

Engineering Technology Education Report

CIP 14.4201

Cochise, Pima, SC

Mechatronics, Robotics, and Automation Engineering

CIP 2010: A program that prepares individuals to apply mathematical and scientific principles to the design, development and operational evaluation of computer controlled electro-mechanical systems and products with embedded electronics, sensors, and actuators; and which includes, but is not limited to, automata, robots and automation systems. Includes instruction in mechanical engineering, electronic and electrical engineering, computer and software engineering, and control engineering.

Target Occupations

7,344 Jobs (2016) 32% above National average		4.2% % Change (2017-2022) Nation: 6.4%		\$36.92/hr Median Hourly Earnings Nation: \$37.45/hr	
Occupation	2017 Jobs	Annual Openings	Median Hourly Earnings	Growth (2017 - 2022)	Location Quotient (2017)
Postsecondary Teachers	6,116	179	\$33.65/hr	5.51%	1.31
Architectural and Engineering Managers	671	22	\$65.37/hr	-2.68%	1.19
Engineers, All Other	598	12	\$37.56/hr	-2.01%	1.37

* Target Occupations - Settings

Occupational Programs						
65.00	3,907.00	229.00				
Programs (2015)	Completions (2015)	Openings (2015)				
CIP Code	Program	Completions (2011)	(2012)	(2013)	(2014)	(2015)
24.0101	Liberal Arts and Sciences/Liberal Studies	2,399	2,506	2,504	2,424	2,428
14.1099	Electrical, Electronics and Communications Engineering, Other	56	52	68	103	155
14.1901	Mechanical Engineering	94	99	89	98	112
23.0101	English Language and Literature, General	176	167	150	119	106
52.0212	Retail Management	131	110	107	82	104
13.0101	Education, General	184	169	168	71	96
04.0301	City/Urban, Community and Regional Planning	119	97	83	77	77
04.0201	Architecture	69	66	70	78	58
38.0101	Philosophy	54	66	66	44	53
14.0501	Bioengineering and Biomedical Engineering	14	11	35	48	50
14.0701	Chemical Engineering	47	52	73	68	49
26.1310	Ecology and Evolutionary Biology	47	44	53	47	48
14.2701	Systems Engineering	41	34	37	35	41
40.1001	Materials Science	24	35	28	34	41
14.0801	Civil Engineering, General	59	54	53	46	35
14.2101	Mining and Mineral Engineering	19	26	22	20	31
14.3501	Industrial Engineering	13	16	20	24	29
05.0104	East Asian Studies	29	25	27	28	29
45.0999	International Relations and National Security Studies, Other	0	0	9	32	28
14.0201	Aerospace, Aeronautical and Astronautical/Space Engineering	37	48	39	45	27
38.0201	Religion/Religious Studies	30	22	28	22	26
50.0411	Game and Interactive Media Design	11	11	14	19	24
05.0107	Latin American Studies	38	34	18	27	24
50.0102	Digital Arts	29	75	28	32	23
38.0199	Philosophy, Other	0	2	18	29	23
14.1401	Environmental/Environmental Health Engineering	11	10	9	14	23

04.0601	Landscape Architecture	8	21	25	18	16
14.4501	Biological/Biosystems Engineering	19	16	12	15	15
14.0101	Engineering, General	17	17	13	14	13
23.1304	Rhetoric and Composition	9	9	11	10	12
05.0207	Women's Studies	11	14	8	21	12
52.0211	Project Management	0	0	0	9	12
05.0202	American Indian/Native American Studies	4	10	21	15	12
50.0509	Musical Theatre	7	6	11	4	10
05.0108	Near and Middle Eastern Studies	32	26	23	19	9
14.0301	Agricultural Engineering	4	12	9	10	8
14.0899	Civil Engineering, Other	6	9	12	14	7
05.0201	African-American/Black Studies	8	3	3	4	7
05.0203	Hispanic-American, Puerto Rican, and Mexican-American/Chicano Studies	13	13	15	14	7
50.0915	Woodwind Instruments	5	4	1	2	6
44.0504	International Policy Analysis	0	0	6	6	6
38.0206	Jewish/Judaic Studies	16	9	6	2	4
16.0199	Linguistic, Comparative, and Related Language Studies and Services, Other	1	0	5	3	3
04.1001	Real Estate Development	0	0	0	0	2
50.0914	Brass Instruments	4	5	5	3	2
50.0916	Percussion Instruments	0	0	1	2	1
13.0603	Educational Statistics and Research Methods	0	0	1	0	1
45.0203	Medical Anthropology	1	1	0	0	1
16.0104	Comparative Literature	0	0	0	1	1
52.0909	Hotel, Motel, and Restaurant Management	0	0	0	0	0
14.2301	Nuclear Engineering	0	0	0	0	0
14.1101	Engineering Mechanics	1	2	1	1	0
14.1201	Engineering Physics/Applied Physics	1	2	0	0	0
14.1001	Electrical and Electronics Engineering	0	0	0	0	0
14.0901	Computer Engineering, General	0	0	0	0	0

05.0103	Asian Studies/Civilization	0	0	0	0	0
14.0805	Water Resources Engineering	0	0	0	0	0
14.1301	Engineering Science	7	1	0	0	0
01.0308	Agroecology and Sustainable Agriculture	1	2	1	1	0
14.9999	Engineering, Other	0	0	0	0	0
26.0508	Microbiology and Immunology	5	0	0	0	0
14.4201	Mechatronics, Robotics, and Automation Engineering	1	0	0	0	0
14.3901	Geological/Geophysical Engineering	2	0	0	1	0
14.3601	Manufacturing Engineering	1	1	2	0	0
26.1401	Molecular Medicine	4	1	0	0	0

Programs by Institution				
CIP Code	Title	Institution	Award Level	Completions (2015)
01.0308	Agroecology and Sustainable Agriculture	University of Arizona	Masters degree	0
01.0308	Agroecology and Sustainable Agriculture	University of Arizona	Doctors degree	0
04.0201	Architecture	Pima Community College	Associates degree	0
04.0201	Architecture	University of Arizona	Bachelors degree	40
04.0201	Architecture	University of Arizona	Masters degree	18
04.0301	City/Urban, Community and Regional Planning	University of Arizona	Bachelors degree	62
04.0301	City/Urban, Community and Regional Planning	University of Arizona	Masters degree	15
04.0601	Landscape Architecture	Southwest University of Visual Arts-Tucson	Bachelors degree	3
04.0601	Landscape Architecture	University of Arizona	Bachelors degree	0
04.0601	Landscape Architecture	University of Arizona	Masters degree	13
04.1001	Real Estate Development	University of Arizona	Masters degree	2
05.0103	Asian Studies/Civilization	University of Arizona	Bachelors degree	0
05.0104	East Asian Studies	University of Arizona	Bachelors degree	22
05.0104	East Asian Studies	University of Arizona	Masters degree	5
05.0104	East Asian Studies	University of Arizona	Doctors degree	2
05.0107	Latin American Studies	University of Arizona	Bachelors degree	16
05.0107	Latin American Studies	University of Arizona-South	Bachelors degree	1
05.0107	Latin American Studies	University of Arizona	Masters degree	7
05.0108	Near and Middle Eastern Studies	University of Arizona	Bachelors degree	0
05.0108	Near and Middle Eastern Studies	University of Arizona	Masters degree	2
05.0108	Near and Middle Eastern Studies	University of Arizona	Doctors degree	7
05.0201	African-American/Black Studies	University of Arizona	Bachelors degree	7
05.0202	American Indian/Native American Studies	Pima Community College	Associates degree	1
05.0202	American Indian/Native American Studies	University of Arizona	Postbaccalaureate certificate	2
05.0202	American Indian/Native American Studies	University of Arizona	Masters degree	2
05.0202	American Indian/Native American Studies	University of Arizona	Doctors degree	7
05.0203	Hispanic-American, Puerto Rican, and Mexican-American/Chicano Studies	University of Arizona	Bachelors degree	5
05.0203	Hispanic-American, Puerto Rican, and Mexican-American/Chicano Studies	University of Arizona	Masters degree	2
05.0207	Women's Studies	University of Arizona	Bachelors degree	9
05.0207	Women's Studies	University of Arizona	Postbaccalaureate certificate	2
05.0207	Women's Studies	University of Arizona	Masters degree	0
05.0207	Women's Studies	University of Arizona	Doctors degree	1
13.0101	Education, General	Pima Community College	Award of at least 1 but less than 2 academic years	1
13.0101	Education, General	Pima Community College	Associates degree	17
13.0101	Education, General	University of Arizona	Masters degree	72

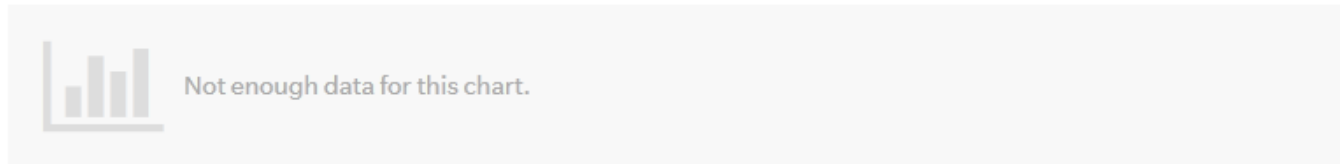
13.0101	Education, General	University of Arizona	Doctors degree	6
13.0603	Educational Statistics and Research Methods	University of Arizona	Postbaccalaureate certificate	1
14.0101	Engineering, General	Cochise County Community College District	Associates degree	2
14.0101	Engineering, General	Pima Community College	Associates degree	0
14.0101	Engineering, General	University of Arizona	Bachelors degree	0
14.0101	Engineering, General	University of Arizona	Masters degree	11
14.0201	Aerospace, Aeronautical and Astronautical/Space Engineering	University of Arizona	Bachelors degree	24
14.0201	Aerospace, Aeronautical and Astronautical/Space Engineering	University of Arizona	Masters degree	3
14.0201	Aerospace, Aeronautical and Astronautical/Space Engineering	University of Arizona	Doctors degree	0
14.0301	Agricultural Engineering	University of Arizona	Bachelors degree	0
14.0301	Agricultural Engineering	University of Arizona	Masters degree	5
14.0301	Agricultural Engineering	University of Arizona	Doctors degree	3
14.0501	Bioengineering and Biomedical Engineering	University of Arizona	Bachelors degree	42
14.0501	Bioengineering and Biomedical Engineering	University of Arizona	Masters degree	3
14.0501	Bioengineering and Biomedical Engineering	University of Arizona	Doctors degree	5
14.0701	Chemical Engineering	Pima Community College	Associates degree	0
14.0701	Chemical Engineering	University of Arizona	Bachelors degree	36
14.0701	Chemical Engineering	University of Arizona	Masters degree	11
14.0701	Chemical Engineering	University of Arizona	Doctors degree	2
14.0801	Civil Engineering, General	University of Arizona	Bachelors degree	32
14.0801	Civil Engineering, General	University of Arizona	Masters degree	1
14.0801	Civil Engineering, General	University of Arizona	Doctors degree	2
14.0805	Water Resources Engineering	University of Arizona	Bachelors degree	0
14.0805	Water Resources Engineering	University of Arizona	Masters degree	0
14.0805	Water Resources Engineering	University of Arizona	Doctors degree	0
14.0899	Civil Engineering, Other	University of Arizona	Masters degree	5
14.0899	Civil Engineering, Other	University of Arizona	Doctors degree	2
14.0901	Computer Engineering, General	University of Arizona	Bachelors degree	0
14.1001	Electrical and Electronics Engineering	University of Arizona	Bachelors degree	0
14.1001	Electrical and Electronics Engineering	University of Arizona	Masters degree	0
14.1001	Electrical and Electronics Engineering	University of Arizona	Doctors degree	0
14.1099	Electrical, Electronics and Communications Engineering, Other	University of Arizona	Bachelors degree	87
14.1099	Electrical, Electronics and Communications Engineering, Other	University of Arizona	Masters degree	53
14.1099	Electrical, Electronics and Communications Engineering, Other	University of Arizona	Doctors degree	15
14.1101	Engineering Mechanics	University of Arizona	Masters degree	0
14.1101	Engineering Mechanics	University of Arizona	Doctors degree	0
14.1201	Engineering Physics/Applied Physics	University of Arizona	Bachelors degree	0

14.1301	Engineering Science	University of Arizona	Bachelors degree	0
14.1401	Environmental/Environmental Health Engineering	University of Arizona	Masters degree	14
14.1401	Environmental/Environmental Health Engineering	University of Arizona	Doctors degree	9
14.1901	Mechanical Engineering	University of Arizona	Bachelors degree	88
14.1901	Mechanical Engineering	University of Arizona	Masters degree	13
14.1901	Mechanical Engineering	University of Arizona	Doctors degree	11
14.2101	Mining and Mineral Engineering	University of Arizona	Bachelors degree	27
14.2101	Mining and Mineral Engineering	University of Arizona	Masters degree	1
14.2101	Mining and Mineral Engineering	University of Arizona	Doctors degree	3
14.2301	Nuclear Engineering	University of Arizona	Bachelors degree	0
14.2301	Nuclear Engineering	University of Arizona	Doctors degree	0
14.2701	Systems Engineering	University of Arizona	Bachelors degree	24
14.2701	Systems Engineering	University of Arizona	Masters degree	11
14.2701	Systems Engineering	University of Arizona	Doctors degree	6
14.3501	Industrial Engineering	Pima Community College	Associates degree	0
14.3501	Industrial Engineering	University of Arizona	Bachelors degree	22
14.3501	Industrial Engineering	University of Arizona	Masters degree	7
14.3601	Manufacturing Engineering	Cochise County Community College District	Associates degree	0
14.3901	Geological/Geophysical Engineering	University of Arizona	Bachelors degree	0
14.4201	Mechatronics, Robotics, and Automation Engineering	Cochise County Community College District	Award of less than 1 academic year	0
14.4501	Biological/Biosystems Engineering	University of Arizona	Bachelors degree	15
14.9999	Engineering, Other	University of Arizona	Bachelors degree	0
14.9999	Engineering, Other	University of Arizona	Masters degree	0
16.0104	Comparative Literature	University of Arizona	Masters degree	0
16.0104	Comparative Literature	University of Arizona	Doctors degree	1
16.0199	Linguistic, Comparative, and Related Language Studies and Services, Other	University of Arizona	Masters degree	3
23.0101	English Language and Literature, General	Cochise County Community College District	Associates degree	3
23.0101	English Language and Literature, General	University of Arizona	Bachelors degree	89
23.0101	English Language and Literature, General	University of Arizona-South	Bachelors degree	6
23.0101	English Language and Literature, General	University of Arizona	Masters degree	6
23.0101	English Language and Literature, General	University of Arizona	Doctors degree	2
23.1304	Rhetoric and Composition	University of Arizona	Bachelors degree	0
23.1304	Rhetoric and Composition	University of Arizona	Masters degree	2
23.1304	Rhetoric and Composition	University of Arizona	Doctors degree	10
24.0101	Liberal Arts and Sciences/Liberal Studies	Pima Community College	Award of at least 1 but less than 2 academic years	1,468
24.0101	Liberal Arts and Sciences/Liberal Studies	Pima Community College	Associates degree	960

24.0101	Liberal Arts and Sciences/Liberal Studies	Cochise County Community College District	Associates degree	0
24.0101	Liberal Arts and Sciences/Liberal Studies	University of Arizona	Bachelors degree	0
26.0508	Microbiology and Immunology	University of Arizona	Doctors degree	0
26.1310	Ecology and Evolutionary Biology	University of Arizona	Bachelors degree	35
26.1310	Ecology and Evolutionary Biology	University of Arizona	Masters degree	9
26.1310	Ecology and Evolutionary Biology	University of Arizona	Doctors degree	4
26.1401	Molecular Medicine	University of Arizona	Masters degree	0
26.1401	Molecular Medicine	University of Arizona	Doctors degree	0
38.0101	Philosophy	Cochise County Community College District	Associates degree	0
38.0101	Philosophy	University of Arizona	Bachelors degree	41
38.0101	Philosophy	University of Arizona	Masters degree	9
38.0101	Philosophy	University of Arizona	Doctors degree	3
38.0199	Philosophy, Other	University of Arizona	Bachelors degree	23
38.0201	Religion/Religious Studies	University of Arizona	Bachelors degree	26
38.0206	Jewish/Judaic Studies	University of Arizona	Bachelors degree	4
40.1001	Materials Science	University of Arizona	Bachelors degree	26
40.1001	Materials Science	University of Arizona	Masters degree	9
40.1001	Materials Science	University of Arizona	Doctors degree	6
44.0504	International Policy Analysis	University of Arizona	Postbaccalaureate certificate	6
45.0203	Medical Anthropology	University of Arizona	Postbaccalaureate certificate	1
45.0999	International Relations and National Security Studies, Other	University of Arizona	Masters degree	28
50.0102	Digital Arts	Pima Community College	Award of at least 1 but less than 2 academic years	0
50.0102	Digital Arts	Pima Community College	Associates degree	23
50.0411	Game and Interactive Media Design	Cochise County Community College District	Award of less than 1 academic year	0
50.0411	Game and Interactive Media Design	Pima Community College	Associates degree	20
50.0411	Game and Interactive Media Design	Cochise County Community College District	Associates degree	0
50.0411	Game and Interactive Media Design	The Art Institute of Tucson	Bachelors degree	4
50.0509	Musical Theatre	University of Arizona	Bachelors degree	10
50.0914	Brass Instruments	University of Arizona	Bachelors degree	2
50.0915	Woodwind Instruments	University of Arizona	Bachelors degree	6
50.0916	Percussion Instruments	University of Arizona	Bachelors degree	1
52.0211	Project Management	ITT Technical Institute-Tucson	Bachelors degree	12
52.0212	Retail Management	Pima Community College	Award of at least 1 but less than 2 academic years	1

52.0212	Retail Management	University of Arizona	Bachelors degree	103
52.0909	Hotel, Motel, and Restaurant Management	Pima Community College	Associates degree	0

Regional Completions by Award Level



Regional Completions by Institution

Institution	Certificates (2015)	Degrees (2015)	Total Completions (2015)
Cochise County Community College District	0	0	0

* Regional Completions by Institution - Settings

Appendix A - Data Sources and Calculations

Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

Occupation Data

EMSI occupation employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry.

State Data Sources

This report uses state data from the following agencies: Arizona Department of Administration, Office of Employment and Population Statistics