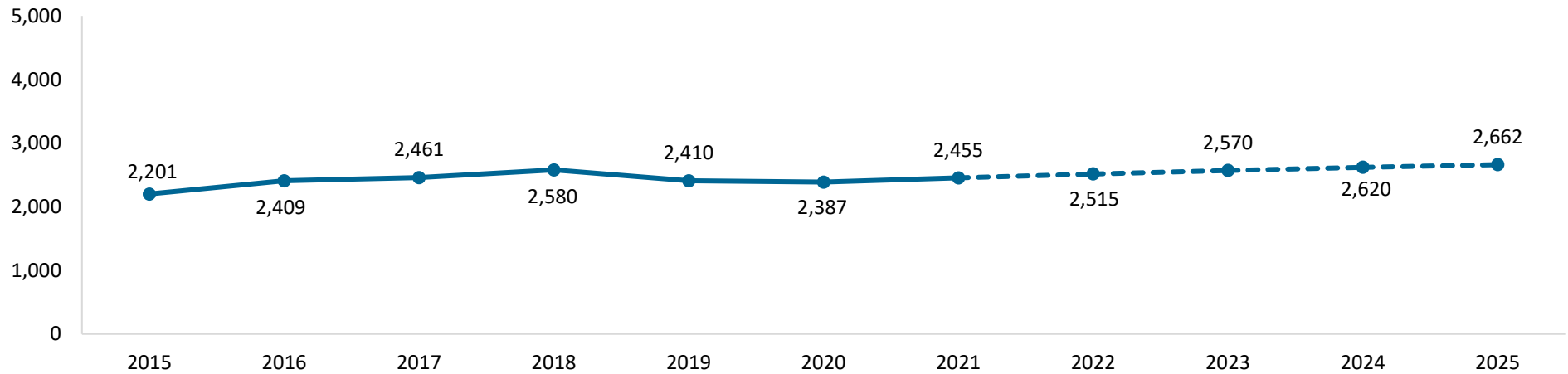


Table 2. Jobs that Require Master's Degree Served by College of Engineering and Computer Science, 2015-2025

SOC	Occupation	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
15-1221	Computer and Information Research Scientists	1,002	1,081	1,131	1,206	1,175	1,234	1,257	1,276	1,293	1,308	1,319
15-2041	Statisticians	1,199	1,329	1,330	1,375	1,235	1,152	1,198	1,238	1,277	1,311	1,343
Total		2,201	2,409	2,461	2,580	2,410	2,387	2,455	2,515	2,570	2,620	2,662