

# College of Engineering

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Michael R. Kessler

Engineering Admin 203, 701-231-7525, [www.ndsu.edu/coe](http://www.ndsu.edu/coe)

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## Vision

The College of Engineering will be nationally recognized for producing creative and innovative graduates and research to meet the changing needs of a global society.

## Mission

- To have local, national, and global impact through quality education, research, and contributions to economic growth
- To attract students and scholars with a vibrant culture of diversity, innovation, and entrepreneurship.
- To prepare students with the technical, communication, management, and leadership skills to be leaders in a changing global environment.

## Departments

The departments include Agricultural and Biosystems Engineering, Civil and Environmental Engineering, 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 the college are reviewed periodically by the Engineering Accreditation Commission of ABET ([www.abet.org](http://www.abet.org)). American Council for Construction Education (ACCE) reviews the facilities and curricula for the construction management program. These organizations are recognized national accrediting agencies.

## Admission Requirements

Applicants for admission must satisfy the general admission requirements of the university and the special requirements of the college and department.

## Recommended Preparation

Engineering programs encourage high school preparation in addition to the minimum core curriculum requirements. Prospective majors in engineering should present 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.

## Selective Admission

Several programs within the College of Engineering have selective admission. Refer to the department program descriptions below for respective selective admission criteria.

## Degree Programs

Undergraduate programs of study lead to the Bachelor of Science degree in the specific fields of agricultural and bio-systems engineering, civil engineering, computer engineering, construction engineering, construction management, electrical engineering, industrial engineering and management, manufacturing engineering, and mechanical engineering. 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 and construction management. The classrooms and laboratories are well equipped and every effort is made to keep them abreast of current technology. 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 seniors are encouraged to take the examinations as soon as they are eligible.

All engineering departments have programs that lead to Master of Science and Doctor of Philosophy degrees. The Department of Construction Management and Engineering offers a Master of Science in Construction Management or a professional Master of Construction Management degree. The professional Master of Construction Management is also available on-line. 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://bulletin.ndsu.edu/past-bulletin-archive/2017-18/graduate>) online.

## Degree Requirements

To earn a baccalaureate degree from any of the engineering programs or the construction management program, a student must complete at least 60 semester credits of professional-level course work in his/her program while in residence and enrolled in the college. Students transferring into the college from programs with professional accreditation are exempt from the residence requirement, but are subject to NDSU's residence policy. Other exemptions must be approved by the college.

## Special Opportunities and Services

Special opportunities include the following:

- **General Program:** The general program of the College of Engineering is designed to allow students, who have not chosen the branch of engineering they wish to study, to take basic courses for one year. Students are housed in Industrial Engineering until or unless they declare a different major. Students are encouraged to select an engineering curriculum as soon as possible, but no later than the end of their first year.
- **Interdisciplinary Program:** The Natural Resources Management program (<http://bulletin.ndsu.edu/past-bulletin-archive/2017-18/undergraduate/interdisciplinary-studies/natural-resources-management>) is available through the College of Agriculture, Food Systems, and Natural Resources, the College of Engineering, and the College of Science and Mathematics. Refer to the Interdisciplinary Programs (<http://bulletin.ndsu.edu/past-bulletin-archive/2017-18/undergraduate/interdisciplinary-studies>) section of this Bulletin for further information. 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
- Associated General Contractors
- 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. The Engineering Council is composed of elected representatives from the student societies.

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 curricula, 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, and Pi Tau Sigma from mechanical engineering. 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.

The Engineering Extension provides special educational project services to groups in conferences, workshops, short courses, and publications. The laboratory facilities of the college are available for specialized instruction under the supervision of faculty. Organizations planning educational programs or special projects for their members are invited to consult the service for assistance. Extension also includes special assistance to companies to identify technology improvements and productivity enhancement.

## 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.

## Interdisciplinary Programs

The following programs are interdisciplinary and are integrated with more than one college/departments within the University.

Great Plains Institute of Food Safety (<http://bulletin.ndsu.edu/past-bulletin-archive/2017-18/undergraduate/interdisciplinary-studies/great-plains-institute-food-safety>)

Natural Resources Management (<http://bulletin.ndsu.edu/past-bulletin-archive/2017-18/undergraduate/interdisciplinary-studies/natural-resources-management>)

Environment & Conservation Science (<https://www.ndsu.edu/ecs>)

## Faculty

- Abdelrahman, Magdy, Associate Professor of Civil Engineering, Ph.D., 1996, University of Illinois, Urbana-Champaign
- Asa, Eric, Associate Professor of Construction Management and Engineering, Ph.D., 2002, University of Alberta
- Azarmi, Fardad, Associate Professor of Mechanical Engineering, Ph.D., 2007, University of Toronto
- Bajwa, Dilpreet, Associate Professor of Mechanical Engineering, Ph.D., 2000, University of Illinois, Urbana-Champaign
- Bajwa, Sreekala, Professor of Agricultural and Biosystems Engineering; Department Chair, Ph.D., 2000, University of Illinois, Urbana-Champaign
- Bezbaruah, Achintya, Associate Professor of Civil Engineering, Ph.D., 2002, University of Nebraska-Lincoln
- Bon, Thomas A., Associate Professor of Practice of Agricultural and Biosystems Engineering, Ph.D., 2003, North Dakota State University
- Bora, Ganesh, Assistant Professor of Agricultural and Biosystems Engineering, Ph.D., 2005, Kansas State University
- Braaten, Benjamin, Associate Professor of Electrical and Computer Engineering, Ph.D., 2009, North Dakota State University
- Cao, Dong, Assistant Professor of Electrical and Computer Engineering, Ph.D., 2012, Michigan State University
- Chu, Xuefeng, Associate Professor of Civil Engineering, Ph.D., 2002, University of California-Davis
- Dawn, Debasis, Assistant Professor of Electrical and Computer Engineering, Ph.D., 1993, Georgia Institute of Technology
- Esteveordal, Jordi, Associate Professor of Mechanical Engineering, Ph.D., 1996, University of Houston
- Farahmand, Kambiz, Professor of Industrial and Manufacturing Engineering, Ph.D., 1992, University of Texas-Arlington
- Gajan, Sivapalan, Associate Professor of Civil Engineering, Ph.D., 2006, University of California-Davis
- Gao, Zhili, Associate Professor of Construction Management and Engineering, Ph.D., 2004 Iowa State University
- Gladen, Adam, Assistant Professor of Mechanical Engineering, Ph.D., 2014, University of Minnesota
- Glower, Jacob, Associate Professor of Electrical and Computer Engineering; Ph.D., 1988, Ohio State University
- Gong, Na, Assistant Professor of Electrical and Computer Engineering, Ph.D., 2013, New York State University-Buffalo
- Green, Roger, Associate Professor of Electrical and Computer Engineering, Ph.D., 1998, University of Wyoming
- Hellevang, Kenneth J., Professor of Agricultural and Biosystems Engineering, Ph.D., 1989, North Dakota State University
- Huang, Ying, Assistant Professor of Civil Engineering, Ph.D., 2012, Missouri University of Science and Technology
- Jia, Xinhua, Associate Professor of Agricultural and Biosystems Engineering, Ph.D., 2004, University of Arizona
- Jiang, Long, Assistant Professor of Mechanical Engineering; Ph.D., 2003, Nanyang Technological University
- Kallmeyer, Alan R., Professor of Mechanical Engineering; Department Chair, Ph.D., 1995, University of Iowa
- Karami, Ghodrattollah, Professor of Mechanical Engineering, Ph.D., 1984, Imperial College of Science and Technology, University of London
- Karmakar, Sanjay, Assistant Professor of Electrical and Computer Engineering, Ph.D., 2012, University of Colorado-Boulder
- Katti, Dinesh R., Professor of Civil Engineering; Department Chair, Ph.D., 1991, University of Arizona
- Katti, Kalpana, Distinguished Professor of Civil Engineering, Ph.D., 1996, University of Washington

- Kavasseri, Rajesh, Associate Professor of Electrical and Computer Engineering, Ph.D., 2002, Washington State University
- Khan, Eakalak, Professor of Civil Engineering, Ph.D., 1997, University of California - Los Angeles
- Khan, Samee, Associate Professor of Electrical and Computer Engineering, Ph.D., 2007, University of Texas-Arlington
- Khoda, Bashir, Assistant Professor of Industrial and Manufacturing Engineering, Ph.D., 2012, New York State University-Buffalo
- Krishnan, Sumathy, Professor of Mechanical Engineering, Ph.D., 1995, Indian Institute of Technology-Madras, India
- Lima, Ivan, Associate Professor of Electrical and Computer Engineering, Ph.D., 2003, University of Maryland
- Lin, Wei, Associate Professor of Civil Engineering, Ph.D., 1992, New York State University-Buffalo
- Lin, Zhibin, Assistant Professor of Civil Engineering, Ph.D., 2010, University of Wisconsin-Milwaukee
- Lin, Zhulu, Assistant Professor of Agricultural and Biosystems Engineering, Ph.D., 2003, University of Georgia
- Marinov, Val, Professor of Industrial and Manufacturing Engineering, Ph.D., 1992, Technical University of Sofia, Bulgaria
- Nawarathna, Dharmakeerthi, Assistant Professor of Electrical and Computer Engineering, Ph.D., 2005, University of Houston
- Nazari, G. H., Lecturer of Mechanical Engineering, Ph.D., 1977, Texas A&M University
- Pieri, Robert V., Professor of Mechanical Engineering, Ph.D., 1987, Carnegie-Mellon University
- Pryor, Scott W., Associate Professor of Agricultural and Biosystems Engineering, Ph.D., 2005, Cornell University
- Rahman, Shafiqur, Associate Professor of Agricultural and Biosystems Engineering, Ph.D., 2004, University of Manitoba
- Rogers, David A., Professor of Electrical and Computer Engineering, Ph.D., 1971, University of Washington
- Scherer, Thomas F., Associate Professor of Agricultural and Biosystems Engineering, Ph.D., 1986, University of Minnesota
- Selekwa, Majura, Associate Professor of Mechanical Engineering, Ph.D., 2001, Texas A&M University
- Simsek, Halis, Assistant Professor of Agricultural and Biosystems Engineering, Ph.D., 2012, North Dakota State University
- Sirotiak, Todd, Associate Professor of Construction Management and Engineering, Ph.D., 2008, Iowa State University
- Smith, Gary, Professor of Construction Engineering and Management, Ph.D., 1986, Purdue University
- Smith, Scott, Professor of Electrical and Computer Engineering; Department Chair, Ph.D., 2001, University of Central Florida
- Song, Jongchul, Assistant Professor of Construction Management and Engineering, Ph.D., 2005, University of Texas
- Srinivasan, Sudarshan, Associate Professor of Electrical and Computer Engineering, Ph.D., 2007, Georgia Institute of Technology
- Steele, Dean D., Associate Professor of Agricultural and Biosystems Engineering, Ph.D., 1991, University of Minnesota
- Stewart, Michael, Assistant Professor of Mechanical Engineering, Ph.D., 1979, University of Illinois-Urbana
- Stone, Matthew, Assistant Professor of Construction Management and Engineering, Ph.D., 2013, University of Alabama
- Suzen, Bora, Associate Professor of Mechanical Engineering, Ph.D., 1998, Wichita State University
- Tangpong, Annie, Associate Professor of Mechanical Engineering, Ph.D., 2006, Carnegie Mellon University
- Ulven, Chad, Associate Professor of Mechanical Engineering, Ph.D., 2005, University of Alabama-Birmingham
- Varma, Amiy, Associate Professor of Civil Engineering, Ph.D., 1993, Purdue University
- Vogiatzis, Chrysafis, Assistant Professor of Industrial and Manufacturing Engineering, Ph.D., 2014, University of Florida - Gainesville
- Wang, Danling, Assistant Professor of Electrical and Computer Engineering, Ph.D., 2014, 2003, University of Washington, Peking University
- Wang, Jinhui, Assistant Professor of Electrical and Computer Engineering, Ph.D., 2010, University of Rochester
- Wang, Xinnan, Assistant Professor of Mechanical Engineering, Ph.D., 2008, University of South Carolina
- Wang, Yechun, Associate Professor of Mechanical Engineering, Ph.D., 2007, University of Maryland
- Wells, David L., Professor of Industrial and Manufacturing Engineering, Ph.D., 1996, University of Missouri-Rolla
- Wiesenborn, Dennis P., Professor of Agricultural and Biosystems Engineering, Ph.D., 1988, Rice University
- Wu, Xiangfa, Associate Professor of Mechanical Engineering, Ph.D., 2003, University of Nebraska-Lincoln
- Xu, Yiwen, Assistant Professor of Industrial and Manufacturing Engineering, Ph.D., 2015, University of Arizona
- Yadav, Om P., Associate Professor of Industrial and Manufacturing Engineering, Interim Department Chair, Ph.D., 2002, Wayne State University
- Yang, Huojun, Assistant Professor of Construction Management and Engineering, Ph.D., 2012, University of Nebraska-Lincoln
- Yang, Mijia, Assistant Professor of Civil Engineering; Ph.D., 2005, University of Akron
- Yellavajjala, Ravi Kiran, Assistant Professor of Civil Engineering, Ph.D., 2014, University of Notre Dame
- Yu, Yao, Assistant Professor of Construction Management and Engineering, Ph.D., 2014, North Carolina A&T State University
- Zhang, Yan, Assistant Professor of Mechanical Engineering, Ph.D., 2013, Iowa State University
- Zhang, Qifeng, Assistant Professor of Mechanical Engineering, Ph.D., 2001, Peking University
- Ziejewski, Mariusz, Professor of Mechanical Engineering, Ph.D., 1986, North Dakota State University

## **Emeritus**

- Andersen, Donald A., Emeritus Professor of Civil Engineering, Eng.D., 1982, Texas A&M University
- Backer, Leslie, Emeritus Professor of Agricultural and Biosystems Engineering, M.S., 1972, North Dakota State University

- Bares, William A., Emeritus Professor of Electrical Engineering, Ph.D., 1968, University of Wyoming
- Disrud, Lowell, Emeritus Professor of Agricultural and Biosystems Engineering, M.S., 1969, Kansas State University
- Ewert, Dan, Professor of Electrical and Computer Engineering, Ph.D., 1989, University of North Dakota
- Goplen, Sherman P., Emeritus Associate Professor of Mechanical Engineering, Ph.D., 1977, Texas A&M University
- Henderson, Allen J., Emeritus Professor of Industrial and Manufacturing Engineering, Ph.D., 1968, Iowa State University
- Hirning, Harvey, Emeritus Professor of Agricultural and Biosystems Engineering, Ph.D., 1970, Iowa State University
- Hofman, Vernon, Emeritus Professor of Agricultural and Biosystems Engineering, M.S., 1969, North Dakota State University
- Isgrig, Elvin, Emeritus Professor of Industrial and Manufacturing Engineering, M.S., 1983, North Dakota State University
- Kirschenman, Merlin D., Emeritus Associate Professor of Construction Management and Engineering, M.S., 1976, University of California-Berkeley
- Krause, Daniel J., Emeritus Professor of Electrical and Computer Engineering, Ph.D., 1972, Colorado State University
- Kucera, Henry L., Emeritus Professor of Agricultural and Biosystems Engineering, M.S., 1959, North Dakota State University
- La Palm, George L., Emeritus Professor of Civil Engineering, Ph.D., 1968, Purdue University
- Li, Kam, Emeritus Professor of Mechanical Engineering, Ph.D., 1965, Oklahoma State University
- Lindley, James A., Emeritus Associate Professor of Agricultural and Biosystems Engineering, Ph.D., 1972, Purdue University
- Lundstrom, Darnell R., Emeritus Professor of Agricultural and Biosystems Engineering, Ph.D., 1988, University of Minnesota
- Maurer, Karl G., Emeritus Professor of Mechanical Engineering, Ph.D., 1966, University of Kansas
- Padmanabhan, G., Professor of Civil Engineering, Ph.D., 1980, Purdue University
- Pestes, Michael N., Emeritus Professor of Mechanical Engineering, M.S., 1959, North Dakota State University
- Peterson, Donald E., Emeritus Associate Professor of Electrical Engineering, M.S., 1958, North Dakota State University
- Rieder, William G., Emeritus Professor of Mechanical Engineering, Ph.D., 1971, University of Nebraska-Lincoln
- Stegman, Earl C., Emeritus Professor of Agricultural and Biosystems Engineering, Ph.D., 1966, Michigan State University
- Stuehm, Donald L., Emeritus Professor of Electrical and Computer Engineering, Ph.D., 1972, Colorado State University