

REQUIREMENTS

4 core classes and 2 electives

CORE CURRICULUM

Students choose one class from a pre-approved list in each of the following four areas:

Economics

How economic principles underlie every aspect of energy

Energy Science Foundations

Fundamental laws and principles that govern energy sources, conversion, and uses

Energy Technology/Engineering in Context

The application of laws and principles to a specific energy context

Social Science Foundations of Energy

Social scientific perspectives that help explain human behavior in an energy context

ENERGY ELECTIVES

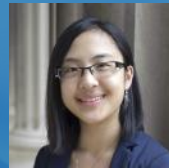
Twenty-four elective units

Students take 24 energy elective units (generally two classes) that allow them to focus on their individual areas of interest.

ENERGY COMMONS

Students who declare a minor in energy studies gain access to the centrally located Energy Commons (10-063). In this undergrad-only community space, students can meet with friends and collaborators, plan and enjoy special events, or relax over free coffee and snacks. For more information, contact the MITEI Education Office in E19-307 or at askmitei-ed@mit.edu.

“ Going into college, I was really interested in the energy field in general, especially in renewables, and I wanted to get some perspective on oil and gas as well. The breadth of the Energy Studies Minor really helped solidify that interest, and it’s still directing me to new places where I can continue to focus on energy.



Jacqueline Han
Political Science SB '14

ENERGY STUDIES MINOR at MIT

2019-2020

PREPARE TO TRANSFORM THE WORLD'S ENERGY SYSTEMS

MIT's undergraduate **Energy Studies Minor** sets students on the path to tackle the world's complex climate and energy challenges. Through the minor, students build strong foundational knowledge of diverse energy topics—including renewable energy, climate change, architecture and urban planning, and energy policy—while also benefiting from hands-on learning opportunities to work with world-renowned researchers, policy analysts, and thought leaders. Students make ground-breaking discoveries and prepare for exciting careers in industry, government, and academia.

Developed and administered by the MIT Energy Initiative, the Energy Studies Minor complements the deep expertise obtained in any MIT major with broad, interdisciplinary training in science, technology, and the social sciences, including policy issues surrounding energy and climate change.

“ The Energy Studies Minor has provided me with a really comprehensive and well-rounded curriculum through which I can explore the field of energy. Above all, it has introduced me to people—peers, professors, and professionals—who also share my passion for energy and has opened a lot of doors to different career paths and academic interests that I would not otherwise have encountered or explored.



Allison Shepard
Chemical Engineering SB '19

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CORE CURRICULUM

ENERGY ELECTIVES

Choose one from each of the four categories:

Economics

Fall

14.01 Principles of Microeconomics, HASS-S

15.011 Economic Analysis for Business Decisions (9 units)

Spring

14.01 Principles of Microeconomics, HASS-S

Energy Science Foundations

Fall

12.021 Earth Science, Energy, and the Environment

Spring

8.21 Physics of Energy, REST

Energy Technology/Engineering in Context

Fall

11.165 Urban Energy Systems and Policy, HASS-S²

22.081J/2.650J/10.291J Introduction to Sustainable Energy

EC.712 Applications of Energy in Global Development

Spring

2.60J/10.390J Fundamentals of Advanced Energy Conversion

EC.711J/2.651J D-Lab: Energy I

Social Science Foundations of Energy

Fall

15.0201J/14.43 Economics of Energy, Innovation, and Sustainability, HASS-S

Spring

11.142 Geography of the Global Economy, HASS-S²

15.037J/14.44J Energy Economics and Policy, HASS-S

15.2191J/17.399J Global Energy: Politics, Markets, and Policy, HASS-S

Choose 24 units from the following:

1.018J/7.30J/12.031J Fundamentals of Ecology, REST

1.020 Engineering Sustainability: Analysis and Design

1.079 Rock-on-a-Chip: Microfluidic Technology for Visualization of Flow in Porous Media²

1.801J/11.021J/17.393J/IDS.060 Environmental Law, Policy, and Economics: Pollution and Prevention Control, HASS-S

2.005 Thermal-Fluids Engineering I

2.006 Thermal-Fluids Engineering II

2.570 Nano-to-Macro Transport Processes

2.603 Fundamentals of Smart and Resilient Grids³

2.612 Marine Power and Propulsion

2.627 Fundamentals of Photovoltaics¹

2.813 Energy, Materials, and Manufacturing²

3.003 Principles of Engineering Practice (9 units)

3.004 Principles of Engineering Practice

3.012 Fundamentals of Materials Science and Engineering (15 units), REST

3.022 Microstructural Evolution in Materials

3.18 Materials Science and Engineering of Clean Energy

3.154J/22.054J Materials Performance in Extreme Environments²

4.401 Environmental Technologies in Buildings

4.432 Modeling Urban Energy Flows for Sustainable Cities and Neighborhoods

5.352 Synthesis of Coordination Components and Kinetics (6 units, partial term)

5.372 Chemistry of Renewable Energy (6 units, partial term)

5.60 Thermodynamics and Kinetics, REST

6.061 Introduction to Electric Power Systems¹

6.131 Power Electronics Laboratory

6.152J/3.155J Micro/Nano Processing Technology

6.701 Introduction to Nanoelectronics²

6.S08 Principles of Modeling, Simulations, and Control for Electric Energy Systems⁵

10.04 A Philosophical History of Energy

10.05 Foundational Analyses of Problems in Energy and the Environment

10.213 Chemical and Biological Engineering Thermodynamics

10.27 Energy Engineering Projects Laboratory (15 units)

10.28 Chemical-Biological Engineering Laboratory (15 units)

10.302 Transport Processes

10.426 Electrochemical Energy Systems

11.162 Politics of Energy and the Environment, HASS-S³

12.346J/IDS.062J Global Environmental Negotiations (6 units)³

14.42 Environmental Policy and Economics, HASS-S¹

15.026J/12.348J Global Climate Change: Economics, Science, and Policy (9 units)³

16.001 Unified Engineering: Materials Structures, REST

16.002 Unified Engineering: Signals and Systems

16.003 Unified Engineering: Fluid Dynamics

16.004 Unified Engineering: Thermodynamics

17.051 Ethics of Energy Policy, HASS-S³

22.033 Nuclear Systems Design Project (15 units)

22.04J/STS.084J Social Problems of Nuclear Energy, HASS-S

22.06 Engineering of Nuclear Systems

STS.032 Energy, Environment, and Society, HASS-H¹

Energy UROP (units vary)⁴

IAP offering:

12.213 Alternate Energy Sources³

¹ Not offered AY 19-20.

² Not offered AY 20-21.

³ Not offered regularly.

⁴ Energy UROP students who do their research in the fall/IAP/spring for credit can count this credit as an elective for the minor.

⁵ This class is a "special" subject and might not be offered again in the future.

HASS-H: Humanities, Arts, and Social Sciences - Humanities
 HASS-S: Humanities, Arts, and Social Sciences - Social Sciences
 REST: Restricted Electives in Science and Technology