ENERGY ENGINEERING - MINOR

The energy engineering minor provides energy-minded students with a foundational understanding of energy technologies and the energy industry, including technological, policy and economic considerations related to conventional and renewable energy systems.

Required courses include a fundamentals-based energy course, an energy policy/society focused course and 12 credits of energy-focused technical elective courses. Elective courses, selected from across the CU campus, allow students to specialize according to their specific interest in the energy field.

The energy engineering minor has strong connections with industry through an industry advisory panel and guest speakers.

For more information, visit the college’s Energy Engineering Minor (http://www.colorado.edu/engineering/energy-engineering-minor/) webpage.

Requirements

Students must complete 18 credit hours for the minor: one fundamentals-based course, one policy/society course and four electives chosen from a list of approved courses. A cumulative GPA of 2.000 or better is required for courses used to satisfy the requirements of this minor. For an up-to-date listing of elective courses, visit the Energy Engineering Minor Technical Electives (https://www.colorado.edu/engineering/academics/guide-degrees-certificates/minors/energy-engineering-minor/energy-engineering-minor-0/) webpage.

Code  Title  Credit Hours

Required Courses

Fundamentals Course

Choose one course (3 credits) from the following:  
AREN 3010  Energy Efficient Buildings  
CHEN 2120  Chemical Engineering Material and Energy Balances  
ECEN 3170  Electromagnetic Energy Conversion 1  
MCEN 3032  Thermodynamics 2

Policy Course

Choose one course (3 credits) from the following:  
MCEN 4032/5032  Sustainable Energy (or EVEN 3650 Sustainable Energy)  
ENVS 3621  Energy Policy and Society  
ENVS 3070  Energy and the Environment

Electives

Choose four courses (12 credits) from the following:  
AREN 3030  Circuits for Architectural Engineers  
AREN 4010  Energy System Modeling and Control  
AREN 4890/5890  Sustainable Building Design  
ASEN 3402  Aerospace Heat Transfer  
ASEN 3503  Aerospace Electronics  
BIEN 4803  Metabolic Engineering  
CHEN 3210  Chemical Engineering Heat and Mass Transfer  
CHEN 3660  Energy Fundamentals  
CHEN 4480/5480  Solar Cells and Optical Devices for Sustainable Buildings  
CHEN 4490/5490  Electrochemical Engineering  
CHEN 4520  Chemical Process Design  
CHEN 5360  Catalysis and Kinetics  
CVEN 3246  Introduction to Construction  
CVEN 3698  Engineering Geology  
ECEN 2250  Introduction to Circuits and Electronics  
ECEN 2410  Renewable Sources and Efficient Electrical Energy Systems  
ECEN 4517  Power Electronics and Photovoltaic Power Systems Laboratory  
ECEN 4555  Principles of Energy Systems and Devices  
ECEN 4797  Introduction to Power Electronics  
ECEN 5407  Renewable Energy and the Future Power Grid  
EMEN 4100  Engineering Economics  
ENEN 4321  Oil and Gas Processing  
ENEN 4600  Interdisciplinary Energy Engineering Projects  
ENEN 4840  Special Topics  
GEEN 3010  Circuits for Engineers  
GEOL 3010  Introduction to Mineralogy  
GEOL 3020  Petrology  
GEOL 3320  Introduction to Geochemistry  
GEOL 3540  Introduction to Petroleum Geology  
MCEN 3017  Circuits and Electronics for Mechanical Engineers  
MCEN 3022  Heat Transfer  
MCEN 4012/5012  Renewable Fuels, Fuel Cells and Internal Combustion Engines  
MCEN 4135/5135  Wind Energy and Wind Turbine Design  
MCEN 4152/5152  Introduction to Combustion  
MCEN 4194/5194  Electrochemical Energy Conversion and Storage

Total Credit Hours  18

1 There may be special topics or other elective courses offered that are suitable for the requirements of this minor. Contact the energy engineering minor faculty director (https://www.colorado.edu/engineering/academics/guide-degrees-certificates/minors/energy-engineering-minor/) for information about whether a specific course can serve as a technical elective for the minor.

2 Courses on the required list may be taken as technical electives.