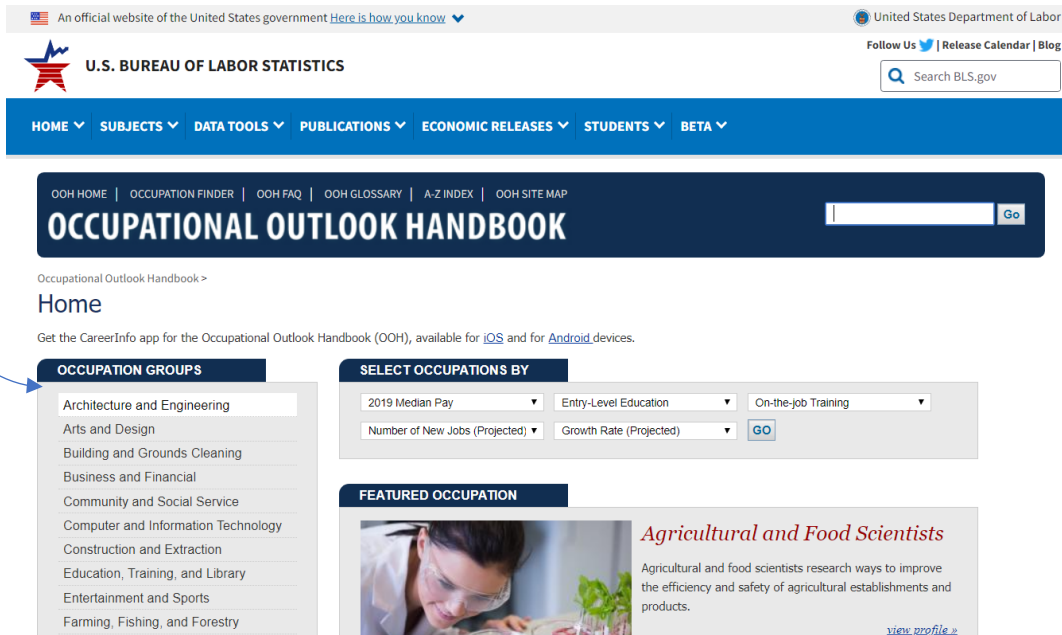


The Occupational Outlook Handbook (OOH) is compiled by the United States Bureau of Labor Statistics. It has the most up-to-date national data on thousands of careers.

Here you can find almost everything you need to know about an occupation before you decide to take that path...Go to <https://www.bls.gov/ooh/>

From this page, you can view occupations by group using the left-side menu:



An official website of the United States government [Here is how you know](#) United States Department of Labor

U.S. BUREAU OF LABOR STATISTICS

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## OCCUPATIONAL OUTLOOK HANDBOOK

Occupational Outlook Handbook >

### Home

Get the CareerInfo app for the Occupational Outlook Handbook (OOH), available for [iOS](#) and for [Android](#) devices.

**OCCUPATION GROUPS**

- Architecture and Engineering
- Arts and Design
- Building and Grounds Cleaning
- Business and Financial
- Community and Social Service
- Computer and Information Technology
- Construction and Extraction
- Education, Training, and Library
- Entertainment and Sports
- Farming, Fishing, and Forestry

**SELECT OCCUPATIONS BY**

2019 Median Pay Entry-Level Education On-the-job Training

Number of New Jobs (Projected) Growth Rate (Projected) GO

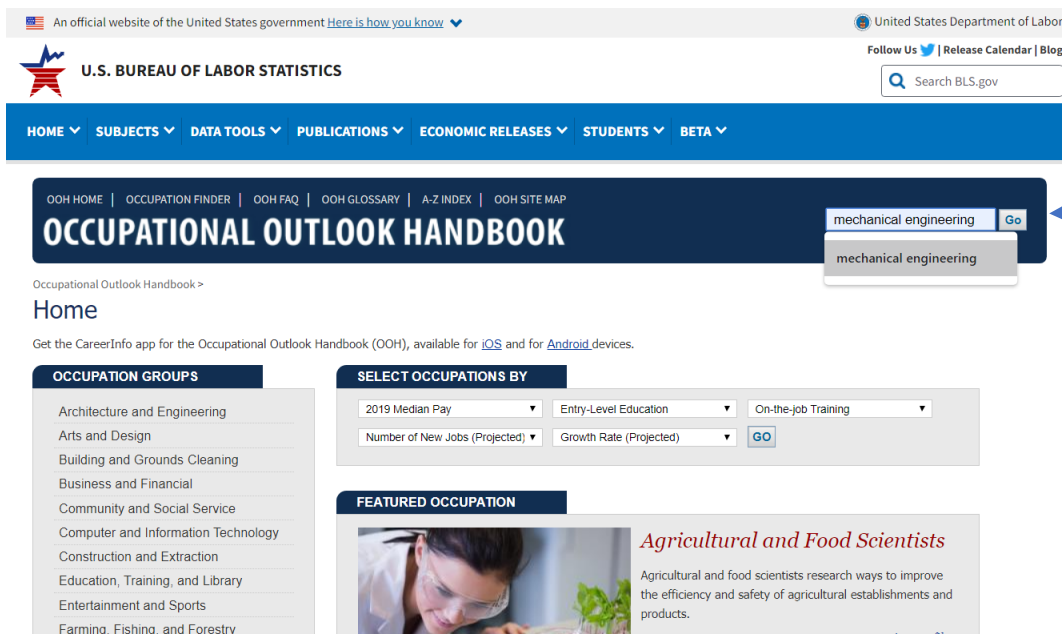
**FEATURED OCCUPATION**

*Agricultural and Food Scientists*

Agricultural and food scientists research ways to improve the efficiency and safety of agricultural establishments and products.

[view profile](#)

Or, you can search for a specific occupation by typing it into the search box at the top right of the screen:



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## OCCUPATIONAL OUTLOOK HANDBOOK

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**SELECT OCCUPATIONS BY**

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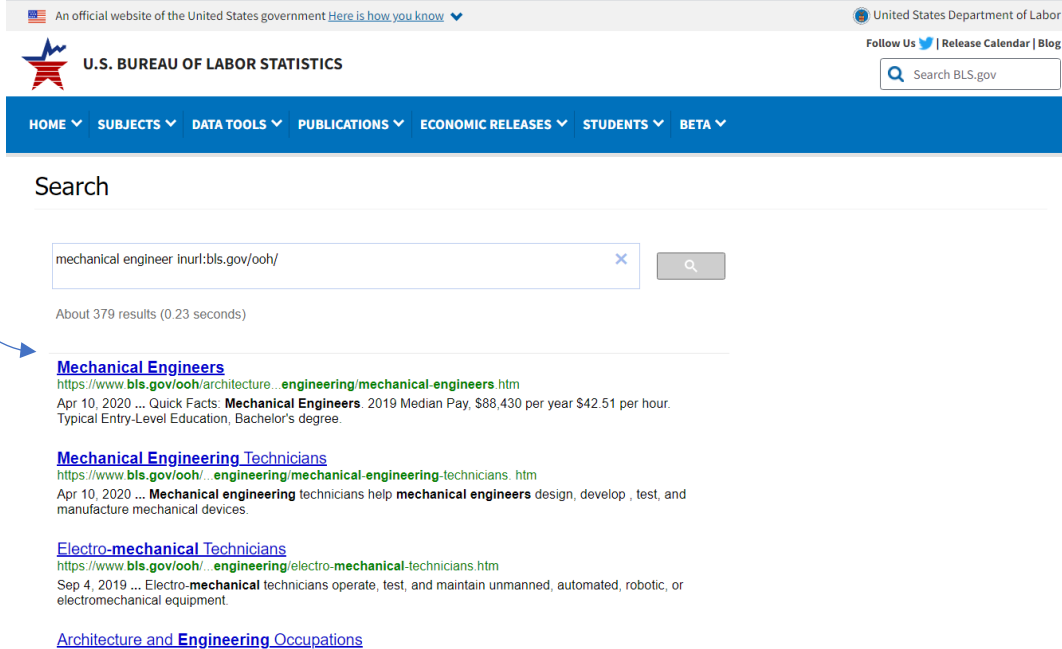
**FEATURED OCCUPATION**

*Agricultural and Food Scientists*

Agricultural and food scientists research ways to improve the efficiency and safety of agricultural establishments and products.

[view profile](#)

Here, we searched for “mechanical engineering.” Links to the profiles of the most relevant matches for your search will appear. Click on the link for the occupation you want to learn more about:

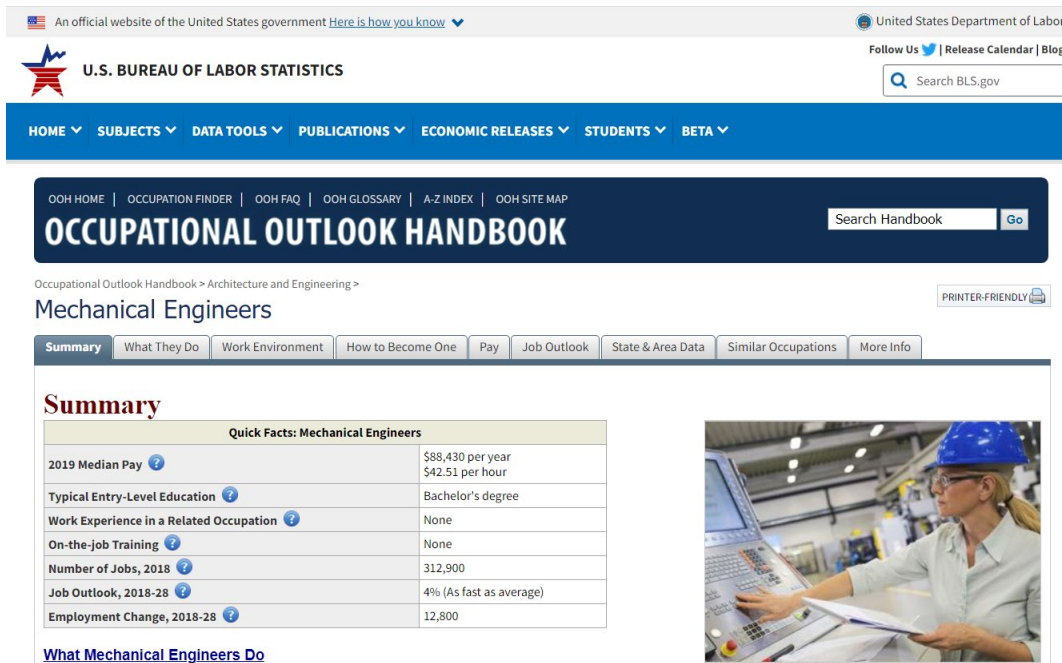


The screenshot shows the BLS.gov search results for 'mechanical engineer'. The search bar contains 'mechanical engineer inurl:bls.gov/ooh/'. Below the search bar, there are three search results:

- Mechanical Engineers**  
<https://www.bls.gov/ooh/architecture...engineering/mechanical-engineers.htm>  
 Apr 10, 2020 ... Quick Facts: **Mechanical Engineers**. 2019 Median Pay, \$88,430 per year \$42.51 per hour. Typical Entry-Level Education, Bachelor's degree.
- Mechanical Engineering Technicians**  
<https://www.bls.gov/ooh/...engineering/mechanical-engineering-technicians.htm>  
 Apr 10, 2020 ... **Mechanical engineering** technicians help **mechanical engineers** design, develop, test, and manufacture mechanical devices.
- Electro-mechanical Technicians**  
<https://www.bls.gov/ooh/...engineering/electro-mechanical-technicians.htm>  
 Sep 4, 2019 ... **Electro-mechanical** technicians operate, test, and maintain unmanned, automated, robotic, or electromechanical equipment.

At the bottom of the search results, there is a link for [Architecture and Engineering Occupations](#).

This will open the “Summary” tab for that occupation where you can view some quick information about the occupation before diving deeper:




The screenshot shows the 'Summary' tab for 'Mechanical Engineers' in the Occupational Outlook Handbook. The page includes a navigation menu with tabs: Summary, What They Do, Work Environment, How to Become One, Pay, Job Outlook, State & Area Data, Similar Occupations, and More Info. The 'Summary' tab is selected.

**Summary**


**Quick Facts: Mechanical Engineers**

2019 Median Pay	\$88,430 per year \$42.51 per hour
Typical Entry-Level Education	Bachelor's degree
Work Experience in a Related Occupation	None
On-the-job Training	None
Number of Jobs, 2018	312,900
Job Outlook, 2018-28	4% (As fast as average)
Employment Change, 2018-28	12,800

[What Mechanical Engineers Do](#)




The “What They Do” tab outlines the typical job duties reported by people who work in this field and often describes sub-specialties within this career:

Mechanical Engineers PRINTER-FRIENDLY 

Summary **What They Do** Work Environment How to Become One Pay Job Outlook State & Area Data Similar Occupations More Info

## What Mechanical Engineers Do

About this section 

Mechanical engineers research, design, develop, build, and test mechanical and thermal sensors and devices, including tools, engines, and machines.

### Duties

Mechanical engineers typically do the following:


- Analyze problems to see how mechanical and thermal devices might help solve a particular problem
- Design or redesign mechanical and thermal devices or subsystems, using analysis and computer-aided design
- Investigate equipment failures or difficulties to diagnose faulty operation and to recommend remedies
- Develop and test prototypes of devices they design
- Analyze the test results and change the design or system as needed
- Oversee the manufacturing process for the device

Mechanical engineering is one of the broadest engineering fields. Mechanical engineers design and oversee the manufacture of many products ranging from medical devices to new batteries.

Mechanical engineers design power-producing machines, such as electric generators, internal combustion engines, and steam and gas turbines, as well as power-using machines, such as refrigeration and air-conditioning systems.


Mechanical engineers design other machines inside buildings, such as elevators and escalators. They also design material-handling systems, such as conveyor systems and automated transfer stations.

Like other engineers, mechanical engineers use computers extensively. Mechanical engineers are routinely responsible for the integration of sensors, controllers, and machinery. Computer technology helps mechanical engineers create and analyze designs, run simulations and test how a machine is likely to work, interact with connected systems, and generate specifications for parts.




Computer technology helps mechanical engineers create and analyze designs.

While the “Work Environment” tab shows you the typical places you will find these people working, number of hours worked, and other things about the job setting:

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Summary What They Do **Work Environment** How to Become One Pay Job Outlook State & Area Data Similar Occupations More Info

## Work Environment

About this section 


Mechanical engineers held about 312,900 jobs in 2018. The largest employers of mechanical engineers were as follows:

Architectural, engineering, and related services	20%
Machinery manufacturing	14
Transportation equipment manufacturing	11
Computer and electronic product manufacturing	7
Scientific research and development services	6

Mechanical engineers generally work in offices. They may occasionally visit worksites where a problem or piece of equipment needs their personal attention. In most settings, they work with other engineers, engineering technicians, and other professionals as part of a team.

### Work Schedules

Most mechanical engineers work full time and some work more than 40 hours a week.




Although they do most of their work in an office setting, mechanical engineers also visit worksites to gain firsthand knowledge of their designs.

[<- What They Do](#) [How to Become One ->](#)

**SUGGESTED CITATION:**


“How to Become One” is an important tab to read because it describes the typical educational requirements and any additional things you must complete in order to pursue this occupation. Many occupations require a Bachelor’s Degree or higher, and some require additional licensure or certification.

## Mechanical Engineers

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Summary What They Do Work Environment **How to Become One** Pay Job Outlook State & Area Data Similar Occupations More Info

### How to Become a Mechanical Engineer


About this section 

Mechanical engineers typically need a bachelor’s degree in mechanical engineering or mechanical engineering technology. Mechanical engineers who sell services publicly must be licensed in all states and the District of Columbia.

**Education**

Mechanical engineers typically need a bachelor’s degree in mechanical engineering or mechanical engineering technology. Mechanical engineering programs usually include courses in mathematics and life and physical sciences, as well as engineering and design. Mechanical engineering technology programs focus less on theory and more on the practical application of engineering principles. They may emphasize internships and co-ops to prepare students for work in industry.

Some colleges and universities offer 5-year programs that allow students to obtain both a bachelor’s and a master’s degree. Some 5-year or even 6-year cooperative plans combine classroom study with practical work, enabling students to gain valuable experience and earn money to finance part of their education.


ABET  accredits programs in engineering and engineering technology. Most employers prefer to hire students from an accredited program. A degree from an ABET-accredited program is usually necessary to become a licensed professional engineer.

**Important Qualities**

**Creativity.** Mechanical engineers design and build complex pieces of equipment and machinery. A creative mind is essential for this kind of work.

**Listening skills.** Mechanical engineers often work on projects with others, such as architects and computer scientists. They must listen to and analyze different approaches made by other experts to complete the task at hand.


**Math skills.** Mechanical engineers use the principles of calculus, statistics, and other advanced subjects in math for analysis, design, and troubleshooting in their work.



Mechanical engineers analyze problems to see how a mechanical device might help to solve them.


The “Pay” tab shows you actual data on wages in this occupation, gathered by the US Department of Labor:

## Mechanical Engineers

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Summary What They Do Work Environment How to Become One **Pay** Job Outlook State & Area Data Similar Occupations More Info

### Pay

About this section 

The median annual wage for mechanical engineers was \$88,430 in May 2019. The median wage is the wage at which half the workers in an occupation earned more than that amount and half earned less. The lowest 10 percent earned less than \$57,130, and the highest 10 percent earned more than \$138,020.

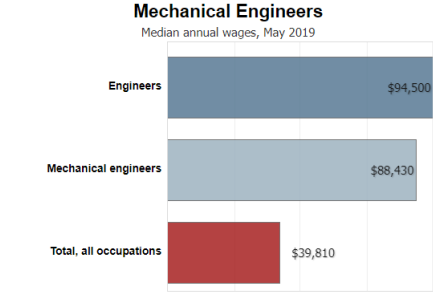
In May 2019, the median annual wages for mechanical engineers in the top industries in which they worked were as follows:

Scientific research and development services	\$101,780
Computer and electronic product manufacturing	95,260
Architectural, engineering, and related services	90,560
Transportation equipment manufacturing	90,350
Machinery manufacturing	80,720

Most mechanical engineers work full time and some work more than 40 hours a week.

[-< How to Become One](#)

[Job Outlook >](#)



**Mechanical Engineers**  
Median annual wages, May 2019

Engineers	\$94,500
Mechanical engineers	\$88,430
Total, all occupations	\$39,810

Note: All Occupations includes all occupations in the U.S. Economy.  
Source: U.S. Bureau of Labor Statistics, Occupational Employment Statistics

**SUGGESTED CITATION:**

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Mechanical Engineers, on the Internet at <https://www.bls.gov/oooh/architecture-and-engineering/mechanical-engineers.htm> (visited April 22, 2020).

And the “Job Outlook” tab outlines the projections on how/why this occupation may grow or decline in the future, as well as how you may improve your job prospects:

Mechanical Engineers PRINTER-FRIENDLY

Summary What They Do Work Environment How to Become One Pay **Job Outlook** State & Area Data Similar Occupations More Info

## Job Outlook

About this section ?

Employment of mechanical engineers is projected to grow 4 percent from 2018 to 2028, about as fast as the average for all occupations. Mechanical engineers can work in many industries and on many types of projects. As a result, their growth rate will differ by the industries that employ them.

Mechanical engineers are projected to experience faster than average growth in engineering services as companies continue to contract work from these firms. Mechanical engineers will also remain involved in various manufacturing industries, particularly in automotive manufacturing. These engineers will play key roles in improving the range and performance of hybrid and electric cars. However, employment declines in some manufacturing industries will temper overall employment growth of mechanical engineers.

### Job Prospects

Prospects for mechanical engineers overall are expected to be good. They will be best for those with training in the latest software tools, particularly for computational design and simulation. Such tools allow engineers and designers to take a project from the conceptual phase directly to a finished product, eliminating the need for prototypes.

Mechanical engineering students who can learn to create virtual simulations before proceeding to the design, build, and test stages might find themselves in high demand by companies because these skills will allow firms to reduce product development cycles.

Engineers who have experience or training in three-dimensional printing also will have better job prospects.

**Employment projections data for mechanical engineers, 2018-28**

### Mechanical Engineers

Percent change in employment, projected 2018-28

Total, all occupations	5%
Engineers	5%
Mechanical engineers	4%

Note: All Occupations includes all occupations in the U.S. Economy.  
Source: U.S. Bureau of Labor Statistics, Employment Projections program

The “State & Area Data” tab is where you can see data on salary and number of jobs per state for the previous year. Click on the link to the occupation and then scroll down to the map.

Mechanical Engineers PRINTER-FRIENDLY

Summary What They Do Work Environment How to Become One Pay Job Outlook **State & Area Data** Similar Occupations More Info

## State & Area Data

About this section ?

### Occupational Employment Statistics (OES)

The [Occupational Employment Statistics](#) (OES) program produces employment and wage estimates annually for over 800 occupations. These estimates are available for the nation as a whole, for individual states, and for metropolitan and nonmetropolitan areas. The link(s) below go to OES data maps for employment and wages by state and area.

- [Mechanical engineers](#)

### Projections Central

Occupational employment projections are developed for all states by Labor Market Information (LMI) or individual state Employment Projections offices. All state projections data are available at [www.projectionscentral.com](http://www.projectionscentral.com). Information on this site allows projected employment growth for an occupation to be compared among states or to be compared within one state. In addition, states may produce projections for areas; there are links to each state's websites where these data may be retrieved.

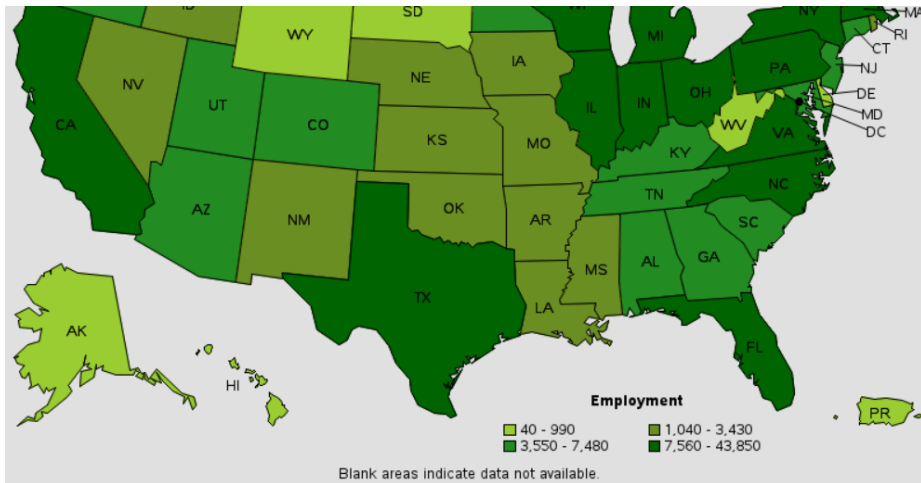
### CareerOneStop

CareerOneStop includes hundreds of [occupational profiles](#) with data available by state and metro area. There are links in the left-hand side menu to compare occupational employment by state and occupational wages by local area or metro area. There is also a [salary info tool](#) to search for wages by zip code.

[← Job Outlook](#) [Similar Occupations →](#)

**SUGGESTED CITATION:**  
Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Mechanical Engineers, on the Internet at <https://www.bls.gov/oooh/architecture-and-engineering/mechanical-engineers.htm> (visited April 22, 2020).

California had the 2nd highest level of employment in the nation, representing more than 1 job in every thousand, with pay landing at over \$100,000 annually in the mid-range:



States with the highest employment level in this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
<a href="#">Michigan</a>	43,850	10.09	4.83	\$44.64	\$92,850
<a href="#">California</a>	27,830	1.60	0.77	\$51.88	\$107,920
<a href="#">Texas</a>	22,020	1.77	0.85	\$49.51	\$102,980
<a href="#">Pennsylvania</a>	16,930	2.87	1.37	\$40.91	\$85,100
<a href="#">Ohio</a>	15,300	2.81	1.34	\$39.80	\$82,780

Use the “Similar Occupations” tab to explore other occupations that share things in common with this occupation. You may find that there are other career paths you are interested in that you hadn’t considered:

## Mechanical Engineers








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Summary What They Do Work Environment How to Become One Pay Job Outlook State & Area Data **Similar Occupations** More Info

### Similar Occupations

About this section

This table shows a list of occupations with job duties that are similar to those of mechanical engineers.

OCCUPATION	JOB DUTIES	ENTRY-LEVEL EDUCATION	2019 MEDIAN PAY
 <a href="#">Drafters</a>	Drafters use software to convert the designs of engineers and architects into technical drawings.	Associate's degree	\$56,830
 <a href="#">Materials Engineers</a>	Materials engineers develop, process, and test materials used to create a wide range of products.	Bachelor's degree	\$93,360
 <a href="#">Mathematicians and Statisticians</a>	Mathematicians and statisticians analyze data and apply mathematical and statistical techniques to help solve problems.	Master's degree	\$92,030
 <a href="#">Mechanical Engineering Technicians</a>	Mechanical engineering technicians help mechanical engineers design, develop, test, and manufacture mechanical devices.	Associate's degree	\$56,980
 <a href="#">Natural Sciences Managers</a>	Natural sciences managers supervise the work of scientists, including chemists, physicists, and biologists.	Bachelor's degree	\$129,100
 <a href="#">Nuclear Engineers</a>	Nuclear engineers research and develop the processes, instruments, and systems used to derive benefits from nuclear energy and radiation.	Bachelor's degree	\$113,460
 <a href="#">Petroleum Engineers</a>	Petroleum engineers design and develop methods for extracting oil and gas from deposits below the Earth's surface.	Bachelor's degree	\$137,720



And finally, the “More Info” tab provides links to valuable online references for this occupation, like professional organizations and student associations:

Mechanical Engineers PRINTER-FRIENDLY

Summary | What They Do | Work Environment | How to Become One | Pay | Job Outlook | State & Area Data | Similar Occupations | **More Info**

### Contacts for More Information

About this section ?

For more information about general engineering education and mechanical engineering career resources, visit

- [American Society of Mechanical Engineers](#)
- [American Society for Engineering Education](#)
- [Technology Student Association](#)

For information about engineering summer camps, visit

- [Engineering Education Service Center](#)

For more information about accredited engineering programs, visit

- [ABET](#)

For more information about licensure as a mechanical engineer, visit

- [National Council of Examiners for Engineering and Surveying](#)
- [National Society of Professional Engineers](#)

For information about certification, visit

- [American Society of Mechanical Engineers](#)

O\*NET

- [Automotive Engineers](#)

Career advising and additional resources are available at the [Career Center!](#)



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- [Contact, Hours, Location & Staff](#)
- [Finding Your Path](#)
- [Information & Materials](#)
- [Online Resources](#)
- [Pathways & Programs](#)
- [Request an Appointment](#)



### Mission

The Career Center mission is to serve community members and students upon entry into the college and throughout their college experience, by providing them with career assessment and resource materials to help them formulate their career and educational paths.