

Frequently Asked Questions...

Why should I join SDES/NSPE?

There are many benefits to joining SDES and/or NSPE. You will have the opportunity to network with engineers throughout the state and nation in a relaxed setting. You will have opportunities to earn Professional Development Hours by attending chapter meetings and state or national conventions. You will join other professionals to protect the profession's interest at the State Legislature and Capitol Hill. You will promote math and science to America's youth with programs such as Engineer's Week and MATHCOUNTS. You will promote the engineering profession to the general public through involvement in community service projects and educational settings. You will receive publications from both the state and national organization. Additional benefits can be found at www.nspe.org

Do I qualify for membership in NSPE?

NSPE Bylaws state that all applicants must meet the qualifications set forth in one of the membership categories below in order to qualify for membership in NSPE.

Licensed Member

A "licensed member" shall be defined as a person holding a valid license or certificate of registration as a professional engineer, issued under the laws of any state, territory, possession, or district of the United States, or the equivalent as defined under the laws of any other country, or a retired engineer who obtained and retained a valid license or certificate while in active practice in the profession until retirement.

Member

A "member" shall be defined as a person holding a valid Engineer-In-Training or Engineering Intern certification, issued under the laws of any state, territory, possession or district of the United States, or the equivalent under the laws of any other country. A member shall automatically advance to the "licensed member" grade as soon as eligible by licensure.

Student Member

A "student member" shall be defined as a person who is enrolled full-time in an ABET-accredited engineering program or an engineering or pre-engineering program that has a transfer agreement with one or more ABET accredited engineering programs. A student enrolled full-time in a graduate level engineering program may choose any grade for which eligible, including Student Member.

Graduate Member

A person who has graduated with a bachelor's degree or higher from an ABET-accredited engineering curriculum or from an engineering or pre-engineering program that leads to engineering licensure shall be granted provisional status as a member for up to two years to achieve the full requirements for the member grade. "Graduate members" shall not have voting privileges and shall not be allowed to hold office in NSPE. Graduate members shall become full members immediately upon successfully meeting the requirements for member status.

What if my license is not in the U.S.?

If an applicant has achieved the equivalent of U.S. licensure in another country, NSPE will approve the applicant for membership.

- See more at: <http://www.nspe.org/membership/memberships-faqs#dol>

What options do I have for membership?

Three levels of membership are available: 1) SDES membership only, 2) NSPE membership only, 3) NSPE and SDES membership combined. Click [here](#) for the membership application to get further information. Student and recent graduate memberships are also available with information included on the membership application.

How many chapters does SDES have?

SDES has three chapters. They are the Black Hills Chapter, Central Chapter, and Eastern Chapter. When you join SDES, you are also able to specify the chapter you want to join. See the Chapter News link to find out what chapters cover which areas of the state.

I am a Professional Engineer in need of Professional Development Hours. Can SDES or NSPE help me?

You can earn Professional Development Hours (PDHs) through society activities. You can earn 2 PDHs every two years for active involvement in the society. In addition, you can earn PDHs for most chapter monthly meetings. The SDES Annual Conference generally offers 7-9 PDHs to attendees. NSPE Annual Convention also offers PDHs. SDES is working towards offering its members the required number of PDHs per registration period -- all you have to do is get involved!

Is the South Dakota Engineering Society involved in community activities?

In addition to professional activities, the society is involved in many community activities. The society works to promote math and science to school children. Many of the chapters are also involved in community service projects throughout the year -- such as adopt-a-highway programs, developing and donating displays to local science centers.

What are the benefits of becoming a Professional Engineer?

Licensure as a Professional Engineer is the goal of all career-minded engineering students. It also has many benefits.

- Job Opportunities. Employers want engineers who show a commitment to the future by becoming licensed. Many engineering jobs require P.E. status.
- Promotions. Look around -- a majority of senior engineering positions are occupied by P.E.s. An increasing number of companies are requiring licensure for advancement.
- Consulting. Only P.E.s can consult in private practice and serve as expert witness in court.
- Respect. P.E.s gain the respect of peers within the engineering community. Licensed engineers also enhance their employer's reputation.
- Professionalism. Licensure by a majority of engineers is essential if you are to enjoy the benefits of established professionals such as medicine or law.

Does SDES offer scholarships to graduating seniors?

NSPE and SDES offer scholarships to future engineering students. Some SDES chapters offer them to high school seniors planning to enroll in an engineering program from either the South Dakota School of Mines and Technology or South Dakota State University. Other SDES Chapters offer them to students already enrolled in an engineering program from either South Dakota School of Mines and Technology or South Dakota State University.

What qualifies a high school student for a career in engineering?

Interest, curiosity, and ability in mathematics and science play primary roles. The student who chooses engineering typically likes to know the "why" of things, likes to perform laboratory experiments, and likes to make sketches or drawings that illustrate their ideas. Many like to work on machinery, repair appliances, or build things. In general, an engineer has the ability to

visualize things in three dimensions. The engineer should be able to learn through personal efforts and reading, and to communicate ideas through speaking and writing. Students considering a career in engineering should watch for Engineer's Week activities to learn more about the opportunities engineers have.

What types of classes should I take in high school if I plan to study engineering in college? In order to prepare yourself for college, one should select all the mathematics and science courses offered, take any English and speech classes that may be offered as well, and should pursue a basic college preparatory curriculum. This includes any advanced math classes such as calculus and advanced science classes such as physics and chemistry. Because it is crucial that engineers be able to communicate well, it is recommended that you take any English and speech classes that may be offered to you as well. Shop, computer-aided drafting and computer courses have value and are recommended but are not essential for admission. Although a student best prepares him/herself by electing proper courses beginning in the ninth grade, a "late bloomer" may be able to make up deficiencies by first enrolling in a community college.

Admission requirements vary among colleges. Check with the school you are interested in for test requirements for admission.

Why is it important for me to take math and science classes if I am interested in becoming an engineer?

The principles of engineering are based upon math and many different sciences. To be an effective engineer, it is important that you are able to understand the "how" and "why" of both math and science. In many cases, engineering decisions affect public health and welfare. In order to provide the best service to mankind, you must have a firm understanding of the principles on which engineering is based.

Can I get an engineering degree from any of South Dakota's colleges?

Two schools in South Dakota offer a wide variety of engineering degrees. They are the South Dakota School of Mines and Technology in Rapid City, and South Dakota State University in Brookings. Check out their web sites to learn more about them.

What is the nature of an engineering program?

The student first strengthens his/her preparation by studying more mathematics (including calculus), chemistry and physics, and by learning to use modern computer facilities. The student will need approximately one year of communications, humanities, and the social sciences. Most of these studies can be completed in the first two years in either an engineering college or transfer program of a community or liberal arts college. The last two years prepare the student for a degree program in a chosen area, such as agricultural, aerospace, civil, chemical, computer, electrical, environmental, fire, industrial, manufacturing, mechanical, mining, nuclear, petroleum or structural engineering. These courses put the student's knowledge of mathematics, engineering sciences and computer aids to use. He/she learns how to approach a problem, to analyze all relevant factors, and then to synthesize the information in designing a solution. This preparation equips the student to attack future problems in a wide variety of situations. An engineering background is excellent preparation for careers in other professions such as law, medicine, dentistry and teaching.

Does a student need to know what field of engineering they want to study before enrolling?

No. Many subjects must be taken by all engineering students in the first two years. An engineering student may wait until the third year before selecting which specialty to pursue. Qualified students, from engineering transfer programs in community colleges, may enter any specialty with advanced standing.

Is it necessary to seek admission to an engineering college as a freshman?

No. Although spending all four years in one college has advantages, a student with good preparation may transfer into engineering without loss of time. Such an arrangement often reduces the cost of the first two years. The student who has started a science or arts program and discovers that they really belong in engineering should discuss the situation with an advisor at an engineering school.

What type of work do engineers do?

Engineers are shaping the future. Through advancements in technology, engineers in all disciplines are making this world a better, more efficient, and safer environment in which to live. Because of the broad range of "types" of engineers, it is difficult to give a quick and concise answer to this question. Instead, the following are offered as examples of the different types of engineers and what they may be doing to better your quality of life.

Aerospace Engineers are designing aircraft and spacecraft of the future.

Biomedical Engineers are making advances in health care by designing efficient prosthetics.

Chemical Engineers are extracting and refining chemicals to make an effective, desired end product.

Civil Engineers are improving infrastructure in your neighborhoods including roads and water and wastewater services and treatment. Computer Engineers and Electrical Engineers are improving the technology of electronics and computers.

Environmental Engineers are protecting our natural resources.

Geological Engineers discover, recover, and protect groundwater, oil, gas, and minerals.

Industrial Engineers design efficient process and assembly lines or make existing lines more efficient.

Mechanical Engineers are designing the cars and machines of the future.

Mining Engineers are providing the metals and minerals necessary for everyday living.

How do I become a Professional Engineer?

Registration as a Professional Engineer is the goal of all career-minded engineering students. A Bachelor of Science degree from an ABET-accredited engineering program is the first step. Step two is taking and passing the Fundamentals of Engineering Examination (Part I) during the last nine months of the senior year or after graduation. Step three is acquiring four years of acceptable engineering experience under a licensed PE. The final step is taking and passing the Principles and Practices Examination (Part II). Students preparing for an engineering career should select courses to meet the requirements for registration as a P.E. with an advisor at an engineering school.

What is engineering?

More and more disciplines incorporate science and engineering principles into their practices each year. This complicates any effort to define engineering briefly. Webster's dictionary defines engineering as the "application of science and mathematics by which the properties of matter and the sources of energy in nature are made useful to humans in structures, machines, products, systems, and processes". In other words, engineering is a profession that marshals an understanding of science and math in an effort to use and create technology in whatever we deem useful. While science "makes it known", engineering serves as a go-between for the knowledge of science and the needs of humans.

What do engineers do?

Engineers perform a wide variety of tasks. Engineers, like theoretical scientists, contribute to our storehouse of knowledge. Engineers deal primarily with solutions to real-life problems. They are innovators/inventors and use or create technology to monitor practical problems.

Engineering is a versatile field. Engineers coordinate efficient and economical uses of materials, energy and human resources. They help with the impact technology has on public health, environmental well-being, and governmental regulation. Engineers design products that add to the comfort and convenience associated with modern life in such areas as housing, transportation, and the making of products. They also look for practical methods of converting resources into energy and for solving today's problems of pollution and waste disposal.

Engineers also manage and supervise the construction, production, and operation of a wide variety of industrial plants and commercial structures. Companies involved in manufacturing technical products offer a wide range of opportunities for those interested in sales careers.

Engineers who are trained to solve technical problems use what is commonly referred to as "the engineering method or approach", and are well-qualified to contribute to the solution of a variety of society's problems in government and industry.

What is Professional Licensure?

Professional licensure is governmental regulation of professional practice. The purpose of licensure is to safeguard the public by setting minimum standards of professional performance when professional services are needed. Further, professional licensure raises the standards of the profession by limiting practice to those meeting objective standards through examinations. In engineering, Professional Engineers meet these standards. Non-licensed practitioners are limited by law in the scope of the work they are allowed to perform. Licensure laws vary from state to state and are exclusively under the control of the individual state legislature.

When should I, an individual citizen, consider hiring an engineer?

You should consider hiring an engineer if you are planning to build a home and would like to ensure the soils of your proposed site are stable. If you are buying a home, maybe you want to hire an engineer to evaluate the structural stability of the home. These are a few examples although there are not many cases when an individual would need to hire an engineer. For the most part, engineers work with governments, industry, and the private sector whether they are on their staff or contracted from a consulting firm.

When should a community consider hiring a Professional Engineer?

Professional Engineers work with communities on many different projects. The most common include infrastructure improvements or expansions. These could include roads, airports and utilities such as sewer, storm sewer, water services or treatment projects. A professional engineer could also be used to serve as an expert witness for any litigation the community may be subject to.

When should an industry or business consider hiring a Professional Engineer?

There are many different cases where a Professional Engineer may be useful to an industry or business. A few examples are illustrated here: any plans for any proposed expansion to the existing business, design of facilities to treat or control industrial wastes, to assist with permitting and translating regulatory requirements, and to serve as an expert witness for any litigation the business may be subject to.