Occupational Profile Mechanical Engineers

WHAT THEY DO

Performs engineering duties in planning and designing tools, engines, machines, and other mechanically functioning equipment. Oversees installation, operation, maintenance and repair of such equipment as centralized heat, gas, water and steam systems. Belongs to the Science, Technology, Engineering and Mathematics cluster and Engineering and Technology pathway.

SKILLS YOU NEED

Basic Skills:

- Reading Comprehension
- Active Listening
- Writing
- Speaking
- Mathematics
- Science
- Critical Thinking
- Active Learning
- Monitoring

Transferable Skills (applicable in other careers): High level

- Analyzing and testing engineering plans
- Creating design concepts for machines and equipment
- Creating engineering concepts
- Designing machinery, equipment, and products
- Directing an engineering design team
- Operating computers to create engineering designs
- Operating computers to record and analyze engineering data

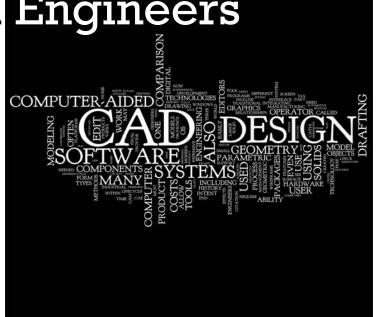
Workplace Skills:

- High level
- Complex Problem Solving
- Coordination
- Judgment and Decision Making
- Operation Analysis

Medium level

- Equipment Selection
- Installation
- Negotiation
- Systems Evaluation
- Time Management

Additional skills for this occupation may be found at <u>http://www.iowaworkforcedevelopment.gov/career</u> <u>-exploration-resources</u>



IS THIS FOR YOU?

Work Interests are described in the following categories (compatible with Holland's Model) by people who tend to succeed in this career:

- **Conventional** You are an "organizer". Keeping things neat and organized is important to you. You like working with charts and reports, and work well with power and authority.
- **Investigative** You are a "thinker". When you have a problem, you like to analyze it and look at different ways to solve it. You like to work by yourself, and you don't like explaining your ideas to other people.
- Realistic You are a "doer". You like physical activities and projects. You like to find the answers to problems by doing hands-on work instead of talking about solutions.

Work Values are aspects of work that are satisfying to you. The following work values are generally associated with this career.

- Achievement It's very important to you that your work allows you to use your best abilities. You want to see the results of your work and get a feeling of accomplishment.
- **Independence** It's very important to you that your work allows you to make decisions on your own. You want to try out your own ideas and work with little supervision.

Aptitudes reflect a person's ability to acquire skills and knowledge. The following aptitudes are important for success in the career:

- General Learning Ability
- Verbal Aptitude
- Numerical Aptitude
- Spatial Perception

Source: https://secure.ihaveaplaniowa.gov/

ESTIMATED & PROJECTED EMPLOYMENT

	2014	2024	2014-24	Annual	Total	
	Estimated	Projected	Employment	Growth	Annual	
Occupational Title	Employment	Employment	Change	Rate (%)	Openings	
Total, All Occupations	1,795,100	1,949,240	154,140	0.9	58,145	
Architecture & Engineering Occupations	19,925	21,300	1,375	0.7	625	
Mechanical Engineers	2,465	2,670	205	0.8	100	
Source: https://www.iowaworkforcedevelopment.gov/occupational-projections						

2017 WAGE & SALARY (\$)

	Mean	Mean	Entry	Entry	Exp	Exp
Occupational Title	Wage	Salary	Wage	Salary	Wage	Salary
Total All Occupations	20.93	43,539	10.09	20,991	26.35	54,813
Architecture & Engineering Occupations	33.39	69,442	21.12	43,934	39.52	82,195
Mechanical Engineers	36.55	76,027	24.79	51,567	42.43	88,258

Source: https://www.iowaworkforcedevelopment.gov/occupational-employment-and-wages

EDUCATION & TRA	INING		WORKFORCE
Education	Work Experience	Job Training	Smatt Republi
Bachelor's Degree	None	None	

A bachelor's degree is required for engineering positions. Licenses, certificates, and/or commissions may be required. Sources: https://www.iowaworkforcedevelopment.gov/occupational-projections, https://www.bls.gov/emp/ep_education_training_system.htm, and https://www.bls.gov/emp/ep_education_training_system.htm.

NATIONAL CAREER READINESS CERTIFICATE (NCRC)

Skill	Median Skill Level	Minimum Skill Level	Maximum Skill Level
Applied Mathematics	6	4	7
Locating Information	6	6	6
Reading for Information	6	6	7
Applied Technology	6	5	6
Business Writing	3	3	4
Workplace Observation	4	3	4
Listening for Understanding	3	3	4

An ACT assessment-based credential issued in determining essential work skills needed for employment success across industries and occupations. The greater the score, the greater the skill level (Bronze = 3, Silver = 4, Gold = 5, Platinum = 6 & higher). Source: http://www.act.org/content/act/en/products-and-services/workkeys-for-employers/assessments.html

PRIMARY INDUSTRY SECTORS

(Where are Mechanical Engineers Employed?)

Machinery Mfg Computer and Electronic Product Mfg Management of Companies Transportation Equipment Mfg Fabricated Metal Product Mfg Electrical Equipment, Appliance, & Component Mfg Professional, Scientific, & Technical Self Employed Chemical Mfg

Source: https://www.iowaworkforcedevelopment.gov/occupational-projections

ADDITIONAL SOURCES:

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