

Energy Systems, MSEneS—Academic Link Program

For program contact information, please visit this website (<https://mie.northeastern.edu/academics/graduate-studies/ms-enes/>).

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 non-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 thermal sciences 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. Academic Link courses are integrated with our multidisciplinary energy system 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 are designed to 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 minimum completion of the MSEneS-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
Complete 20 semester hours from the following:		20
ENSY 5050	Fundamentals of Thermal Science 1	
ENSY 5060	Fundamentals of Thermal Science 2	
EMGT 6225	Economic Decision Making	
ENSY 5000	Fundamentals of Energy System Integration	
ME 6200	Mathematical Methods for Mechanical Engineers 1	
Complete 4 semester hours from the following:		4
EMGT 6305	Financial Management for Engineers	
FINA 6309	Foundations of Accounting and Finance	

Restricted Electives List

Code	Title	Hours
Complete a minimum of 8 semester hours from the following:		8
ENSY 5100	Hydropower	
ENSY 5200	Energy Storage Systems	
ENSY 5300	Electrochemical Energy Storage	
ENSY 5400	Power Plant Design and Analysis	
ENSY 5500	Smart Grid	
ENSY 5585	Wind Energy Systems	
MATL 6270	Principles, Devices, and Materials for Energy Storage and Energy Harvesting	
ME 5685	Solar Thermal Engineering	

Other Electives List

Code	Title	Hours
An additional 8 semester hours can either be taken from the list above or from the list below or by approval of the program director:		8
CHEM 5651	Materials Chemistry of Renewable Energy	

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EECE 5680	Electric Drives
EECE 5682	Power Systems Analysis 1
EECE 5684	Power Electronics
EMGT 5220	Engineering Project Management
ENGR 5670	Sustainable Energy: Materials, Conversion, Storage, and Usage
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
ME 5690	Gas Turbine Combustion
ME 7270	General Thermodynamics
ME 7300	Combustion and Air Pollution
ME 7305	Fundamentals of Combustion
PPUA 5264	Energy Democracy and Climate Resilience: Technology, Policy, and Social Change
SBSY 5200	Sustainable Engineering Systems for Buildings

or any other ENSY course

Online Course List

All required courses and many electives are offered as online courses.

Program Credit/GPA Requirements

40 total semester hours required

Minimum 3.000 GPA required