

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
All institutions	-	13,214,628	13,707,821	14,293,487	1,451,964	1,560,381	1,024,301	1,482,377	3,080,363	573,915	1,881,551	841,196	2,397,439
Johns Hopkins U. ^a	1	1,147,335	1,205,632	1,237,980	148,593	69,477	21,053	16,577	549,900	99,189	225,086	32,038	76,067
Georgia Institute of Technology	2	664,695	695,176	839,071	253,035	53,590	26,064	23,686	311,881	81,585	56,376	16,362	16,492
SUNY, Polytechnic Institute	3	350,793	353,542	462,562	0	0	0	16	9	0	22	0	462,515
Texas A&M U., College Station and Health Science Center	4	321,373	357,559	385,656	33,837	39,008	18,302	100,161	26,886	9,198	34,921	12,517	110,826
Massachusetts Institute of Technology	5	450,915	419,636	382,569	32,321	100,911	45,797	16,423	42,546	79	46,417	30,592	67,483
Pennsylvania State U., University Park and Hershey Medical Center	6	350,391	367,730	378,667	32,084	30,144	12,167	10,826	108,919	3,459	131,856	49,212	0
Purdue U., West Lafayette	7	270,525	280,592	285,469	24,570	18,756	19,532	35,323	49,674	12,793	52,859	19,817	52,145
U. Texas, Austin	8	249,788	259,935	279,730	13,515	10,287	41,078	37,375	67,530	101	60,298	22,629	26,917
U. Michigan, Ann Arbor	9	291,887	283,329	279,682	13,744	23,304	14,277	20,239	77,614	5,282	45,339	11,156	68,727
Utah State U.	10	202,345	226,616	247,332	224,361	1,286	0	10,955	6,459	130	3,369	0	772
Virginia Polytechnic Institute and State U.	11	258,213	263,711	246,965	20,824	20,998	4,473	29,264	56,194	30,945	24,718	17,397	42,152
U. Illinois, Urbana-Champaign	12	201,028	203,564	216,233	14,809	15,544	18,948	23,693	56,980	0	31,641	17,397	37,221
U. California, Berkeley	13	200,122	209,293	199,711	0	217	7,605	37,190	112,965	28	443	0	41,263
U. Dayton	14	157,016	153,082	180,158	16,125	0	5,851	282	8,558	40,363	7,900	84,081	16,998
U. Colorado Boulder	15	152,391	160,423	177,604	107,850	9,300	12,578	14,432	12,395	0	14,703	1,427	4,919
U. California, San Diego	16	172,919	182,495	177,564	898	59,417	70	815	81,213	0	16,253	303	18,595
North Carolina State U.	17	174,590	174,740	172,900	121	15,474	34,698	18,560	38,755	9,188	13,845	22,957	19,302
Ohio State U.	18	177,518	175,109	163,509	631	3,914	9,574	7,855	25,479	7,830	66,784	20,920	20,522
U. Washington, Seattle	19	155,076	152,919	157,622	11,149	30,131	8,748	19,810	38,990	2,105	15,547	6,292	24,850
Wichita State U.	20	109,248	134,848	157,430	153,492	117	0	0	826	671	531	0	1,793
U. Maryland ^b	21	158,814	153,109	154,163	13,540	20,544	9,361	36,403	16,380	354	16,880	15,120	25,581
Arizona State U.	22	152,395	155,015	145,574	0	12,877	6,943	28,102	44,972	3,255	10,462	8,590	30,373
Stanford U.	23	134,585	130,950	136,251	14,894	23,021	19,090	12,950	25,665	6,338	23,900	8,947	1,446
U. Wisconsin-Madison	24	126,587	133,600	131,709	0	16,836	10,886	13,124	15,878	4,997	12,365	12,706	44,917
U. Tennessee, Knoxville ^c	25	116,528	128,542	128,579	22,796	2,064	6,997	13,080	19,825	32,467	0	12,479	18,871
Iowa State U.	26	104,798	109,473	123,428	6,391	13,461	7,640	25,188	11,018	0	7,849	8,868	43,013
U. Florida	27	107,598	119,066	122,704	4,274	22,294	5,391	23,164	35,639	2,517	15,151	12,698	1,576
U. Minnesota, Twin Cities	28	120,976	120,929	121,637	10,190	29,072	20,684	13,225	18,813	1,148	23,064	5,441	0
Cornell U.	29	110,545	123,703	118,621	3,070	21,468	13,962	8,420	22,815	4,214	18,104	18,557	8,011

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
Carnegie Mellon U.	30	95,496	102,955	112,597	1,418	12,620	12,744	7,985	28,010	0	21,721	11,557	16,542
U. California, Davis	31	92,277	97,951	102,370	0	27,314	257	45,387	12,249	0	10,640	0	6,523
Woods Hole Oceanographic Institution	32	83,974	84,333	101,989	0	0	0	0	0	0	0	0	101,989
Rice U.	33	77,299	91,913	100,872	0	41,219	8,848	11,679	23,293	0	5,695	7,745	2,393
SUNY, U. Buffalo	34	95,040	112,843	100,194	15,010	9,847	13,887	7,680	7,382	8,562	19,203	3,079	15,544
New York U.	35	99,711	100,207	99,307	0	87	3,231	1,327	14,570	0	3,129	0	76,963
Duke U.	36	100,379	95,657	94,483	0	45,357	0	9,086	28,351	0	10,058	1,461	170
U. California, Los Angeles	37	95,797	93,520	93,906	0	8,633	7,426	9,578	34,305	0	17,435	6,754	9,775
Harvard U.	38	95,651	97,884	92,782	0	60,912	1,398	3,339	5,783	0	614	19,474	1,262
Northeastern U.	39	79,836	89,954	92,723	0	8,310	4,279	11,238	32,958	9,796	18,259	0	7,883
U. Notre Dame	40	89,702	84,478	90,572	35,176	0	18,988	13,987	21,743	0	0	3	675
U. Delaware	41	66,447	74,258	90,327	0	6,236	54,225	9,288	11,892	0	7,640	0	1,046
Clemson U.	42	76,739	76,971	90,038	0	20,574	5,711	14,579	10,732	1,960	20,325	10,330	5,827
U. Pennsylvania	43	78,444	82,299	88,937	0	25,127	10,192	0	19,676	0	20,591	0	13,351
U. North Dakota	44	54,760	52,511	86,578	0	0	1,188	49,227	2,656	0	1,434	902	31,171
Vanderbilt U. and Vanderbilt U. Medical Center	45	94,340	94,674	86,541	0	17,168	13,397	18,394	22,593	0	11,685	0	3,304
U. California, Santa Barbara	46	67,395	87,681	86,303	0	13,983	7,199	1,672	44,065	0	8,076	10,842	466
New Jersey Institute of Technology	47	78,455	85,445	82,240	0	11,274	8,434	22,210	4,264	529	2,695	74	32,760
Northwestern U.	48	80,413	77,150	80,735	0	14,826	15,296	4,883	8,204	3,995	6,274	16,709	10,548
Boston U.	49	78,154	85,651	79,757	1,582	33,185	232	0	18,580	5,260	10,930	1,220	8,768
Michigan State U.	50	79,638	82,690	79,360	0	20,095	13,601	9,254	16,405	0	11,976	0	8,029
Auburn U., Auburn	51	59,742	70,593	78,720	4,196	1,019	9,320	11,869	10,771	6,100	21,501	564	13,380
U. Southern California	52	76,180	78,005	78,179	1,234	7,307	2,768	13,481	40,794	2,528	5,585	2	4,480
Columbia U. in the City of New York	53	72,596	72,758	75,457	2,074	24,939	8,027	2,059	3,865	543	4,561	0	29,389
U. Arizona	54	75,555	79,463	72,158	1,623	8,351	5,642	1,578	34,712	4,100	3,858	8,397	3,897
Rensselaer Polytechnic Institute	55	59,831	70,156	67,810	0	9,421	10,365	4,669	14,323	493	19,888	5,697	2,954
Mississippi State U.	56	60,183	69,220	67,472	13,204	1,484	5,450	4,619	7,891	7,021	14,245	1,098	12,460
Princeton U.	57	65,000	67,014	67,231	2,029	6,069	5,304	3,830	17,483	2,734	8,114	14,256	7,412
U. California, Irvine	58	55,995	59,695	65,454	0	12,086	5,718	9,317	12,743	0	15,403	7,220	2,967
U. Virginia, Charlottesville	59	83,072	72,602	62,271	0	14,121	5,853	275	13,670	0	8,080	9,385	10,887
U. Massachusetts, Amherst	60	49,745	58,804	60,065	0	4,848	21,100	13,904	9,787	0	8,152	0	2,274

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
U. Texas, Arlington	61	54,450	59,395	58,154	4,249	4,520	0	12,925	5,936	12,949	4,249	0	13,326
U. Central Florida	62	62,258	59,627	57,620	15,455	20	3	7,217	9,022	4,152	9,220	4,475	8,056
U. Missouri, Columbia	63	48,028	53,343	56,685	243	1,646	947	5,584	7,519	790	3,938	98	35,920
U. Pittsburgh, Pittsburgh	64	46,075	53,586	56,681	0	15,435	10,326	4,629	9,017	1,986	10,710	0	4,578
U. Houston	65	51,806	55,210	56,555	2,016	11,156	12,136	8,173	8,927	405	5,890	1,714	6,138
U. Alabama, Huntsville	66	40,733	51,198	55,510	35,286	151	1,020	2,965	5,092	4,568	5,285	635	508
U. Connecticut	67	44,044	46,751	54,185	0	4,486	7,486	17,982	7,267	0	7,914	7,597	1,453
Colorado School of Mines	68	44,195	46,694	54,062	956	1,213	4,467	11,742	262	1,688	3,389	12,605	17,740
Oregon State U.	69	49,587	50,900	52,731	0	1,734	2,535	11,938	14,914	3,834	7,331	572	9,873
U. Kentucky	70	50,743	46,976	52,361	548	2,522	3,360	10,230	2,366	809	3,834	4,508	24,184
Florida State U.	71	56,352	56,493	52,153	2,403	2,509	1,112	5,631	16,958	2,538	17,755	2,001	1,246
Montana State U., Bozeman	72	36,521	38,833	51,785	0	5,575	2,544	6,942	5,168	18	7,540	0	23,998
California Institute of Technology	73	46,972	51,693	51,630	i 6,149	i 6,210	i 7,524	i 11,644	i 5,501	i 0	i 220	i 44	i 14,338
Rutgers, State U. New Jersey, New Brunswick	74	92,937	55,880	51,289	0	6,195	5,396	1,200	6,146	147	6,606	2,521	23,078
U. Nebraska, Lincoln	75	53,932	51,685	51,287	0	10,699	3,318	18,503	7,635	275	4,764	5,237	856
U. Texas, Dallas	76	48,666	50,812	50,646	0	14,441	0	0	13,460	986	9,155	5,672	6,932
U. South Florida ^d	77	45,508	37,162	50,547	814	5,262	3,273	20,584	11,968	1,203	6,108	0	1,335
George Mason U.	78	36,101	52,423	49,826	0	6,615	0	4,814	18,265	17,285	1,948	290	609
U. California, Santa Cruz	79	39,111	41,752	49,576	0	1,354	0	0	5,136	0	0	0	43,086
U. Utah	80	55,478	i 57,608	i 48,225	i 0	i 6,433	i 7,795	i 5,500	i 12,354	i 0	i 10,970	i 2,688	i 2,485
Washington State U.	81	39,578	39,533	48,031	207	3,414	5,720	8,508	9,684	98	9,163	4,162	7,075
U. Iowa	82	50,377	48,433	47,722	0	1,021	699	21,349	2,457	973	1,879	0	19,344
U. Maine	83	32,368	37,127	46,986	0	99	10,771	1,159	1,795	1,101	2,195	27,956	1,910
U. Alabama, Birmingham	84	47,555	53,030	46,844	6,538	5,957	942	609	6,491	0	11,323	14,693	291
Michigan Technological U.	85	47,435	45,263	46,733	0	2,774	2,313	3,488	8,628	0	22,845	3,993	2,692
U. Alabama, Tuscaloosa	86	31,845	33,019	43,941	2,139	0	4,895	12,506	10,368	0	7,321	6,615	97
Missouri U. of Science and Technology	87	37,912	36,447	43,470	1,131	11	2,350	6,899	6,958	1,073	5,535	18,105	1,408
U. Cincinnati	88	46,889	43,098	42,434	6,742	2,573	3,221	7,395	9,718	0	10,250	0	2,535
Texas Tech U.	89	44,057	42,856	41,962	0	0	8,695	8,904	10,032	2,042	6,036	0	6,253
Florida International U.	90	35,138	39,826	41,740	0	4,543	0	14,140	12,317	553	5,436	937	3,814
Colorado State U., Fort Collins	91	42,609	42,839	41,575	0	859	3,119	13,574	8,479	962	12,428	0	2,154

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
U. New Mexico	92	37,950	42,739	41,317	7,900	522	2,708	8,030	11,693	841	1,307	530	7,786
Mercer U.	93	32,624	37,450	40,439	15,276	0	0	8	2,152	0	12,062	10,341	600
West Virginia U.	94	42,516	40,786	39,855	429	0	8,043	3,668	3,868	4,437	11,661	1,930	5,819
U. Oklahoma, Norman and Health Science Center	95	26,569	36,643	39,785	5,873	2,879	4,148	5,747	14,186	1,728	0	0	5,224
SUNY, Binghamton U.	96	30,434	32,668	39,529	0	3,403	0	0	6,175	17,624	8,750	0	3,577
Louisiana State U., Baton Rouge	97	45,803	40,084	39,104	0	0	5,887	10,719	2,338	409	4,568	4,708	10,475
Case Western Reserve U.	98	41,228	37,911	39,079	0	18,039	7,575	853	4,786	0	7,457	0	369
U. Arkansas, Fayetteville	99	34,590	37,758	37,818	0	6,631	5,519	5,225	10,823	4,578	3,420	0	1,622
U. Massachusetts, Lowell	100	33,128	35,847	36,339	0	4,868	11,404	2,285	7,110	0	10,323	0	349
U. South Carolina, Columbia	101	31,748	42,804	36,223	165	0	6,080	3,122	12,670	0	9,653	0	4,533
Yale U.	102	36,591	36,806	35,778	0	10,206	4,798	0	11,492	0	7,730	0	1,552
U. Illinois, Chicago	103	28,226	31,496	35,675	0	14,699	1,872	4,078	4,292	0	10,457	268	9
Oklahoma State U., Stillwater	104	32,947	33,983	35,094	8,901	6	7,092	4,801	3,698	1,610	1,673	1,873	5,440
U. California, Riverside	105	29,020	31,937	34,888	0	1,899	7,505	10,604	8,670	0	4,410	628	1,172
CUNY, City C.	106	28,337	23,140	34,710	0	4,862	2,775	6,216	2,683	0	3,201	0	14,973
Stevens Institute of Technology	107	25,832	33,103	33,983	0	1,348	736	5,119	3,125	0	3,905	0	19,750
Dartmouth C. and Dartmouth Hitchcock Medical Center	108	31,110	31,140	33,559	0	13,613	4,565	791	4,898	6	6,286	0	3,400
Drexel U.	109	31,330	31,230	32,665	0	6,911	6,848	3,585	3,056	0	3,759	6,028	2,478
Virginia Commonwealth U.	110	26,072	29,811	32,233	0	6,629	5,576	0	7,133	0	6,655	0	6,240
U. North Carolina, Chapel Hill	111	31,825	30,774	30,935	0	10,633	0	19,091	0	1,211	0	0	0
U. Louisiana, Lafayette	112	28,397	27,878	30,295	11	2	7,945	4,788	2,759	17	9,519	3,446	1,808
U. Chicago	113	23,773	24,468	30,018	0	0	0	0	0	0	0	0	30,018
New Mexico State U.	114	25,892	25,030	29,884	5,310	9	1,564	4,336	6,947	70	2,015	120	9,513
U.S. Air Force Academy	115	28,489	29,812	29,132	2,823	0	0	0	923	482	24,904	0	0
SUNY, Stony Brook U.	116	28,632	30,180	28,344	0	6,822	0	2,247	7,592	0	2,027	7,459	2,197
U. Nevada, Reno	117	23,568	23,939	27,769	1,740	1,697	2,533	10,045	1,226	0	2,837	2,323	5,368
Kansas State U.	118	27,439	28,155	27,743	1,196	0	3,773	3,191	4,220	1,301	7,043	0	7,019
Worcester Polytechnic Institute	119	21,029	23,758	27,108	484	3,811	2,881	766	2,496	0	14,243	1,419	1,008
Air Force Institute of Technology	120	20,525	23,947	26,780	8,194	0	0	282	5,944	12,119	0	241	0
U. Texas, El Paso	121	26,586	25,172	26,599	24	682	0	3,901	4,411	1,559	13,352	934	1,736
Washington U., Saint Louis	122	23,090	23,821	26,574	0	11,360	5,490	407	5,044	0	0	3,546	727

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
Lehigh U.	123	23,447	24,054	25,835	0	1,929	4,104	5,422	2,582	1,671	5,512	4,591	24
Old Dominion U.	124	19,294	25,869	25,811	1,394	0	0	1,081	7,408	13,738	2,188	0	2
Syracuse U.	125	25,412	24,272	24,698	117	5,137	0	3,475	7,359	0	5,608	0	3,002
U. Wyoming	126	19,550	20,317	24,675	30	49	7,763	2,743	532	0	1,985	0	11,573
Naval Postgraduate School	127	22,498	22,933	24,254	7,713	100	34	263	5,791	1,049	2,460	84	6,760
Tufts U.	128	31,630	26,662	24,017	102	11,696	2,918	3,456	2,901	0	1,937	0	1,007
U. Hawaii, Manoa	129	17,089	25,423	23,966	100	788	0	4,284	11,686	0	1,806	0	5,302
Brown U.	130	23,448	23,965	23,587	18	9,028	2,110	0	3,266	0	2,839	3,789	2,537
George Washington U.	131	21,712	22,682	22,749	2,661	7,474	0	1,925	5,445	1,460	972	39	2,773
U. New Hampshire	132	23,861	23,457	22,509	0	519	1,664	6,235	10,411	0	3,443	0	237
U. Texas, San Antonio	133	19,928	22,922	21,499	0	3,532	0	6,580	3,550	496	3,124	0	4,217
U. Kansas	134	20,869	19,830	21,363	1,379	19	8,407	5,459	3,566	0	1,919	0	614
U. Louisville	135	16,302	18,105	20,965	1	5,795	1,595	1,513	5,518	978	1,899	0	3,666
Rochester Institute of Technology	136	20,264	20,910	20,874	0	1,341	1,129	2	4,667	1,786	1,950	0	9,999
U. Georgia	137	18,444	19,273	20,289	0	1,587	6,195	7,789	3,782	0	0	0	936
Brigham Young U., Provo	138	14,001	15,943	20,162	0	0	4,500	1,868	6,346	987	6,461	0	0
U. North Texas, Denton	139	15,773	15,205	18,285	0	1,557	0	0	1,348	0	1,878	12,875	627
U. Alaska, Fairbanks	140	14,922	17,843	17,314	399	0	0	4,248	9,918	0	369	135	2,245
Florida Atlantic U.	141	11,450	10,574	17,064	92	0	0	3,601	660	0	0	0	12,711
U. Rochester	142	14,872	16,116	16,780	0	5,734	1,020	0	4,712	0	4,512	0	802
Ohio U.	143	19,502	16,291	16,645	2,827	0	4,925	2,140	586	210	321	909	4,727
U. North Carolina, Charlotte	144	16,000	19,781	15,643	0	0	0	3,011	1,687	32	3,940	0	6,973
Boise State U.	145	11,688	13,956	14,918	90	4,057	529	903	3,033	354	183	3,493	2,276
North Dakota State U.	146	12,030	14,007	13,963	0	0	0	3,629	1,446	673	2,859	0	5,356
U. California, Merced	147	13,852	15,191	13,854	0	2,352	0	223	0	0	4,870	971	5,438
Illinois Institute of Technology	148	15,241	11,934	13,737	1,261	5,874	289	637	3,704	368	1,156	78	370
South Dakota School of Mines and Technology	149	11,226	12,677	13,658	0	907	6,154	1,193	674	10	396	2,331	1,993
Oregon Health and Science U.	150	12,134	12,856	13,526	0	13,526	0	0	0	0	0	0	0
Indiana U., Bloomington	151	11,265	14,373	13,012	0	2,592	0	0	0	10,420	0	0	0
New Mexico Institute of Mining and Technology	152	14,043	13,084	13,002	336	0	8,898	367	395	0	1,212	1,141	653
U. Idaho	153	17,497	17,035	12,944	1,161	1,046	654	1,993	1,067	9	480	637	5,897

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
Cleveland State U.	154	17,278	16,225	12,371	0	6,951	1,199	495	1,305	101	2,152	0	168
U. Vermont	155	7,864	11,209	11,914	2,425	0	0	3,890	2,484	0	2,656	0	459
Wayne State U.	156	14,634	12,806	11,675	0	1,962	3,250	2,720	1,679	630	1,003	0	431
North Carolina Agricultural and Technical State U.	157	11,766	10,393	11,616	0	290	0	1,880	3,053	1,470	1,499	0	3,424
Rowan U.	158	8,447	11,784	11,570	0	1,704	3,191	3,634	809	0	339	0	1,893
Emory U.	159	9,614	11,349	11,488	0	11,488	0	0	0	0	0	0	0
U. Puerto Rico, Mayaguez	160	16,446	16,903	11,397	0	0	3,699	2,515	1,711	31	996	1,562	883
Embry-Riddle Aeronautical U.	161	8,374	12,015	11,279	10,226	0	0	317	0	0	669	0	67
Louisiana Tech U.	162	11,513	11,459	11,257	0	1,826	980	1,259	894	120	1,761	811	3,606
U. Tulsa	163	13,213	13,182	10,926	0	0	602	0	625	0	3,252	0	6,447
U. Rhode Island	164	10,632	10,182	10,766	0	510	1,539	1,195	1,793	0	2,026	40	3,663
San Diego State U.	165	8,197	7,934	10,715	847	113	0	2,814	3,031	0	2,777	0	1,133
U. Nevada, Las Vegas	166	15,736	12,729	10,667	0	104	0	4,307	1,914	0	3,192	0	1,150
U. Toledo	167	11,256	10,023	10,299	0	584	2,160	458	955	0	4,477	0	1,665
Clarkson U.	168	10,889	9,363	10,113	0	300	2,548	2,310	2,793	504	1,627	0	31
Southern Methodist U.	169	9,207	9,798	9,972	0	0	0	990	3,773	27	1,439	0	3,743
Howard U.	170	8,401	8,336	9,535	337	0	605	1,434	4,068	0	1,335	0	1,756
Villanova U.	171	9,612	10,193	9,484	0	0	848	3,615	1,150	0	1,673	0	2,198
U. Memphis	172	9,464	10,741	9,464	13	1,736	0	5,490	562	0	986	92	585
Texas State U.	173	4,611	6,892	9,321	23	218	0	242	280	0	99	4,672	3,787
U. Missouri, Kansas City	174	7,089	8,351	9,174	27	0	0	1,021	7,604	0	346	0	176
Marquette U.	175	8,988	10,059	9,027	0	3,345	0	1,233	2,109	0	909	0	1,431
U. Wisconsin-Milwaukee	176	9,915	9,683	8,577	0	379	0	1,729	2,311	252	2,192	777	937
Tennessee Technological U.	177	7,267	7,559	8,455	0	0	121	1,837	2,426	239	3,636	0	196
Temple U.	178	8,042	9,294	8,279	0	2,096	0	2,018	1,898	0	1,801	0	466
Wright State U.	179	39,164	29,519	8,129	1	1,319	0	0	5,236	0	1,329	0	244
U. Nebraska, central administration	180	1,687	8,340	8,060	0	2,022	0	20	860	0	336	1,094	3,728
Western Michigan U. and Homer Stryker M.D. School of Medicine	181	5,595	5,091	8,058	484	717	4,160	483	272	31	1,024	145	742
U. Massachusetts, Dartmouth	182	7,764	7,944	8,049	0	1,226	0	1,644	2,710	0	2,460	0	9
Morgan State U.	183	3,990	7,228	8,031	176	0	0	2,252	4,014	327	0	0	1,262

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
U.S. Military Academy	184	3,799	5,297	7,772	0	0	339	586	2,315	1,259	1,840	0	1,433
U. Akron	185	16,650	11,345	7,714	0	811	1,355	1,119	320	0	3,728	0	381
Medical C. Wisconsin	186	7,800	8,542	7,560	0	7,560	0	0	0	0	0	0	0
Baylor U.	187	3,720	4,515	7,241	2,064	598	0	0	2,054	206	2,149	0	170
South Dakota State U.	188	5,516	5,490	7,161	0	0	0	843	648	0	603	0	5,067
Missouri State U.	189	3,234	10,257	7,024	0	0	0	0	0	0	0	7,024	0
U.S. Naval Academy	190	7,482	7,376	6,719	705	0	0	0	1,728	0	1,123	0	3,163
Portland State U.	191	9,160	6,719	6,668	122	0	0	2,730	2,229	257	589	458	283
U. Maryland, Baltimore County	191	8,429	6,671	6,668	818	1,938	658	585	843	124	715	138	849
Tulane U.	193	8,416	6,881	6,662	0	3,994	2,657	3	0	0	0	0	8
Indiana U.-Purdue U., Indianapolis	194	6,730	7,177	6,604	0	2,096	0	52	1,671	0	2,310	0	475
Texas A&M U.-Corpus Christi	195	7,193	7,064	6,590	4,346	0	2	719	94	40	203	0	1,186
Northern Arizona U.	196	2,613	4,996	6,497	0	1,213	207	322	3,506	0	527	12	710
U. Michigan, Dearborn	197	6,832	7,088	6,223	0	0	0	0	3,097	898	1,774	0	454
U. Mississippi	198	8,821	13,661	6,033	598	261	610	864	1,693	154	478	364	1,011
California State U., Sacramento	199	7,507	7,744	5,986	0	0	0	5,901	0	0	85	0	0
U. Southern Mississippi	200	3,371	5,999	5,963	0	0	11	0	0	0	0	0	5,952
Florida Institute of Technology	201	4,782	5,362	5,891	665	564	177	574	296	257	1,295	41	2,022
Montana Technological U.	202	4,428	4,331	5,834	0	0	66	325	312	0	100	4,984	47
Humboldt State U.	203	5,232	4,261	5,564	0	277	0	848	3,122	107	0	10	1,200
Tuskegee U.	204	5,372	5,922	5,528	44	432	0	0	512	0	533	3,507	500
California Polytechnic State U., San Luis Obispo	205	4,117	4,646	5,522	1,314	128	0	1,033	180	41	865	26	1,935
U. Texas Rio Grande Valley	206	3,573	4,018	5,354	24	252	0	445	572	2,041	1,034	15	971
Florida A&M U.	207	4,477	4,796	5,222	0	0	1,552	1,494	209	440	633	0	894
U. South Alabama	208	2,411	3,640	5,085	0	0	2,508	1,373	543	0	317	0	344
Prairie View A&M U.	209	5,121	5,222	4,687	15	408	130	124	2,688	0	634	67	621
Texas A&M U.-Kingsville	210	1,827	2,653	4,622	50	0	128	104	693	0	1,305	0	2,342
California State U., Long Beach	211	4,223	4,733	4,574	154	861	532	652	1,083	0	593	0	699
U. Miami	212	5,400	5,060	4,527	0	642	0	1,993	258	0	993	0	641
Oakland U.	213	3,836	1,041	4,437	0	0	0	0	1,624	487	2,326	0	0
Idaho State U.	214	4,039	5,014	4,411	0	0	0	158	64	0	111	0	4,078

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021																	
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec								
Miami U.	215	3,070	3,783	4,356	0	1,002	1,186	0	1,181	550	275	0	162								
Northern Illinois U.	216	1,418	1,467	4,134	0	0	0	0	88	2,965	404	0	677								
Brandeis U.	217	0	1,048	4,055	503	2,030	0	1,522	0	0	0	0	0								
Georgia Southern U.	218	1,257	1,929	4,052	0	0	0	1,145	601	637	1,576	0	93								
Catholic U. of America	219	2,587	3,518	3,926	0	1,312	0	347	1,189	0	948	0	130								
New School	220	2,828	3,205	3,793	0	0	1,293	755	6	2	1,458	0	279								
Kent State U.	221	2,330	2,743	3,732	1,835	103	422	0	222	18	111	35	986								
U. Colorado Denver ^e	222	na	na	3,695	0	286	0	772	1,067	0	1,266	0	304								
San Jose State U.	223	1,864	2,863	3,664	237	10	414	258	1,745	172	212	0	616								
U. Tennessee, Chattanooga	224	2,460	3,319	3,578	0	0	182	658	569	0	146	0	2,023								
U. Denver	225	4,010	4,461	3,558	0	2,155	0	0	486	0	0	917	0								
U. of St. Thomas (MN)	226	407	976	3,212	0	0	0	0	93	79	503	0	2,537								
U. of the District of Columbia	227	708	1,388	3,134	17	0	0	167	190	1,014	1,746	0	0								
SUNY, U. Albany	228	3,087	3,319	3,133	0	0	0	0	1,715	0	0	0	1,418								
Milwaukee School of Engineering	229	3,825	3,105	3,129	0	157	0	1,293	15	0	988	0	676								
Southern Illinois U., Carbondale	230	2,905	2,333	3,120	0	148	0	194	1,273	0	846	152	507								
East Carolina U.	231	2,015	3,053	3,069	0	0	0	395	38	0	0	0	2,636								
Tennessee State U.	232	1,207	2,922	3,062	i	0	i	0	i	79	i	1,066	i	0	i	989	i	0	i	928	i
CUNY, Advanced Science Research Center	233	1,379	2,289	2,928	0	21	136	1,167	0	0	0	0	1,604								
Alfred U.	234	5,032	2,720	2,654	0	0	0	0	0	0	0	2,654	0								
California State U., Maritime Academy	235	2,959	3,202	2,603	0	0	0	0	0	0	0	0	2,603								
Marshall U.	236	1,158	1,137	2,475	0	4	0	2,194	0	0	23	20	234								
Lamar U.	237	1,609	1,825	2,437	0	0	1,013	228	171	880	145	0	0								
Pennsylvania State U., Behrend	238	1,508	1,232	2,395	0	1,011	100	0	86	494	408	296	0								
U. Minnesota, Duluth	239	2,399	2,186	2,392	0	0	99	1,133	150	692	0	0	318								
San Francisco State U.	240	1,284	2,251	i	2,386	0	260	0	626	907	0	402	0	191							
Southern U. and A&M C., Baton Rouge	241	1,905	1,424	2,282	0	0	0	0	171	0	2,111	0	0								
Pittsburg State U.	242	1,990	1,659	2,250	47	92	1,936	0	0	0	0	175	0								
Jackson State U.	243	3,354	1,468	2,236	0	0	0	1,157	969	1	0	0	109								
Purdue U., Northwest	244	1,352	2,521	2,220	0	0	0	57	24	657	1,476	0	6								
U. North Florida	245	2,392	2,433	2,119	0	0	0	937	100	20	755	0	307								

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
U. North Carolina, general administration	246	2,239	2,467	2,068	0	731	493	0	295	0	549	0	0
Saint Louis U.	247	2,344	2,621	1,999	0	462	0	624	0	0	913	0	0
U. New Orleans	248	2,376	2,282	1,897	0	0	0	219	649	0	563	0	466
Kennesaw State U.	249	617	1,478	1,858	31	67	0	738	125	0	585	0	312
Youngstown State U.	250	3,993	3,491	1,794	0	0	1	965	345	0	401	82	0
Southern Illinois U., Edwardsville	251	2,348	1,424	1,786	0	1,054	0	586	35	4	107	0	0
North Carolina Central U.	252	1,212	2,675	1,773	0	1,773	0	0	0	0	0	0	0
Alabama A&M U.	253	2,354 i	1,603 i	1,714 i	0 i	0 i	0 i	365 i	651 i	120 i	403 i	175 i	0 i
California State U., San Marcos	254	797	2,408	1,682	0	2	0	0	0	0	0	0	1,680
U. Alaska, Anchorage	255	1,393	1,101	1,674	0	0	0	617	267	26	529	0	235
Santa Clara U.	256	876	948	1,588	0	462	0	0	284	0	757	0	85
California State Polytechnic U., Pomona	257	1,085	1,875	1,516	226	25	358	664	0	15	88	28	112
Bucknell U.	258	1,632	1,690 i	1,494	0	114	390	335	216	0	265	0	174
California State U., Los Angeles	259	879 i	922	1,486	0	0	0	824	56	0	606	0	0
U. South Dakota	260	3,243	1,385	1,429	0	1,429	0	0	0	0	0	0	0
Norfolk State U.	261	1,940	1,312	1,413	0	0	0	0	174	0	0	0	1,239
West Texas A&M U.	262	1,178	1,277	1,400	0	0	538	183	1	31	0	0	647
California State U., San Bernardino	263	2,434	1,598	1,382	0	36	0	1,079	0	0	0	0	267
U. South Carolina, Aiken	264	1,520	1,331	1,322	0	0	0	0	0	0	0	0	1,322
California State U., Fresno	265	1,492	1,748	1,290	0	38	0	652	405	6	184	0	5
U. Oklahoma, Tulsa	266	1,549	1,816	1,289	0	161	0	0	1,128	0	0	0	0
Virginia State U.	267	793	1,058	1,273	950	0	0	0	0	209	0	0	114
U. Massachusetts, Boston	268	1,255	1,206	1,266	0	63	0	0	907	0	0	0	296
U. Texas Medical Branch	269	1,596	1,192	1,259	0	1,259	0	0	0	0	0	0	0
California State U., Chico	270	567	1,120	1,236	0	0	7	445	276	0	470	0	38
California State U., Northridge	271	714	1,115	1,216	4	137	0	14	72	0	830	43	116
U. Colorado Anschutz Medical Campus ^e	272	na	na	1,204	0	1,204	0	0	0	0	0	0	0
Wake Forest U.	272	385	859	1,204	0	0	0	0	0	0	0	0	1,204
U. Puerto Rico, Rio Piedras	274	37	341	1,152	0	1,152	0	0	0	0	0	0	0
CUNY, system office	275	1,001	1,132	1,137	0	0	0	0	0	0	0	0	1,137
Manhattan C.	276	809	716	1,122	0	0	279	731	112	0	0	0	0

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
SUNY, C. of Environmental Science and Forestry	277	1,339	912	1,085	0	241	133	622	66	0	0	0	23
U. North Carolina, Wilmington	278	1,226	640	1,064	614	0	0	429	21	0	0	0	0
U. Nebraska, Omaha	279	993	1,195	1,051	329	283	1	354	84	0	0	0	0
U. Ana G. Mendez, Gurabo	280	2,324	884	1,034	0	0	0	74	66	14	81	0	799
California State U., East Bay	281	ne	132	1,024	0	0	0	0	1,022	2	0	0	0
Minnesota State U., Mankato	282	1,472	1,486	996	0	0	0	245	81	0	122	0	548
U. San Diego	283	776	1,252	980	0	0	0	0	0	94	34	0	852
U. Hartford	284	1,300	1,002	963	0	0	0	8	0	0	817	0	138
Franklin W. Olin C. of Engineering	285	534	491	936	52	0	0	15	417	0	270	0	182
U. Colorado Colorado Springs	286	694	1,367	902	32	0	0	0	526	0	344	0	0
California State U., Bakersfield	287	2,050	1,449	839	0	0	0	0	52	0	0	0	787
U. of the Virgin Islands	288	61	902	832	785	0	0	0	0	0	0	0	47
Florida Polytechnic U.	289	1,739	689	829	0	0	0	0	339	0	89	394	7
Hampton U.	290	1,049	866	827	0	0	57	0	770	0	0	0	0
U. Arkansas, Little Rock	291	2,116	1,627	809	703	0	0	0	0	1	105	0	0
U. Texas of the Permian Basin	292	ne	217	792	0	0	0	0	0	0	0	0	792
Western Illinois U.	293	409	79	780	0	0	0	0	0	0	0	780	0
New York Institute of Technology	294	1,045	458	775	0	0	0	0	588	0	187	0	0
Oregon Institute of Technology	295	798	679	761	0	0	0	105	190	61	116	0	289
Morehead State U.	296	806	1,271	756	723	0	0	0	33	0	0	0	0
Union C., Schenectady	297	118	204	722	0	21	0	0	82	0	618	0	1
South Carolina State U.	298	662	687	712	0	0	226	0	0	0	0	0	486
U. West Florida	299	21	277	709	0	0	0	0	0	0	323	0	386
Pace U.	300	435	516	706	0	0	0	0	0	0	706	0	0
Smith C.	301	553	952	688	12	92	1	0	33	0	227	5	318
U. Tennessee, Health Science Center	302	610	648	687	0	687	0	0	0	0	0	0	0
California State U., Fullerton	303	609	616	661	0	0	0	48	234	0	159	0	220
Christopher Newport U.	304	575	566	656	559	97	0	0	0	0	0	0	0
Fort Lewis C.	305	760	505	605	22	49	0	0	74	0	0	0	460
Western Kentucky U.	306	597	689	604	0	0	89	65	78	0	289	0	83
Middle Tennessee State U.	307	59	182	592	114	0	0	460	0	0	0	0	18

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021										
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec	
Savannah State U.	308	526	639	588	0	241	316	0	0	0	0	0	0	31
Western Washington U.	309	832	989	587	0	0	0	0	0	0	0	0	0	587
Lawrence Technological U.	310	882	806	555	0	1	0	404	59	0	91	0	0	0
U. Texas, Tyler	311	394	344	537	0	0	82	139	48	0	251	0	0	17
Hofstra U.	312	521	299	528	0	13	0	17	427	8	0	0	0	63
Harvey Mudd C.	313	884	628	515	10 i	21 i	77 i	47 i	100 i	0 i	147 i	8 i	0 i	105 i
Purdue U., Fort Wayne	314	221	443	465	0	0	0	81	84	0	227	0	0	73
Eastern Michigan U.	315	304	402	427	0	63	34	178	65	28	15	0	0	44
Central Michigan U.	316	559	736	412	293	1	16	0	29	0	0	2	0	71
Johnson C. Smith U.	317	0	364	386 i	0 i	0 i	0 i	370 i	0 i	0 i	0 i	0 i	0 i	16 i
Pennsylvania State U., Harrisburg	317	312	74	386	0	21	0	126	166	0	73	0	0	0
Arkansas State U., Jonesboro	319	553	371	384	0	0	0	229	35	0	120	0	0	0
Alabama State U.	320	0	533	366	0	0	0	0	0	0	0	0	0	366
Keck Graduate Institute	321	326 i	336 i	356 i	0 i	356 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i
Chapman U.	322	0	102	348	0	0	0	0	0	0	0	0	0	348
Wellesley C.	323	0	633	345	345	0	0	0	0	0	0	0	0	0
U. Wisconsin-Green Bay	324	353 i	338 i	327 i	0 i	0 i	0 i	95 i	142 i	0 i	90 i	0 i	0 i	0 i
U. New Haven	325	1,013	533	319	0	31	0	38	5	168	8	0	0	69
U. Washington, Tacoma	325	0	59	319	0	174	0	0	140	0	5	0	0	0
Delaware State U.	327	2,248	316 i	308	0	0	0	0	110	0	198	0	0	0
Western Carolina U.	328	365	371	305	0	0	0	16	0	0	0	0	0	289
U. Washington, Bothell	329	161	0	304	0	0	0	0	2	0	302	0	0	0
Kettering U.	330	1,354	1,046	295	0	0	44	0	177	1	73	0	0	0
Fayetteville State U.	331	0	0	288	0	0	0	0	0	0	0	0	0	288
C. New Jersey	332	ne	105	283	0	120	0	110	48	0	5	0	0	0
Saginaw Valley State U.	333	239	277	280 i	0 i	0 i	0 i	0 i	5 i	0 i	26 i	249 i	0 i	0 i
Hope C.	334	128	175	277	0	0	0	0	0	0	277	0	0	0
CUNY, C. Staten Island	335	1	294	274	0	0	92	73	0	0	0	0	0	109
Citadel Military C. South Carolina	336	ne	34	250	0	0	0	220	10	0	9	0	0	11
Texas A&M International U.	337	30	71	241	0	1	0	0	0	0	0	0	0	240
U. Wisconsin-Stevens Point	337	52 i	60	241	0	0	109	132	0	0	0	0	0	0

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021									
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec
Loyola Marymount U.	339	160	165	234	0	0	0	98	0	0	96	0	40
U. of the Pacific	340	68	89	228	0	214	0	0	0	0	14	0	0
U. Michigan, Flint	341	152	376	225	0	0	0	0	0	0	0	0	225
Central State U.	342	340	166	211	0	0	0	195	0	0	0	0	16
Liberty U.	343	311	838	208	0	0	0	0	0	0	180	0	28
U. Wisconsin-Superior	344	4	9	207	7	0	0	0	0	0	0	0	200
Lipscomb U.	345	ne	188 i	203	0	0	0	58	0	0	3	0	142
Lafayette C.	346	184	251	201	0	0	186	15	0	0	0	0	0
U. Houston-Downtown	347	42	36	189	0	0	0	0	0	0	0	0	189
U. of the Incarnate Word	348	47	72	186	0	36	0	0	0	0	150	0	0
Alcorn State U.	349	343	133	181	0	0	0	0	0	0	158	0	23
James Madison U.	350	313	305	174	0	1	0	8	10	30	0	0	125
Swarthmore C.	350	314	367	174	0	0	0	50	38	0	86	0	0
U. Wisconsin-Platteville	352	145 i	145 i	171 i	0 i	0 i	0 i	16 i	33 i	11 i	60 i	0 i	51 i
Biola U.	353	162 i	167 i	167 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i	167 i
Tarleton State U.	354	61	156	166	0	0	0	0	0	0	131	0	35
U. Southern Maine	355	23	27	159	105	0	0	0	0	33	0	21	0
U. Wisconsin-Oshkosh	356	146 i	152 i	158	0	0	0	0	0	0	0	0	158
Florida Gulf Coast U.	357	59	250	145	0	0	0	112	0	0	0	0	33
U. Maryland, Eastern Shore	358	40	128	144	144	0	0	0	0	0	0	0	0
East Tennessee State U.	359	2 i	65 i	138 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i	138 i
Grand Valley State U.	360	400	236	118	0	0	0	0	1	0	2	0	115
Keene State C.	361	8	8	114	0	0	0	0	0	114	0	0	0
U. Detroit Mercy	361	227	119	114	0	0	0	8	87	0	19	0	0
Fairfield U.	363	60	117	109	0	5	0	0	44	0	9	0	51
Montclair State U.	364	0	14	104	5	99	0	0	0	0	0	0	0
CUNY, New York City C. of Technology	365	478	367	103	0	0	0	40	0	3	56	0	4
Duquesne U.	366	525	374	102	0	102	0	0	0	0	0	0	0
Oklahoma State U., Center for Health Sciences	367	309	258	101	0	101	0	0	0	0	0	0	0
Central Connecticut State U.	368	119	120	100	74	0	7	14	0	2	0	0	3
Calvin U.	369	111	104 i	97 i	0 i	20 i	0 i	0 i	21 i	0 i	0 i	0 i	56 i

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021										
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec	
California State U., Channel Islands	370	0	0	79	0	0	0	0	0	0	0	79	0	0
CUNY, Brooklyn C.	371	116	118	77	0	0	0	0	0	0	74	0	0	3
C. Charleston	372	0	67	72	0	0	72	0	0	0	0	0	0	0
Central Washington U.	372	70	61	72	0	0	0	0	0	0	72	0	0	0
U. Maryland Center for Environmental Science	372	90	122	72	0	0	0	72	0	0	0	0	0	0
Coastal Carolina U.	375	0	0	68	0	68	0	0	0	0	0	0	0	0
Suffolk U.	376	ne	76	66	66	0	0	0	0	0	0	0	0	0
Clafin U.	377	145	170	65	0	1	0	0	0	0	0	0	64	0
Colorado State U., Pueblo	378	178	210	64	13	0	0	0	0	0	0	0	0	51
Texas A&M U.-Commerce	378	28	48	64	0	0	0	0	0	0	0	0	0	64
Seattle U.	380	283	140	62	0	0	0	1	47	0	0	0	0	14
Eastern Kentucky U.	381	0	58	58	0	0	0	0	0	0	0	0	0	58
Bowling Green State U.	382	60	121	57	0	0	0	0	0	0	0	0	0	57
Xavier U. Louisiana	382	376	65	57	0	0	0	0	0	0	0	0	0	57
Thomas Jefferson U.	384	0	143	55	0	0	0	0	0	0	0	0	0	55
Andrews U.	385	47	41	50	0	0	0	0	0	0	0	0	0	50
Boston C.	385	0	0	50	0	0	0	0	0	0	0	0	0	50
Trinity U.	387	103	80	47	0	0	47	0	0	0	0	0	0	0
Abilene Christian U.	388	ne	ne	45	45	0	0	0	0	0	0	0	0	0
Dordt U.	388	ne	ne	45	0	0	9	0	0	0	0	0	0	36
Trinity C., Hartford	388	86	49	45	0	0	0	0	0	0	0	0	0	45
SUNY, Oswego	391	231	125	43	0	0	0	0	36	0	0	0	0	7
Clark Atlanta U.	392	214	158	36	0	0	0	0	0	0	0	0	0	36
Sam Houston State U.	392	21	20	36	0	0	0	0	0	0	0	0	0	36
Texas Christian U.	392	73	46	36	8	0	0	0	0	0	22	0	0	6
Roger Williams U.	395	36	30	32	0	0	0	0	0	0	0	0	0	32
St. Cloud State U.	396	121	71	31	0	0	0	0	26	1	4	0	0	0
Elon U.	397	87	45	29	0	13	0	0	0	0	0	0	0	16
Texas Southern U.	398	130	104	27	0	0	0	0	0	0	0	0	0	27
U. Wisconsin-River Falls	399	ne	103	18	0	0	0	0	0	0	0	0	0	18
Providence C.	400	41	0	17	0	0	0	0	0	0	0	17	0	0

TABLE 56

Higher education R&D expenditures in engineering subfields, ranked by all FY 2021 engineering R&D: FYs 2019–21 and by subfield for FY 2021

(Dollars in thousands)

Institution	Rank	2019	2020	2021										
				All engineering	Aerospace, aeronautical, and astronautical engineering	Bioengineering and biomedical engineering	Chemical engineering	Civil engineering	Electrical, electronic, and communications engineering	Industrial and manufacturing engineering	Mechanical engineering	Metallurgical and materials engineering	Engineering nec	
Southeastern Louisiana U.	401	0	4	16	0	0	0	0	0	0	16	0	0	0
Albany State U.	402	16	3	14	14	0	0	0	0	0	0	0	0	0
Hawaii Pacific U.	403	10	13	13	13	0	0	0	0	0	0	0	0	0
CUNY, York C.	404	91	0	12	0	1	0	0	0	0	0	0	0	11
CUNY, Graduate Center	405	0	30	6	6	0	0	0	0	0	0	0	0	0
Jacksonville State U.	405	22	11	6	0	0	0	0	0	0	0	0	0	6
Azusa Pacific U.	407	50	31	5	0	0	0	0	0	0	0	5	0	0
U. Alaska, Southeast	408	0	30	4	0	0	0	0	0	0	0	0	0	4
Salisbury U.	409	0	0	3	0	0	0	0	0	0	0	3	0	0
U. San Francisco	409	0	6	3	0	0	0	3	0	0	0	0	0	0
Indiana State U.	411	1	4	2	0	0	0	2	0	0	0	0	0	0
SUNY, C. Brockport	411	0	0	2	0	0	0	0	0	0	0	0	0	2
Doane U.	413	0	1 i	1 i	0 i	1 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i
Sonoma State U.	413	ne	1	1	0	0	0	0	0	1	0	0	0	0
U. Central Oklahoma	413	0	1 i	1 i	0 i	0 i	1 i	0 i	0 i	0 i	0 i	0 i	0 i	0 i
All other surveyed institutions	-	14,394	7,765	0	0	0	0	0	0	0	0	0	0	0

i = imputed. na = not applicable; institution did not exist or did not exist as a separate entity. ne = not eligible; institution did not meet the criteria for inclusion.

nec = not elsewhere classified.

^a Johns Hopkins University includes the Applied Physics Laboratory (APL), with \$1,125,772 thousand imputed for total R&D expenditures in engineering in FY 2021. Total expenditures by field for Johns Hopkins University are flagged as imputed because APL was unable to distribute a portion of institutionally funded R&D by field.

^b The University of Maryland includes expenditures from the University of Maryland, Baltimore and University of Maryland, College Park campuses. In FY 2019, the two campuses began reporting as one research unit to reflect their new strategic partnership. This relationship was codified through the University of Maryland Strategic Partnership Act passed by the Maryland General Assembly in 2016. Prior to FY 2019, both campuses reported to the survey as separate institutions.

^c The University of Tennessee, Knoxville includes expenditures from the University of Tennessee Institute of Agriculture. Due to a reorganization within the University of Tennessee system, the Institute of Agriculture now falls under the leadership of the University of Tennessee, Knoxville chancellor. Prior to FY 2020, the University of Tennessee, Knoxville, Institute of Agriculture reported to the survey separately.

^d The University of South Florida includes expenditures from the University of South Florida, Tampa; University of South Florida, Saint Petersburg; and University of South Florida, Sarasota-Manatee campuses. Due to the consolidation of the three campuses that occurred on 1 July 2020, University of South Florida, Saint Petersburg and University of South Florida, Sarasota-Manatee began reporting with the University of South Florida, Tampa as the University of South Florida. Prior to FY 2021, all three campuses reported to the survey as separate institutions.

^e The University of Colorado Denver and University of Colorado Anschutz Medical Center report to the survey separately. Prior to FY 2021, expenditures were reported together under University of Colorado Denver and Anschutz Medical Campus.

Note(s):

Institutions reporting zero expenditures in ranked total for FY 2021 are not listed in this table. Tied institutions are ranked alphabetically. Ranked institutions are geographically separate campuses headed by a campus-level president or chancellor. Some campuses are part of large, multi-campus universities; some are part of state university systems. For a complete list of campuses that belong to a larger university or system and their aggregate R&D expenditures, see table 6.

Source(s):

National Center for Science and Engineering Statistics, Higher Education Research and Development Survey.