

17-1011 Architects, Except Landscape and Naval



Plan and design structures, such as private residences, office buildings, theaters, factories, and other structural property. *Examples: Architectural Designer; Building Consultant; Site Planner*

Training Category: Bachelor | none | Intern / Res

2015 Average Wage:	n/a
2014 Estimated Employment:	326
2024 Projected Employment:	350
Growth Rate, 2014-2024:	7.4%
Annual Openings:	7

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	64.1%	64.9%
Self-Employed Workers	17.8%	17.4%
236 Construction of Buildings	9.8%	9.7%
321 Wood Product Manufacturing	n	n
5416 Management & Technical Consulting Svc	n	n
6113 Colleges and Universities	n	n

17-1012 Landscape Architects



Plan and design land areas for such projects as parks and other recreational facilities, airports, highways, hospitals, schools, land subdivisions, and commercial, industrial, and residential sites. *Examples: Environmental Planner; Land Planner; Landscape Designer*

Training Category: Bachelor | none | Intern / Res

2015 Average Wage:	n/a
2014 Estimated Employment:	30
2024 Projected Employment:	32
Growth Rate, 2014-2024:	6.7%
Annual Openings:	0

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	70.0%	68.8%
Self-Employed Workers	16.7%	15.6%
Federal Government, ex. Postal Service	3.3%	3.1%
444 Building Material & Garden Supply Stores	n	n
484 Truck Transportation	n	n
5416 Management & Technical Consulting Svc	n	n

17-1021 Cartographers and Photogrammetrists



Collect, analyze, and interpret geographic information provided by geodetic surveys, aerial photographs, and satellite data. Research, study, and prepare maps and other spatial data in digital or graphic form for legal, social, political, educational, and design purposes. May work with Geographic Information Systems (GIS). May design and evaluate algorithms, data structures, and user interfaces for GIS and mapping systems. *Examples: Field Map Editor; Mapper*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 24.03
2014 Estimated Employment:	88
2024 Projected Employment:	113
Growth Rate, 2014-2024:	28.4%
Annual Openings:	5

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	61.4%	62.0%
Local Government, ex. Education	13.6%	14.2%
State Government, ex. Education and Hospitals	9.1%	8.9%
Self-Employed Workers	2.3%	1.8%
813 Membership Organizations & Associations	n	n
Federal Government, ex. Postal Service	n	n

17-1022 Surveyors



Make exact measurements and determine property boundaries. Provide data relevant to the shape, contour, gravitation, location, elevation, or dimension of land or land features on or near the earth's surface for engineering, mapmaking, mining, land evaluation, construction, and other purposes. *Examples: Geodetic Surveyor; Land Examiner; Mineral Surveyor*

Training Category: Bachelor | < 5 yrs | none

2015 Average Wage:	\$ 25.88
2014 Estimated Employment:	256
2024 Projected Employment:	254
Growth Rate, 2014-2024:	-0.8%
Annual Openings:	8

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	88.3%	87.8%
Self-Employed Workers	3.1%	3.5%
Local Government, ex. Education	1.2%	1.2%
State Government, ex. Education and Hospitals	1.2%	1.2%
236 Construction of Buildings	n	n
551 Management of Companies and Enterprises	n	n

17-2011 Aerospace Engineers



Perform a variety of engineering work in designing, constructing, and testing aircraft, missiles, and spacecraft. May conduct basic and applied research to evaluate adaptability of materials and equipment to aircraft design and manufacture. May recommend improvements in testing equipment and techniques. *Examples: Aeronautical Engineer; Aircraft Design Engineer; Flight Test Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 46.42
2014 Estimated Employment:	54
2024 Projected Employment:	57
Growth Rate, 2014-2024:	5.6%
Annual Openings:	2

Industry	2014 Share	2024 Share
Self-Employed Workers	3.7%	3.5%
332 Fabricated Metal Product Manufacturing	n	n
336 Transportation Equipment Manufacturing	n	n
423 Merchant Wholesalers, Durable Goods	n	n
5416 Management & Technical Consulting Svc	n	n
5417 Scientific Research and Development Svc	n	n

17-2021 Agricultural Engineers



Apply knowledge of engineering technology and biological science to agricultural problems concerned with power and machinery, electrification, structures, soil and water conservation, and processing of agricultural products. *Examples: Agricultural Production Engineer, Farm Equipment Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	n/a
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry	2014 Share	2024 Share
Federal Government, ex. Postal Service	n	n

17-2031 Biomedical Engineers



Apply knowledge of engineering, biology, and biomechanical principles to the design, development, and evaluation of biological and health systems and products, such as artificial organs, prostheses, instrumentation, medical information systems, and health management and care delivery systems. *Example: Orthopedic Designer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 45.49
2014 Estimated Employment:	115
2024 Projected Employment:	144
Growth Rate, 2014-2024:	25.2%
Annual Openings:	6

Industry	2014 Share	2024 Share
339 Miscellaneous Manufacturing	42.6%	45.8%
Self-Employed Workers	6.1%	5.6%
334 Computer and Electronic Product Mfg	n	n
5413 Architectural and Engineering Services	n	n
5414 Specialized Design Services	n	n
5417 Scientific Research and Development Svc	n	n

17-2041 Chemical Engineers



Design chemical plant equipment and devise processes for manufacturing chemicals and products, such as gasoline, synthetic rubber, plastics, detergents, cement, paper, and pulp, by applying principles and technology of chemistry, physics, and engineering. *Examples: Absorption and Adsorption Engineer; Explosives Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 46.92
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry	2014 Share	2024 Share
312 Beverage & Tobacco Product Manufacturing	n	n
326 Plastics & Rubber Products Manufacturing	n	n
333 Machinery Manufacturing	n	n
334 Computer and Electronic Product Mfg	n	n
339 Miscellaneous Manufacturing	n	n
5417 Scientific Research and Development Svc	n	n

17-2051 Civil Engineers



Perform engineering duties in planning, designing, and overseeing construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, water and sewage systems, and waste disposal units. Include architectural, structural, traffic, ocean, and geo-technical engineers. *Examples: Bridge Engineer; Construction Engineer; Concrete Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 35.58
2014 Estimated Employment:	1,142
2024 Projected Employment:	1,252
Growth Rate, 2014-2024:	9.6%
Annual Openings:	45

Industry		2014 Share	2024 Share
5413	Architectural and Engineering Services	63.8%	65.3%
	State Government, ex. Education and Hospitals	22.2%	21.4%
	Self-Employed Workers	3.5%	3.5%
	Local Government, ex. Education	3.4%	3.3%
	Federal Government, ex. Postal Service	2.5%	2.2%
238	Specialty Trade Contractors	n	n

17-2061 Computer Hardware Engineers



Research, design, develop, and test computer or computer-related equipment for commercial, industrial, military, or scientific use. May supervise the manufacturing and installation of computer or computer-related equipment and components. *Examples: Computer Hardware Designer, Computer Hardware Developer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 59.78
2014 Estimated Employment:	221
2024 Projected Employment:	245
Growth Rate, 2014-2024:	10.9%
Annual Openings:	6

Industry		2014 Share	2024 Share
334	Computer and Electronic Product Mfg	32.6%	28.2%
5415	Computer Systems Design and Rel Services	32.1%	34.7%
423	Merchant Wholesalers, Durable Goods	n	n
5413	Architectural and Engineering Services	n	n
5613	Employment Services	n	n
621	Ambulatory Health Care Services	n	n

17-2071 Electrical Engineers



Design, develop, test, or supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use. *Examples: Power Distribution Engineer; Illuminating Engineer; Relay Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 47.19
2014 Estimated Employment:	1,129
2024 Projected Employment:	1,137
Growth Rate, 2014-2024:	0.7%
Annual Openings:	26

Industry		2014 Share	2024 Share
334	Computer and Electronic Product Mfg	51.4%	49.3%
335	Electrical Equipment and Appliances	10.0%	9.2%
333	Machinery Manufacturing	6.9%	6.7%
5413	Architectural and Engineering Services	6.4%	7.0%
5417	Scientific Research and Development Svc	6.4%	7.6%
551	Management of Companies and Enterprises	4.3%	4.5%

17-2072 Electronics Engineers, Except Computer



Research, design, develop, and test electronic components and systems for commercial, industrial, military, or scientific use utilizing knowledge of electronic theory and materials properties. Design electronic circuits and components for use in fields such as telecommunications, aerospace guidance and propulsion control, acoustics, or instruments and controls. *Examples: Communications Engineer; Circuit Design Engineer; Guidance and Control Systems Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 46.47
2014 Estimated Employment:	505
2024 Projected Employment:	507
Growth Rate, 2014-2024:	0.4%
Annual Openings:	11

Industry		2014 Share	2024 Share
334	Computer and Electronic Product Mfg	50.3%	48.1%
423	Merchant Wholesalers, Durable Goods	n	n
517	Telecommunications	n	n
5412	Accounting and Bookkeeping Services	n	n
5413	Architectural and Engineering Services	n	n
6113	Colleges and Universities	n	n

17-2081 Environmental Engineers 

Design, plan, or perform engineering duties in the prevention, control, and remediation of environmental health hazards utilizing various engineering disciplines. Work may include waste treatment, site remediation, or pollution control technology. *Examples: Soil Engineer; Industrial Hygiene Engineer; Pollution Control Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 41.41
2014 Estimated Employment:	164
2024 Projected Employment:	201
Growth Rate, 2014-2024:	22.6%
Annual Openings:	9

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	45.7%	45.3%
5416 Management & Technical Consulting Svc	32.3%	35.8%
State Government, ex. Education and Hospitals	7.9%	7.0%
Local Government, ex. Education	4.3%	3.5%
334 Computer and Electronic Product Mfg	n	n
6113 Colleges and Universities	n	n

17-2111 Health and Safety Engineers, Except Mining Safety Engineers and Inspectors 

Promote worksite or product safety by applying knowledge of industrial processes, mechanics, chemistry, psychology, and industrial health and safety laws. *Examples: Fire-Protection Engineer; Product Safety Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 45.20
2014 Estimated Employment:	56
2024 Projected Employment:	57
Growth Rate, 2014-2024:	1.8%
Annual Openings:	2

Industry	2014 Share	2024 Share
236 Construction of Buildings	n	n
237 Heavy and Civil Engineering Construction	n	n
312 Beverage & Tobacco Product Manufacturing	n	n
524 Insurance Carriers & Related Activities	n	n
551 Management of Companies and Enterprises	n	n
5613 Employment Services	n	n

17-2112 Industrial Engineers 

Design, develop, test, and evaluate integrated systems for managing industrial production processes including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination. *Examples: Packaging Engineer; Time Study Engineer; Plant Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 39.02
2014 Estimated Employment:	1,245
2024 Projected Employment:	1,301
Growth Rate, 2014-2024:	4.5%
Annual Openings:	42

Industry	2014 Share	2024 Share
334 Computer and Electronic Product Mfg	28.7%	29.1%
332 Fabricated Metal Product Manufacturing	14.3%	14.8%
333 Machinery Manufacturing	10.7%	10.1%
335 Electrical Equipment and Appliances	6.6%	5.8%
339 Miscellaneous Manufacturing	5.9%	6.0%
511 Publishing Industries	n	n

17-2131 Materials Engineers 

Evaluate materials and develop machinery and processes to manufacture materials for use in products that must meet specialized design and performance specifications. Develop new uses for known materials. Include those working with composite materials or specializing in one type of material, such as graphite, metal and metal alloys, ceramics and glass, plastics and polymers, and naturally occurring materials. *Example: Corrosion Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 43.64
2014 Estimated Employment:	123
2024 Projected Employment:	122
Growth Rate, 2014-2024:	-0.8%
Annual Openings:	4

Industry	2014 Share	2024 Share
313 Textile Mills	n	n
326 Plastics & Rubber Products Manufacturing	n	n
327 Nonmetallic Mineral Product Mfg	n	n
334 Computer and Electronic Product Mfg	n	n
335 Electrical Equipment and Appliances	n	n
336 Transportation Equipment Manufacturing	n	n

17-2141 Mechanical Engineers



Perform engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversee installation, operation, maintenance, and repair of such equipment as centralized heat, gas, water, and steam systems. *Examples: Combustion Engineer; Plant Equipment Engineer; Hydraulic Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 42.19
2014 Estimated Employment:	1,678
2024 Projected Employment:	1,794
Growth Rate, 2014-2024:	6.9%
Annual Openings:	65

Industry	2014 Share	2024 Share
332 Fabricated Metal Manufacturing	19.4%	19.6%
333 Machinery Manufacturing	18.1%	16.7%
5417 Scientific Research and Development Svc	16.8%	19.1%
334 Computer and Electronic Product Mfg	14.1%	12.8%
5413 Architectural and Engineering Services	8.5%	9.5%
326 Plastics & Rubber Products Manufacturing	3.6%	3.3%

17-2151 Mining and Geological Engineers, Including Mining Safety Engineers



Determine the location and plan the extraction of coal, metallic ores, nonmetallic minerals, and building materials, such as stone and gravel. Work involves conducting preliminary surveys of deposits or undeveloped mines and planning their development; examining deposits or mines to determine whether they can be worked at a profit; making geological and topographical surveys; evolving methods of mining best suited to character, type, and size of deposits; and supervising mining operations. *Examples: Geophysical Engineer, Mineral Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	n/a
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	n	n

17-2161 Nuclear Engineers



Conduct research on nuclear engineering projects or apply principles and theory of nuclear science to problems concerned with release, control, and use of nuclear energy and nuclear waste disposal. *Examples: Atomic Process Engineer, Nuclear Radiation Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 52.71
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry	2014 Share	2024 Share
221 Utilities	n	n
5416 Management & Technical Consulting Svc	n	n
Federal Government, ex. Postal Service	n	n

17-2199 Engineers, All Other



All engineers not listed separately. *Examples: Optical Engineer; Salvage Engineer; Ordnance Engineer*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 42.64
2014 Estimated Employment:	1,047
2024 Projected Employment:	1,096
Growth Rate, 2014-2024:	4.7%
Annual Openings:	26

Industry	2014 Share	2024 Share
334 Computer and Electronic Product Mfg	25.0%	23.3%
5413 Architectural and Engineering Services	9.2%	9.7%
551 Management of Companies and Enterprises	8.8%	8.9%
333 Machinery Manufacturing	7.2%	6.7%
Self-Employed Workers	5.5%	5.8%
339 Miscellaneous Manufacturing	5.1%	4.7%

17-3011 Architectural and Civil Drafters



Prepare detailed drawings of architectural and structural features of buildings or drawings and topographical relief maps used in civil engineering projects, such as highways, bridges, and public works. Utilize knowledge of building materials, engineering practices, and mathematics to complete drawings. *Example: Structural Drafter*

Training Category: Associate | none | none

2015 Average Wage:	\$ 25.34
2014 Estimated Employment:	503
2024 Projected Employment:	488
Growth Rate, 2014-2024:	-3.0%
Annual Openings:	6

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	57.9%	58.2%
238 Specialty Trade Contractors	13.9%	13.5%
321 Wood Product Manufacturing	7.2%	7.0%
236 Construction of Buildings	n	n
327 Nonmetallic Mineral Product Mfg	n	n
425 Electronic Markets and Agents/Brokers	n	n

17-3012 Electrical and Electronics Drafters



Prepare wiring diagrams, circuit board assembly diagrams, and layout drawings used for manufacture, installation, and repair of electrical equipment in factories, power plants, and buildings. *Example: Electrical Systems Drafter*

Training Category: Associate | none | none

2015 Average Wage:	\$ 30.66
2014 Estimated Employment:	154
2024 Projected Employment:	161
Growth Rate, 2014-2024:	4.6%
Annual Openings:	3

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	30.5%	32.9%
334 Computer and Electronic Product Mfg	29.9%	27.3%
238 Specialty Trade Contractors	n	n
333 Machinery Manufacturing	n	n
335 Electrical Equipment and Appliances	n	n
551 Management of Companies and Enterprises	n	n

17-3013 Mechanical Drafters



Prepare detailed working diagrams of machinery and mechanical devices, including dimensions, fastening methods, and other engineering information. *Example: Aeronautical Drafter*

Training Category: Associate | none | none

2015 Average Wage:	\$ 28.96
2014 Estimated Employment:	287
2024 Projected Employment:	269
Growth Rate, 2014-2024:	-6.3%
Annual Openings:	3

Industry	2014 Share	2024 Share
334 Computer and Electronic Product Mfg	19.9%	18.6%
5413 Architectural and Engineering Services	16.7%	17.8%
333 Machinery Manufacturing	10.1%	9.7%
332 Fabricated Metal Product Manufacturing	10.1%	10.8%
336 Transportation Equipment Manufacturing	n	n
5417 Scientific Research and Development Svc	n	n

17-3019 Drafters, All Other



All drafters not listed separately. *Examples: Geological Drafter; Hull Drafter*

Training Category: Associate | none | none

2015 Average Wage:	\$ 26.31
2014 Estimated Employment:	191
2024 Projected Employment:	181
Growth Rate, 2014-2024:	-5.2%
Annual Openings:	2

Industry	2014 Share	2024 Share
238 Specialty Trade Contractors	13.6%	13.3%
332 Fabricated Metal Product Manufacturing	n	n
333 Machinery Manufacturing	n	n
334 Computer and Electronic Product Mfg	n	n
339 Miscellaneous Manufacturing	n	n
5413 Architectural and Engineering Services	n	n

17-3021 Aerospace Engineering and Operations Technicians



Operate, install, calibrate, and maintain integrated computer/communications systems consoles, simulators, and other data acquisition, test, and measurement instruments and equipment to launch, track, position, and evaluate air and space vehicles. May record and interpret test data.

Example: *Fight Data Technician*

Training Category: Associate | none | none

2015 Average Wage:	n/a
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry	2014 Share	2024 Share
332 Fabricated Metal Manufacturing	n	n

17-3022 Civil Engineering Technicians



Apply theory and principles of civil engineering in planning, designing, and overseeing construction and maintenance of structures and facilities under the direction of engineering staff or physical scientists. Example: *Highway Technician*

Training Category: Associate | none | none

2015 Average Wage:	\$ 22.07
2014 Estimated Employment:	156
2024 Projected Employment:	165
Growth Rate, 2014-2024:	5.8%
Annual Openings:	5

Industry	2014 Share	2024 Share
5413 Architectural and Engineering Services	76.3%	76.4%
Local Government, ex. Education	21.8%	21.8%
221 Utilities	n	n
6113 Colleges and Universities	n	n

17-3023 Electrical and Electronics Engineering Technicians



Apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, calibrate, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions. Examples: *Calibration Laboratory Technician; Semiconductor Development Technician; Instrumentation Technician*

Training Category: Associate | none | none

2015 Average Wage:	\$ 26.36
2014 Estimated Employment:	1,078
2024 Projected Employment:	1,078
Growth Rate, 2014-2024:	0.0%
Annual Openings:	26

Industry	2014 Share	2024 Share
334 Computer and Electronic Product Mfg	50.1%	48.2%
335 Electrical Equipment and Appliances	9.9%	9.2%
5413 Architectural and Engineering Services	7.2%	8.0%
333 Machinery Manufacturing	4.2%	4.0%
551 Management of Companies and Enterprises	3.3%	3.5%
5416 Management & Technical Consulting Svc	n	n

17-3024 Electro-Mechanical Technicians



Operate, test, and maintain unmanned, automated, servo-mechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment at worksites, such as oil rigs, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment. Example: *Robotics Testing Technician*

Training Category: Associate | none | none

2015 Average Wage:	\$ 25.39
2014 Estimated Employment:	158
2024 Projected Employment:	163
Growth Rate, 2014-2024:	3.2%
Annual Openings:	4

Industry	2014 Share	2024 Share
334 Computer and Electronic Product Mfg	n	n
336 Transportation Equipment Manufacturing	n	n
551 Management of Companies and Enterprises	n	n
5613 Employment Services	n	n

17-3025 Environmental Engineering Technicians



Apply theory and principles of environmental engineering to modify, test, and operate equipment and devices used in the prevention, control, and remediation of environmental pollution, including waste treatment and site remediation. May assist in the development of environmental pollution remediation devices under direction of engineer. *Examples: Air Analysis Technician; Soil Technician*

Training Category: Associate | none | none

2015 Average Wage:	n/a
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry	2014 Share	2024 Share
332 Fabricated Metal Manufacturing	n	n
334 Computer and Electronic Product Mfg	n	n
5413 Architectural and Engineering Services	n	n
Local Government, ex. Education	n	n

17-3026 Industrial Engineering Technicians



Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May study and record time, motion, method, and speed involved in performance of production, maintenance, clerical, and other worker operations for such purposes as establishing standard production rates or improving efficiency. *Examples: Methods Study Analyst; Quality Control Technician; Time Study Analyst*

Training Category: Associate | none | none

2015 Average Wage:	\$ 25.27
2014 Estimated Employment:	419
2024 Projected Employment:	425
Growth Rate, 2014-2024:	1.4%
Annual Openings:	11

Industry	2014 Share	2024 Share
334 Computer and Electronic Product Mfg	32.0%	30.8%
332 Fabricated Metal Product Manufacturing	22.9%	24.5%
333 Machinery Manufacturing	16.7%	16.2%
326 Plastics & Rubber Products Manufacturing	7.2%	6.6%
335 Electrical Equipment and Appliances	6.4%	5.9%
313 Textile Mills	n	n

17-3027 Mechanical Engineering Technicians



Apply theory and principles of mechanical engineering to modify, develop, and test machinery and equipment under direction of engineering staff or physical scientists. *Examples: Heat Transfer Technician; Optomechanical Technician; Tool Analyst*

Training Category: Associate | none | none

2015 Average Wage:	\$ 25.22
2014 Estimated Employment:	375
2024 Projected Employment:	406
Growth Rate, 2014-2024:	8.3%
Annual Openings:	12

Industry	2014 Share	2024 Share
5417 Scientific Research and Development Svc	34.1%	38.2%
333 Machinery Manufacturing	15.2%	13.8%
332 Fabricated Metal Product Manufacturing	10.9%	10.8%
331 Primary Metal Manufacturing	n	n
334 Computer and Electronic Product Mfg	n	n
339 Miscellaneous Manufacturing	n	n

17-3029 Engineering Technicians, Except Drafters, All Other



All engineering technicians, except drafters, not listed separately. *Examples: Laser Specialist; Metallurgical Technician; Material Stress Tester*

Training Category: Associate | none | none

2015 Average Wage:	\$ 24.40
2014 Estimated Employment:	559
2024 Projected Employment:	569
Growth Rate, 2014-2024:	1.8%
Annual Openings:	15

Industry	2014 Share	2024 Share
334 Computer and Electronic Product Mfg	23.4%	22.5%
State Government, ex. Education and Hospitals	23.4%	24.4%
333 Machinery Manufacturing	11.6%	11.1%
339 Miscellaneous Manufacturing	7.2%	7.2%
332 Fabricated Metal Product Manufacturing	5.4%	5.8%
Federal Government, ex. Postal Service	4.7%	4.0%

17-3031 Surveying and Mapping Technicians



Perform surveying and mapping duties, usually under the direction of a surveyor, cartographer, or photogrammetrist to obtain data used for construction, mapmaking, boundary location, mining, or other purposes. May calculate mapmaking information and create maps from source data, such as surveying notes, aerial photography, satellite data, or other maps to show topographical features, political boundaries, and other features. May verify accuracy and completeness of topographical maps. *Examples: Cartographic Technician; Map Drafter; Stereo Map Plotter Operator*

Training Category: High School | none | Moderate OJT

2015 Average Wage:	\$ 20.53
2014 Estimated Employment:	224
2024 Projected Employment:	207
Growth Rate, 2014-2024:	-7.6%
Annual Openings:	2

Industry		2014 Share	2024 Share
5413	Architectural and Engineering Services	70.5%	70.1%
	State Government, ex. Education and Hospitals	14.7%	14.5%
	Self-Employed Workers	8.5%	9.7%
	Local Government, ex. Education	3.6%	3.4%
221	Utilities	n	n
813	Membership Organizations & Associations	n	n

19-1011 Animal Scientists



Conduct research in the genetics, nutrition, reproduction, growth, and development of domestic farm animals. *Example: Dairy Scientist*

Training Category: Bachelor | none | none

2015 Average Wage:	n/a
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry		2014 Share	2024 Share
551	Management of Companies and Enterprises	n	n

19-1012 Food Scientists and Technologists



Use chemistry, microbiology, engineering, and other sciences to study the principles underlying the processing and deterioration of foods; analyze food content to determine levels of vitamins, fat, sugar, and protein. *Example: Food Safety Scientist*

Training Category: Bachelor | none | none

2015 Average Wage:	n/a
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry		2014 Share	2024 Share
	Self-Employed Workers	n	n
311	Food Manufacturing	n	n

19-1013 Soil and Plant Scientists



Conduct research in breeding, physiology, production, yield, and management of crops and agricultural plants, their growth in soils, and control of pests; or study the chemical, physical, biological, and mineralogical composition of soils as they relate to plant or crop growth. May classify and map soils and investigate effects of alternative practices on soil and crop productivity. *Example: Horticulturalist*

Training Category: Bachelor | none | none

2015 Average Wage:	\$ 44.00
2014 Estimated Employment:	n
2024 Projected Employment:	n
Growth Rate, 2014-2024:	n
Annual Openings:	n

Industry		2014 Share	2024 Share
	Self-Employed Workers	n	n
5417	Scientific Research and Development Svc	n	n
	Federal Government, ex. Postal Service	n	n
	State Government, ex. Education and Hospitals	n	n