The Doctor of Philosophy in Engineering program provides a student with specialized training customized to meet his or her specific interests and goals. Faculty advisors work with each student to structure a graduate program consisting of traditional engineering study, complementary multidisciplinary studies, strong interaction between fellow engineering students, and high quality research. The program is based upon the research strengths of faculty and includes studies in the major engineering disciplines. Students receive a Ph.D. of Engineering with a specified track of: Chemical Engineering; Civil Engineering; Electrical Engineering; Energy Engineering; Environmental Engineering; Geological Engineering or Mechanical Engineering.

The program recognizes that effective researchers should have extensive expertise in a specialization (track) coupled with a familiarity and awareness of related research needs and the context for applying that expertise. Students enrolled in the Engineering Ph.D. program will develop a broad and inclusive interdisciplinary and integrative research paradigm necessary for comprehensive research. A principal goal of the program is to produce Ph.D. research engineers for careers that focus on the invention and development of new technologies and advances for the 21st Century and beyond. Activities to develop professional and personal skills are intended through a multidisciplinary emphasis to enable participants to 1) understand the ethical, political, and economic impacts of their research developments and policies and 2) improve their ability to communicate about complex technical subjects in both professional and general settings.

The program includes a significant research component characterized by substantial interaction between the student and their advisor. Research topics are determined based upon the mutual interest of the student and research advisor. Students develop a strong research methodology and apply this research method to a specific engineering problem as directed by their advisor. Student’s attendance is required at a weekly seminar. This seminar is used to enhance the research methodology by allowing students to present their research during various stages of development. The seminar also serves the important role of providing exposure of all students to a diverse range of multidisciplinary work.

Admission Requirements

1. A baccalaureate degree in an engineering discipline with a GPA of 3.3 or higher or a Master of Science degree in an engineering discipline with a GPA of 3.0.

2. A minimum TOEFL Score of 550 on the paper-based test or 213 on the computer-based test, or for the Internet based TOEFL, a composite score of 79, with minimum scores of 21/30 (Speaking*); 19/30 (Listening); 19/30 (Reading); and 17/30 (Writing) for applicants whose native language is not English. Applicants may also meet language requirements by presenting IETLS scores of 6.5. *Applicants being considered for Graduate Teaching Assistantships must achieve these minimum TOEFL scores, but have a minimum score of 26/30 on the Speaking subtest.

3. Students who have received a bachelor's degree or higher from the United States or English-speaking Canada are not required to submit the TOEFL.

4. In addition to meeting the general provisions in the UND graduate catalog and the minimum requirements in items 1-2 above, candidates are assessed using a holistic process that considers GRE test scores (students with a B.S. engineering degree from an ABET accredited program are not required to submit GRE scores), transcripts of previous college work, relevant research and work experience, letters of recommendation, research interests, and English language skills. Students must specify a track on their admission form to facilitate this evaluation.

5. A student holding a non-engineering degree or who does not meet the minimum requirements in items 1-2 above may apply to one of the Master of Science degree programs in the School of Engineering and Mines. Students successfully completing a UND M.S. engineering degree will be considered to satisfy the requirements of items 1-2 above; however, these students shall still be subject to the holistic evaluation process described in item 3 with the exception that new
GRE test scores will not be required. Students admitted to an engineering M.S. program but meeting the minimum requirements in items 1-2 above, may after one calendar year, and upon the recommendation of his/her advisory committee, request to by-pass the master’s degree and work directly toward the Ph.D. degree. The recommendation of the advisory committee shall be brought to a vote by the program graduate committee relevant to the degree track requested by the student. A minimum of one week before such a meeting, the program graduate committee shall be notified and provided with the student’s updated file which shall consist of the materials used for application into the M.S. program, a transcript of all academic work completed at UND, and any additional materials the student wishes to have considered. If the recommendation is approved by the relevant graduate committee, the student will be given the qualifying exam for the specific track the student wishes to enter. Passing this exam will advance the student to Approved Status in the Doctoral Program in Engineering.

Degree Requirements

Students seeking the Doctor of Philosophy degree at the University of North Dakota must satisfy all general requirements set forth by the Graduate School as well as particular requirements set forth by the Engineering Doctoral Program. Please refer to the current academic catalog for a complete list of degree requirements.

Who are the faculty and what are their areas of interest?

The faculty for the School of Engineering and Mines is broad and has an inter-disciplinary focus. Please see the website at http://www.engineering.und.edu/index.html for faculty and areas of interest.

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