

Master of Science in Energy Engineering

Admission Requirements

The applicant must meet the School of Graduate Studies' current minimum general admission requirements as published in the graduate catalog.

1. B.S. degree in an engineering or related field. Students holding a B.S. degree in a science field may be admitted to Qualified Status with an obligation to acquire background undergraduate engineering knowledge. The exact requirements will be determined on a case-by-case basis.
2. An overall undergraduate GPA of at least 2.75, or 3.00 for the last two years. (An overall GPA of at least 3.3 for the combined BS ChE / MS ESE or combined BS ME / MS ESE degree is required.)
3. Graduate Record Examination General Test for those with undergraduate degrees from non-ABET accredited programs.
4. Satisfy the School of Graduate Studies' English Language Proficiency requirements as published in the graduate catalog.

Accelerated Bachelor and Master's (ABM)

The ABM degree program allows exceptional undergraduate students at UND an opportunity to complete the requirements for both the bachelor's and master's degrees at an accelerated pace. All requirements for both degrees must be met, and these students may double count up to 12 graduate-level credits towards the requirements for both their Bachelor and the Master of Science in Energy Systems Engineering degree requirements. ABM students must obtain their Master of Science degree in Energy Systems Engineering within 12 months of completing the Bachelor degree, provided that the degree requirements can be completed in that timeframe.

Admission is a competitive process. The following are minimum eligibility requirements:

1. Students must have completed a minimum of 60 credits toward the bachelor's degree.
2. Must meet the admission requirements listed above.
3. A cumulative Grade Point Average (GPA) of at least 3.20 for all undergraduate work.
4. Must submit a combined/accelerated program of study with your application.

Combined Bachelor and Master's

The intent of the combined BS/MS Energy Systems Engineering program is to allow qualified students to complete the requirements for both degrees on a faster timeline. All requirements for both degrees must be met, and up to six credits of prior-approved graduate environmental engineering coursework, preferably at the 500-level, may be double-counted toward each of the two degrees.

UND students currently completing their junior year (90 credits) towards an undergraduate engineering degree may apply to the MS Energy Systems Engineering under combined admission. The following are minimum eligibility requirements:

1. Students must have completed a minimum of 90 credits toward the bachelor's degree.
2. Must meet the admission requirements listed above.
3. Must have a both an overall grade point average of 2.75 (based on a 4.00 scale) and 3.00 GPA average for all courses with an engineering prefix completed at the date of application and admission.
4. Must submit a combined/accelerated program of study with your application.

Degree Requirements

Thesis Option

1. A minimum of 30 semester credits, including the credits granted for the thesis and the research leading to the thesis.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of nine semester credits may be transferred from another institution.
4. A minimum of 21 credits of coursework, 12 credits must be from the required core courses, the remaining should be selected in collaboration with the student's advisor and approved by the program's graduate director.
5. A thesis documenting research on a topic related to energy engineering.
6. A formal defense of the student's research.
7. At least one peer-reviewed conference, journal, or patent application submitted with the consent of the student's advisor

Non-Thesis Option

1. A minimum of 30 semester credits, including credits granted for the independent study project.
2. At least one-half of the credits must be at or above the 500-level.
3. A maximum of nine semester credits may be transferred from another institution.
4. A minimum of 24 credits of coursework, 12 credits must be from the required core courses, the remaining should be selected in collaboration with the student's advisor and approved by the program's graduate director.
5. Preparation of a written independent study report approved by the faculty advisor
6. A formal defense of the student's independent study.

Required Core Courses:

Code	Title	Credits
ENE 501	Managing Energy Resources and Policy	3
ENE 510	Energy Systems Engineering I	3
ENE 511	Energy Systems Engineering II	3
ENE 530 or ENGR 554	Applied Engineering Business Analysis Applied Project Management	3
Total Credits		12

Elective Course Options:

Code	Title	Credits
ENE 512	Energy Systems Optimization	3
ENE 522	Energy Storage Systems I	3
ENE 523	Energy Storage Systems II	3
ENE 533	Project Dynamics Strategy Modeling	3
ENGR 556	System Dynamics I	3
ENGR 558	System Dynamics II	3

Additional options should be selected in coordination with student's advisor and graduate program director

Professional Science Master's Option

Professional Science Master's degrees are innovative graduate degrees that combine advanced training in a STEM field while also developing professional skills valued by employers.

1. A minimum of 30 semester credits selected from the follow lists of courses provided below.
2. A maximum of nine semester credits may be transferred from another institution.

3. Preparation of a written independent study report approved by the faculty advisor.
4. A formal oral defense of the student's independent study.

Courses in ENE (12 credits from the following list):

Code	Title	Credits
ENE 501	Managing Energy Resources and Policy	3
ENE 510	Energy Systems Engineering I	3
ENE 511	Energy Systems Engineering II	3
ENE 512	Energy Systems Optimization	3
ENE 522	Energy Storage Systems I	3
ENE 523	Energy Storage Systems II	3

Electives (3 credits from the following list):

Code	Title	Credits
ENGR 556	System Dynamics I	3
ENGR 558	System Dynamics II	3
GEOE 419	Groundwater Monitoring and Remediation	3
GEOE 560	Geothermics I	3
GEOE 561	Geothermics II	3
EE 522	Renewable Energy Systems	3
EE 526	Engineering Systems Reliability	3

Other courses with ENE prefix or other workplace relevant courses as chosen in consultation with advisor.

Professional Science Master (PSM) core credits (12 credits, at least 6 credits from each category):

Code	Title	Credits
Quantitative/Analytic Skills Courses:		
EFR 513	Large Dataset Management and Analysis	3
EFR 515	Statistics I	3
EFR 516	Statistics II	3
EFR 518	Multivariate Analysis	3
EFR 535	Data Analytics and Visualization with R	3
ENE 530	Applied Engineering Business Analysis	3
PSYC 540	Foundations of Behavioral Data Analytics	3
Professional Skills Courses:		
COMM 516	Principles of Professional Communication	3
COMM 524	International/Intercultural Communication for Professionals	3
COMM 527	Persuasion & Persuasive Communication	3
COMM 529	Science Communication	3
ENGL 408	Advanced Public and Professional Writing	3
ENGL 540	Science Writing	3
ENGR 554	Applied Project Management	3
ESSP 562	Environmental Economics, Policy and Management	3
ESSP 570	Communicating Environmental Information	3
ENE 533	Project Dynamics & Strategy Modeling	3
POLS 532	Public Policy	3
POLS 533	Administrative Ethics in the Public Sector	3

Experimental Component (3 credits)

Code	Title	Credits
ENGR 562	Seminar in Engineering	1
ENE 997	Independent Study Report	2