

College of Engineering

<https://www.ndsu.edu/coe/>

Vision

The College of Engineering will be the engineering college of choice for students, faculty and employers seeking to enhance society through leadership and innovation.

Mission

We prepare innovative problem solvers and create new knowledge to improve lives in North Dakota and beyond.

Departments

The departments include Agricultural and Biosystems Engineering, Civil and Environmental Engineering, Computer Science, Construction Management and Engineering, Electrical and Computer Engineering, Industrial and Manufacturing Engineering, and Mechanical Engineering. The departments of Aerospace Studies (Air Force ROTC) and Military Science (Army ROTC) report through the college for academic program requirements.

Accreditation

The facilities and engineering curricula of college programs are reviewed periodically by the appropriate accrediting agencies. The programs leading to the Bachelor of Science degrees in the following disciplines are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org>: Agricultural and Biosystems Engineering, Civil Engineering, Computer Engineering, Construction Engineering, Electrical Engineering, Industrial Engineering and Management, Manufacturing Engineering, and Mechanical Engineering. The American Council for Construction Education (ACCE) reviews the facilities and curricula for the program leading to the Bachelor of Science in Construction Management. These organizations are recognized national accrediting agencies.

Admission Requirements

Applicants for admission must satisfy the general admission requirements of the university.

Selective Program Entry

Programs within the College of Engineering may have selective program entry requirements. Refer to the department program descriptions for respective selective criteria.

Recommended Preparation

College of Engineering programs encourage high school preparation in addition to the minimum core curriculum requirements. Prospective students will be best prepared if they complete four units of high school mathematics including two units of algebra, one unit of geometry, and one-half unit of trigonometry. Science courses should include one unit of physics and one unit of chemistry. Students whose high school credentials or entrance examinations show deficiencies in these subjects will be required to enroll in courses designed to remove such deficiencies and cannot expect to complete a program of study in the number of semesters indicated in the printed curricula.

Degree Programs

Undergraduate programs of study lead to the Bachelor of Science degree in the specific fields of agricultural and biosystems engineering, civil engineering, computer engineering, computer science, construction engineering, construction management, electrical engineering, environmental engineering, industrial engineering and management, manufacturing engineering, and mechanical engineering. The Computer Science department offers programs leading to either a Bachelor of Science or Bachelor of Arts degree. Some programs include a number of options for specialized study.

The college has developed its programs of study to provide an educational experience in keeping with the professions of engineering, computing, and construction management. The classrooms and laboratories are well equipped and every effort is made to keep them abreast of current technology. Engineering program graduates successfully apply for registration as professional engineers after required periods of professional experience. Examinations of the North Dakota State Board of Registration for Engineers and Land Surveyors are available on-line. The Level I - Associate Constructor Certification Exam for American Institute of Constructors Certification Commission is offered each semester. All students are encouraged to take appropriate licensure examinations in the senior year.

All College of Engineering departments also have programs that lead to Master of Science and Doctor of Philosophy degrees. The Department of Computer Science also offers Master of Science and Doctor of Philosophy degrees in Software Engineering as well as a Master of Software Engineering degree. The Department of Construction Management and Engineering offers a Master of Science in Construction Management or a professional Master of Construction Management degree. The Master of Construction Management and Master of Software Engineering degrees are also available online. The graduate degrees are administered by The Graduate School and the College of Engineering. A number of graduate

assistantships are available to students undertaking graduate study. For more complete details, see the Graduate Bulletin (<http://catalog.ndsu.edu/past-bulletin-archive/2021-22/graduate/>).

Special Opportunities and Services

Special opportunities include the following:

- **General Program:** Students who are interested in engineering but have not chosen a specific program are advised within the College of Engineering until they declare a major. They will be advised to take basic courses in the first two semesters that will be generally appropriate to any engineering major. Students are encouraged to select a specific program as soon as possible before the end of their first year.
- **Interdisciplinary Program:** The Natural Resources Management program is available through the College of Agriculture, Food Systems, and Natural Resources, the College of Engineering, and the College of Science and Mathematics. The College also collaborates with the Environmental & Conservation Science Program (<https://www.ndsu.edu/ecs/>) (ECS).

Student Societies and Organizations

All students are eligible to join one or more of these organizations which are actively supported for the benefit of students in the related curricula:

- American Indian Science and Engineering Society
- American Institute of Aeronautics and Astronautics
- American Society of Agricultural and Biological Engineers
- American Society of Civil Engineers
- American Society of Mechanical Engineers
- American Water Works Association/Water Environmental Federation
- Association for Computing Machinery
- Associated General Contractors
- Bison Robotics
- Cybersecurity Student Organization
- Engineers Without Borders
- Institute of Electrical and Electronic Engineers
- Institute of Industrial Engineers
- Institute of Transportation Engineers
- Materials Research Society
- National Association of Home Builders
- National Society of Black Engineers
- Society for the Advancement of Material and Process Engineering
- Society of Automotive Engineers
- Society of Manufacturing Engineers
- Society of Plastics Engineers, Inc.
- Society of Women Engineers
- Surface Mount Technology Association

Air Force ROTC sponsors the Bernard S. Bennison Squadron of the Arnold Air Society (AAS). This is a non-profit student service organization dedicated to furthering the purpose, traditions and concepts of the United States Air Force. These objectives are primarily met through community service projects.

Several national professional honor societies have chapters on the campus for which students with high academic attainments are eligible in their junior or senior years. Eligible students are selected for Tau Beta Pi from all engineering programs, Alpha Epsilon from agricultural and biosystems engineering, Eta Kappa Nu from electrical engineering, Alpha Pi Mu from industrial engineering, Sigma Lambda Chi from construction management and engineering, Pi Tau Sigma from mechanical engineering, and Upsilon Pi Epsilon from computer science. Membership in these societies is a coveted honor and highly regarded in the professions.

Research

Research and development projects are administered by college staff responsible for general policies, publications, and cooperative relations with private and governmental agencies.

Cooperative Education

Cooperative Education (<https://career.ndsu.edu/internship-program/>), a program of the Career Center (<https://www.ndsu.edu/career/>), offers undergraduate and graduate students an opportunity to integrate classroom study with paid, career-related work experience for academic credit. Work may be full or part time. A Cooperative Education experience may substantially improve students' employment opportunities after graduation.