Engineering

M.Engr. in Systems Engineering (https://catalog.und.edu/graduateacademicinformation/departmentalcoursesprograms/engineering/mese/)

M.S. in Systems Engineering (https://catalog.und.edu/graduateacademicinformation/departmentalcoursesprograms/engineering/msse/)

ENGR 502. Alternative Energy Systems. 3 Credits.
Provides an interdisciplinary background in alternative energy systems. Any form of energy production different from traditional fossil fuel combustion falls in this category. Such alternate systems include energy production from biomass, gasification of wood and coal, geothermal energy, solar energy (wind energy, fuel cells, and photovoltaics), etc. Prerequisite: Consent of instructor.

ENGR 550. Fundamentals of Systems Engineering. 3 Credits.
This course is designed to discuss the key skills of systems engineering and provide knowledge essential for successful systems engineering in today's fast-paced environment. The objective is to enhance student's understanding and appreciation for the field of systems engineering. This will be accomplished using a combination of real-life examples, theoretical explanations and demonstrations. The program focuses on practical methods and tools for eliciting user needs and requirements, defining robust system architectures and designs, and effectively verifying and validating the operation of the product. Participants learn current industry best-practices to ensure robust, cost-effective designs that meet stringent functional, performance, and cost requirements. Prerequisite: Admission to the Systems Engineering graduate program or Instructor consent. F.

ENGR 554. Applied Project Management. 3 Credits.
This course is an interdisciplinary project management course utilizing case studies to illustrate project management principles and allow students to practice using real-world examples. Students will have the background and training required for certification through the Project Management Institute. Prerequisite: Consent of Instructor. S.

ENGR 556. System Dynamics I. 3 Credits.
This course provides an introduction to the System Dynamics field of study which is a computer-aided approach to improving system performance through policy analysis and design. The knowledge and critical thinking skills gained from this course will enable students to work either independently or on interdisciplinary teams to effectively deal with problems arising from dynamically complex systems. Topics include: perspective and process; tools for systems thinking; the dynamics of growth; tools for modeling dynamic systems; instability and oscillation; model testing; and challenges for the future. F.

ENGR 558. System Dynamics II. 3 Credits.
This course builds on ENGR 556 System Dynamics I. This course will enable students to effectively plan and manage System Dynamics projects by providing knowledge and skill relating to advanced modeling techniques, software capabilities, and client engagement processes. Topics include: model building, documentation and presentation best practices; use of historical data; model calibration and testing techniques; advanced software features; group model building; and implementation challenges. Prerequisite: ENGR 556. S.

ENGR 562. Seminar in Engineering. 1 Credit.
Conference and reports on current developments in Engineering. Prerequisite: Admission to the Engineering Ph.D program. Repeatable to 3.00 credits. S/U grading.

ENGR 590. Special Topics in Engineering. 1-6 Credits.
Investigations of special topics in energy engineering dictated by students and faculty interests. Repeatable. Prerequisite: Consent of instructor. Repeatable.

ENGR 599. Doctoral Research. 1-15 Credits.
Repeatable to 60 credits. Repeatable.

ENGR 994. Capstone Project. 3 Credits.
This course is intended for students enrolled in a graduate program, who need to complete a semester long project. The class will emphasize applied learning to demonstrate real world problem solving skills. Prerequisite: Consent of Instructor. F,S,SS.

ENGR 996. Continuing Enrollment. 1-12 Credits.
Repeatable. S/U grading.

ENGR 998. Thesis. 1-9 Credits.
Repeatable to 9 credits. Repeatable to 9.00 credits.

ENGR 999. Dissertation. 1-18 Credits.
Repeatable to 18 credits. Repeatable to 18.00 credits.

Undergraduate Courses for Graduate Credit

ENGR 410. Technology Ventures. 1-3 Credits.
The primary focus will be on developing techniques to formulate the strategic framework required to develop high-tech ventures. Successful techniques to take technology-intensive opportunities from concept to commercialization will be explored. Prerequisite: Permission of instructor. Repeatable to 6.00 credits. S.