Duluth Campus

Energy Engineering Minor

Electrical Engineering

Swenson College of Science and Engineering

- Program Type: Undergraduate free-standing minor
- Requirements for this program are current for Fall 2017
- Required credits in this minor: 45 to 46
- none

The energy engineering minor provides students with basic knowledge and skills needed to understand, address, and make effective decisions about the generation, production, utilization, and application of energy. It provides high quality education in energy-related topics that will prepare students for employment opportunities in the private and public sectors, graduate studies, and research.

This interdisciplinary minor, administered by the Department of Electrical and Computer Engineering, is designed for students with majors in engineering. However, students with majors in other disciplines may also apply, should they meet the course prerequisites. The coursework provides broad-based science and engineering knowledge suited to energy generation, production, utilization, and application. The minor enhances degrees in engineering.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Pre-Minor Core (29 cr)

Chemistry with lab

CHEM 1153 - General Chemistry I [LE CAT, NAT SCI] (4.0 cr)
CHEM 1154 - General Chemistry Lab I [LE CAT, NAT SCI] (1.0 cr)

Mathematics

MATH 1296 - Calculus I [LE CAT, LOGIC & QR] (5.0 cr)
MATH 1297 - Calculus II [LOGIC & QR] (5.0 cr)
MATH 3280 - Differential Equations with Linear Algebra (4.0 cr)

Physics I with lab

PHYS 2013 - General Physics I [LE CAT, NAT SCI] (4.0 cr)
or PHYS 2017 - Honors: General Physics I [NAT SCI] (4.0 cr)
PHYS 2014 - General Physics Lab I [NAT SCI] (1.0 cr)

Physics II with lab

PHYS 2015 - General Physics II (4.0 cr)
or PHYS 2018 - Honors General Physics II (4.0 cr)
PHYS 2016 - General Physics Lab II (1.0 cr)

Core Courses (10 - 11 cr)

EE 2006 - Electrical Circuit Analysis (4.0 cr)
CHE 2111 - Material and Energy Balances (3.0 cr)
or CHE 2211 - Materials and Energy Balances (4.0 cr)
CHE 2121 - Chemical Engineering Thermodynamics (3.0 cr)
or ME 2211 - Thermodynamics [SUSTAIN] (3.0 cr)

Electives (6 cr)

Take 6 or more credit(s) from the following:

- CE 5515 - Sustainable Design and Construction (SUSTAIN) (3.0 cr)
- CHE 4603 - Biorenewable Resources [SUSTAIN] (3.0 cr)
- CHE 5612 - Hazardous Waste Process Engineering (3.0 cr)
- EE 4501 - Power Systems (4.0 cr)
- ME 4050 - Fundamentals of Nuclear Engineering (3.0 cr)
- ME 4375 - Pipeline Engineering (3.0 cr)
- EE 5501 - Energy Conversion System (3.0 cr)
  or ME 5325 - Sustainable Energy System (3.0 cr)

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