**Name\_       Shayla Holmes\_   \_      \_ Date                \_\_ Class Period 1 \_ Alphabetical Engineering and Technology *Career Outlook Research Assignment***

In this project, you will gather some comparison data relating to twenty six careers in engineering and technology and gain appreciation of various occupations.

Using a web browser, go to the US Department of Labor's web site ([www.bls.gov](http://www.bls.gov/)). From the home page, go to ***Publications*** -> ***Occupational Outlook Handbook*** and choose the ***Architecture and Engineering*** group.

For each of the following occupational groups, explore the detail pages and record the degree requirements (Associate's degree, Bachelor's degree, etc.), median annual pay (2014-2016), and job outlook 2014-20 (Growth). Review the "What They Do" tab then rank your interest level in that area on a scale of 0-10 in the Rating column (e.g. a rating of “1” would be the lowest, and a rating of “10” would be the highest). In the last column, briefly list the types of skills or classes you think will aid a person pursuing each field of study.

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| **Name of Job** | **Degree Required** | **Median Pay** | **Growth Outlook** | **Rating** | **What types of classes or skills do you think are needed for this job?** |
| [*Aerospace Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/aerospace-engineers.htm) | bachelor’s degree in aerospace engineering | $107,830 per year  $51.84 per hour | Employment of aerospace engineers is projected to decline 2 percent from 2014 to 2024. Aircraft are being redesigned to cut down on noise pollution and to raise fuel efficiency, which will help sustain demand for research and development. | 8 | Aerospace engineers must have a bachelor’s degree in aerospace engineering or another field of engineering or science related to aerospace systems. Aerospace engineers that work on projects that are related to national defense may need a security clearance. |
| [*Agricultural Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/agricultural-engineers.htm) | bachelor’s degree, preferably in agricultural engineering | $75,090 per year  $36.10 per hour | Employment of agricultural engineers is projected to grow 4 percent from 2014 to 2024, slower than the average for all occupations. The need to increase the efficiency of agricultural production systems and to reduce environmental damage should maintain demand for these workers. | 9 | Agricultural engineers must have a bachelor’s degree, preferably in agricultural engineering or biological engineering. |
| [*Architects*](http://www.bls.gov/ooh/architecture-and-engineering/architects.htm) | licensed architect: completing a professional degree in architecture | $76,100 per year  $36.59 per hour | Employment of architects is projected to grow 7 percent from 2014 to 2024, about as fast as the average for all occupations. Competition for jobs will be very strong because the number of applicants continues to outnumber available positions. | 8 | There are typically three main steps to becoming a licensed architect: completing a professional degree in architecture, gaining relevant experience through a paid internship, and passing the Architect Registration Examination. |
| [*Biomedical Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/biomedical-engineers.htm) | bachelor’s degree in biomedical engineering | $86,220 per year  $41.45 per hour | Employment of biomedical engineers is projected to grow 23 percent from 2014 to 2024, much faster than the average for all occupations. Growing technology and its application to medical equipment and devices, along with an aging population, will increase demand for the work of biomedical engineers. | 6 | Biomedical engineers typically need a bachelor’s degree in biomedical engineering or bioengineering from an accredited program in order to enter the occupation. Alternatively, they can get a bachelor’s degree in a different field of engineering and then either choose biological science electives or get a graduate degree in biomedical engineering. |
| [*Chemical Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/chemical-engineers.htm) | bachelor’s degree in chemical engineering | $97,360 per year  $46.81 per hour | Employment of chemical engineers is projected to grow 2 percent from 2014 to 2024, slower than the average for all occupations. Demand for chemical engineers’ services depends largely on demand for the products of various manufacturing industries | 10 | Chemical engineers must have a bachelor’s degree in chemical engineering. Employers also value practical experience. Therefore, internships and cooperative engineering programs can be helpful. |
| [*Civil Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/civil-engineers.htm) | bachelor’s degree in civil engineering | $82,220 per year  $39.53 per hour | Employment of civil engineers is projected to grow 8 percent from 2014 to 2024, about as fast as the average for all occupations. As infrastructure continues to age, civil engineers will be needed to manage projects to rebuild bridges, repair roads, and upgrade levees and dams as well as airports and building structures of all types. | 7 | Civil engineers need a bachelor’s degree in civil engineering, in one of its specialties, or in civil engineering technology. They typically need a graduate degree and licensure for promotion to senior positions. Although licensure requirements vary within the United States, civil engineers usually must be licensed in the locations where they provide services directly to the public |
| [*Computer Hardware Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/computer-hardware-engineers.htm) | Most computer hardware engineers need a bachelor’s degree from an accredited program | $111,730 per year  $53.72 per hour | Employment of computer hardware engineers is projected to grow 3 percent from 2014 to 2024, slower than the average for all occupations. A limited number of engineers will be needed to meet the demand for new computer hardware because more technological innovation takes place with software than with hardware. | 9 | Most computer hardware engineers need a bachelor’s degree from an accredited program |
| [*Drafters*](http://www.bls.gov/ooh/architecture-and-engineering/drafters.htm) | associate’s degree in drafting. | $52,720 per year  $25.35 per hour | Employment of drafters is projected to decline 3 percent from 2014 to 2024. Although drafters will continue to work on technical drawings and documents related to the design of buildings, machines, and tools, new software programs are making drafters and related professionals more efficient, thus requiring fewer workers. Competition for jobs is expected to be strong. | 5 | Drafters typically need specialized training, which can be accomplished through a technical program that leads to a certificate or an associate’s degree in drafting.  [**Pay**](http://www.bls.gov/ooh/architecture-and-engineering/drafters.htm#tab-5) |

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| **Name of Job** | | | | | | | | **Degree Required** | **Median Pay** | **Growth Outlook** | **Rating** | **What types of classes or skills do you think are needed for this job?** |
| [*Electrical and Electronics Engineering Technicians*](http://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronics-engineering-technicians.htm) | | | | | | | | associate’s degree | $61,130 per year  $29.39 per hour | Employment of electrical and electronics engineering technicians is projected to decline 2 percent from 2014 to 2024. Employment of these technicians is projected to decline in manufacturing and in the federal government. |  |  |
|  | [*Electrical*](http://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronics-engineers.htm) | | | |  | | |  |  |  |  |  |
|  | [*and*](http://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronics-engineers.htm) | |  | | | | |
| [*Electronics Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/electrical-and-electronics-engineers.htm) | | | | | | | |
| [*Electro- mechanical Technicians*](http://www.bls.gov/ooh/architecture-and-engineering/electro-mechanical-technicians.htm) | | | | | | | |  |  |  |  |  |
|  | [*Environmen*](http://www.bls.gov/ooh/architecture-and-engineering/environmental-engineering-technicians.htm) | | | | | |  |  |  |  |  |  |
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|  | [*Engineering*](http://www.bls.gov/ooh/architecture-and-engineering/environmental-engineering-technicians.htm) | | | | | |  |
|  | [*Technicians*](http://www.bls.gov/ooh/architecture-and-engineering/environmental-engineering-technicians.htm) | | | | | |
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|  | [*Environmen*](http://www.bls.gov/ooh/architecture-and-engineering/environmental-engineers.htm) | | | | | |  |  |  |  |  |  |
| [*tal Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/environmental-engineers.htm) | | | | | | | |
|  | [*Health and*](http://www.bls.gov/ooh/architecture-and-engineering/health-and-safety-engineers.htm) | | | | |  | |  |  |  |  |  |
|  | [*Safety*](http://www.bls.gov/ooh/architecture-and-engineering/health-and-safety-engineers.htm) | | |  | | | |
| [*Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/health-and-safety-engineers.htm) | | | | | | | |
| [*Industrial Engineering Technicians*](http://www.bls.gov/ooh/architecture-and-engineering/industrial-engineering-technicians.htm) | | | | | | | |  |  |  |  |  |
| [*Industrial Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/industrial-engineers.htm) | | | | | | | |  |  |  |  |  |
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| [*Landscape Architects*](http://www.bls.gov/ooh/architecture-and-engineering/landscape-architects.htm) | | | | | | | |  |  |  |  |  |
|  | [*Marine*](http://www.bls.gov/ooh/architecture-and-engineering/marine-engineers-and-naval-architects.htm) | |  | | | | |  |  |  |  |  |
| [*Engineers and Naval Architects*](http://www.bls.gov/ooh/architecture-and-engineering/marine-engineers-and-naval-architects.htm) | | | | | | | |
| [*Materials Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/materials-engineers.htm) | | | | | | | |  |  |  |  |  |
| [*Mechanical Engineering Technicians*](http://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineering-technicians.htm) | | | | | | | |  |  |  |  |  |
|  | [*Mechanical*](http://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm) | | | | | |  |  |  |  |  |  |
|  | [*Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/mechanical-engineers.htm) | | | | |  | |
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|  | [*Nuclear*](http://www.bls.gov/ooh/architecture-and-engineering/industrial-engineering-technicians.htm) | | |  | | | |  |  |  |  |  |
| [*Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/industrial-engineering-technicians.htm) | | | | | | | |
| [*Petroleum Engineers*](http://www.bls.gov/ooh/architecture-and-engineering/petroleum-engineers.htm) | | | | | | | |  |  |  |  |  |
|  | [*Surveying*](http://www.bls.gov/ooh/architecture-and-engineering/surveying-and-mapping-technicians.htm) | | | | |  | |  |  |  |  |  |
|  | [*and*](http://www.bls.gov/ooh/architecture-and-engineering/surveying-and-mapping-technicians.htm) |  | | | | | |
|  | [*Mapping*](http://www.bls.gov/ooh/architecture-and-engineering/surveying-and-mapping-technicians.htm) | | | |  | | |
| [*Technicians*](http://www.bls.gov/ooh/architecture-and-engineering/surveying-and-mapping-technicians.htm) | | | | | | | |
| [*Surveyors*](http://www.bls.gov/ooh/architecture-and-engineering/surveyors.htm) | | | | | | | |  |  |  |  |  |
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