

Energy Systems Engineering Program

Sample Course Template

System Integration (required: 3 credits)

ESENG 501. Seminars on Energy Systems, Technology and Policy (Fall)

Engineering Core (9 credits)

REQUIRED COURSE : ME571/ESENG505. Energy Generation and Storage the using Modern Materials (Winter)

ME 433/AUTO533. Advanced Energy Systems (Fall)

ME 537. Advanced Combustion (Winter)

ME 589. Ecological Sustainability in Design and Manufacturing (Fall)

Energy Systems (6 credits)

CEE 460. Design of Environmental Engineering Systems (Fall)

ECON 435. Financial Economics (Winter, Fall)

EHS 672. Life Cycle Assessment (Fall)

IOE 452. Corporate Finance (Fall)

IOE 453. Derivative instruments (Winter)

IOE 434. Human Error and Complex System Failures (Winter)

IOE 539. (MFG 539) Occupational Safety Engineering (Fall)

ME 563. (IOE 565) (MFG 561) Time Series Modeling, Analysis, Forecasting (Fall)

NRE 574. Sustainable Energy Systems (same as **PPOL 519**) (Fall)

Energy Specialties (9 credits: two from same area; one may come from another area)

1) CIVIL POWER:

ME 533. Radiative Heat Transfer (Fall)

AERO 533. Combustion Processes (Fall)

NERS 442. Nuclear Power Reactor (Winter)

CEE 567. Energy Infrastructure Systems (Fall)

2) TRANSPORTATION POWER:

AERO 464. The Space Environment (Fall)

AERO 536. Electric Propulsion (Fall)

AUTO 563. Dynamics and Controls of Automatic Transmissions (Winter, alternate years)

AUTO 599. Analysis and Control of Alternative Powertrains (Winter, alternate years)

ME 438. Internal Combustion Engines (Fall)

ME 533. Radiative Heat Transfer (Fall)

ME 538. Advanced Internal Combustion Engines (Winter)

3) MICROELECTRONIC AND PORTABLE POWER:

EECS 414. Introduction to MEMS (Fall)

EECS 514. Advanced MEMS Devices and Technologies (Winter)

EECS 515. Integrated Microsystems (Fall)

EECS 529. Semiconductor Lasers and LEDs (Fall)

ME 553. Microelectromechanical Systems (Winter, Alternate Years)

ME 559. Smart Materials and Structures (Winter)

4) INFRASTRUCTURE:

CEE567. Energy Infrastructure Systems (Fall)

NRE 513. Competitive Strategy for Sustainable Development (Fall)

ENSCEN 531. Nuclear Waste Management (Winter)

PROJECT (required: 3 credits)

ESENG 503. Projects in Energy Systems Engineering

For additional courses please review this website

Sample Plan of Study

MASTER OF ENGINEERING
ENGINEERING SYSTEMS ENGINEERING
PLAN OF STUDY FORM
(Transportation Power)

DATE: _____

Student Name: _____

Student ID Number: _____

Course Number	Course Name	Credit Hours	Term/Year
A. Engineering Core - (9 credits)			
ME 571/ESENG 505	Energy Generation and Storage Using Modern Materials	3	W
ME 433/AUTO 533	Advanced Energy Systems	3	F
ME 589	Ecological Sustainability in Design & Mfg	3	F
B. Energy Systems (6 credits)			
NRE 574	Sustainable Energy Systems	3	F
CEE 567	Energy Infrastructure Systems	3	F
C. Energy Specialization (9 credits) (Transportation Power):			
ME 438	Internal Combustion Engines	4	F
ME 538	Advanced Internal Combustion Engines	3	W
AUTO 599	Analysis and Control of Alternative Powertrains	3	W alternative Year
D. Seminar and Capstone Project (6 credits)			
ESENG 501	Seminars on Energy Systems, Technology and Policy	3	Fall 2008
ESENG 503	Project	3	TBD

**ENGINEERING SYSTEMS ENGINEERING
PLAN OF STUDY FORM
(Specify Specialization)**

DATE: _____

Student Name: _____ **Student ID Number:** _____

Course Number	Course Name	Credit Hours	Term/Year
A. Engineering Core - (9 credits)			
ME 571/ESENG 505	Energy Generation and Storage Using Modern Materials	3	W
B. Energy Systems (6 credits)			
C. Energy Specialization (9 credits):			
D. Seminar and Capstone Project (6 credits)			
ESENG 501	Seminars on Energy Systems, Technology and Policy	3	Fall
ESENG 503	Project	3	Spring/Summer