

Energy Systems, MSENES—Academic Link Program

Website (<http://www.coe.neu.edu/degrees/ms-es>)

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Designing and implementing optimal methods to produce and utilize energy is one of the most pressing global issues today. Finding ways to implement these solutions that are sustainable and marketable is key. The energy systems Academic Link (AL) program is meant to provide students of all—STEM disciplines (such as English, Sociology, Business, etc.) with the foundation skills necessary to gain the skills needed to create and implement energy solutions. Students will begin the program by taking two core courses that cover topics across thermosciences and math along with the general energy systems curriculum.

The Academic Link core courses will provide students with an introduction to the fundamentals that are necessary to be successful in the energy system program. Once students complete the Academic Link courses they will move through our multidisciplinary energy systems curriculum that integrates engineering, business, and policy. Our curriculum is flexibly designed with a set of core courses in engineering and finance complemented by a range of electives across five different academic colleges. Our core and elective courses will help to prepare students to lead the efforts to implement energy systems solutions that have a long-term positive effect on businesses and communities.

Graduate Certificate Options

Students enrolled in a master's degree have the opportunity to also pursue one of the many engineering graduate certificate options in addition to or in combination with the MS degree. Students should consult their faculty advisor regarding these options (<http://catalog.northeastern.edu/graduate/engineering/graduate-certificate-programs>).

Program Requirements

General Requirements

A minimum of 40 semester hours must be earned toward completion of the MSES-AL degree. A minimum grade-point average of 3.000 is required over all courses applied toward the degree.

Complete all courses and requirements listed below unless otherwise indicated.

Core Requirements

Code	Title	Hours
ENSY 5050	Fundamentals of Thermal Science 1	4
ENSY 5060	Fundamentals of Thermal Science 2	4
EMGT 6225	Economic Decision Making	4
ENSY 5000	Fundamentals of Energy System Integration	4
ME 6200	Mathematical Methods for Mechanical Engineers 1	4
FINA 6309	Foundations of Accounting and Finance	4

Options

Complete one of the following options:

GENERAL OPTION

Code	Title	Hours
Complete 16 semester hours from the course list below. (p.)		16

ONLINE/HYBRID OPTION

Code	Title	Hours
Complete 16 semester hours from the course list below. (p.)		16

Courses offered online can be found on the online/hybrid course list. (p.)

Course List

Code	Title	Hours
CHEM 5651	Materials Chemistry of Renewable Energy	
CHME 5630	Biochemical Engineering	
EECE 5680	Electric Drives	
EECE 5682	Power Systems Analysis 1	
EECE 5684	Power Electronics	
EECE 5686	Electrical Machines	
EECE 7398	Special Topics	
EMGT 5220	Engineering Project Management	
ENGR 5670	Sustainable Energy: Materials, Conversion, Storage, and Usage	
ENSY 5100	Hydropower	
ENSY 5200	Energy Storage Systems	
ENSY 5300	Electrochemical Energy Storage	
ENSY 5400	Power Plant Design and Analysis	
ENSY 5585	Wind Energy Systems	
ENSY 7374	Special Topics in Energy Systems	
ENSY 7440	Energy Systems Engineering Leadership Challenge Project 1	
ENSY 7442	Energy Systems Engineering Leadership Challenge Project 2	
ENSY 7945	Master's Project	
ENSY 7978	Independent Study	
IE 6200	Engineering Probability and Statistics	
ME 5645	Environmental Issues in Manufacturing and Product Use	
ME 5685	Solar Thermal Engineering	
ME 5690	Gas Turbine Combustion	
ME 7270	General Thermodynamics	
ME 7300	Combustion and Air Pollution	
ME 7305	Fundamentals of Combustion	
OR 6205	Deterministic Operations Research	
SBSY 5200	Sustainable Engineering Systems for Buildings	

Nontechnical Electives

A maximum of 5 semester hours may be taken from the following list toward the elective requirement:

ARCH 5210 Environmental Systems
and ARCH 5211 and Recitation for ARCH 5210

FINA 6203 Investment Analysis

FINA 6205 Financial Strategy

FINA 6215 Business Turnarounds

Online/Hybrid Course List

Code	Title	Hours
EECE 5682	Power Systems Analysis 1	
EMGT 5220	Engineering Project Management	
IE 6200	Engineering Probability and Statistics	
ME 5645	Environmental Issues in Manufacturing and Product Use	
ME 5685	Solar Thermal Engineering	
ME 7270	General Thermodynamics	
OR 6205	Deterministic Operations Research	

Program Credit/GPA Requirements

40 total semester hours required

Minimum 3.000 GPA required