

Masters in Energy Science, Technology and Policy: *pathways*

Fall 2017 Schedule -- v1.0 NS 5/24/2017

Underlined Courses are available based on the preliminary published schedule information for Fall 2017. **BOLD Courses** are required for the CHE, MSE, & MEG disciplinary concentrations.

ENERGY CORE (24 units)

39-610 Energy Conversion & Supply (6)
39-613 Energy Transport & Storage (6)
39-611 Energy Demand & Utilization (6)
39-612 Energy Policy & Economics (6)

Wean Hall 5415 (TR 9:30-11:20)
39-610 A1-mini (Prof. Picard)
39-613 A2-mini (Prof. Landis)



**Energy Science
Technology & Policy**
Carnegie Mellon University
College of Engineering

CONCENTRATION (36 units: **bold/required**, underlined/Fall'17)

Chemical Engineering

06-665 Process Systems Modeling (12)
06-623 Math. Mod. Chem. E. Process (12) MW3:30-5:20
06-625 Chemical & Reactive Systems (12) MW8:30-10:20
06-663 Analysis & Modeling Transport Phenom. (12)
06-713 Math Techniques in Chem. Engr. (12) MW11:30-9:20
06-705 Adv. Chem. Eng. Thermo (12) MW9:30-11:20
06-702 Advanced Reaction Kinetics (12)
06-703 Advanced Fluid Dynamics (12) MW3:30-5:20
06-704 Heat and Mass Transfer (12)
06-720 Advanced Process Systems Engineering (12)

Civil & Environmental Engineering

12-704 Prob & Est Methods for Engr Sys (12) MW4:30-6:20
12-706 Civil Systems Invest. Plan & Pricing (12) TR4:30-6:20
12-712 Intro to Sustainable Engr. (12) MWF 1:30-2:20
12-740 Data Acquisition (6A1) TR12-1:20
12-741 Data Management (6-A2) TR3-4:20
12-742 Data Mining in Infrastructure (6)
12-743 Comp. Search & Decision in Civil Infrastructure (6)
12-766 S.T. Climate Change Science & Adaptation (12) MW 9-10:20
12-744/745 AIS Systems Prep / Project
12-711 Adv. Project Management for Constr (12)
12-714 Environmental Life Cycle Assessment (12)
12-749 S.T. Climate Change Adapt.
12-750 Infrastructure Systems (12)
12-751 Air Quality Engr. (12) MWF 2:30-3:20
12-752 S.T. Data Drv Bldg Energy Man (6A2) TR12-1:20

Electrical & Computer Engineering

18-618 (19-638) Smart Grids & F. El. Eng. Sys (12)
18-630 Intro to Security & Policy (12)
18-649 Distr. Embedded Systems (12)
18-730 Intro Computer Security (12) MW2:30-4:20 F11:30-12:20
18-731 Network Security (12)
18-587 Elec. Energy Conv. Cntrl & Mgmt (12)ug
18-631 Intro to Info Security (12) TR 7:30pm-8:50pm
18-743 Energy Aware Computing (12) TR 1:30-2:50
18-771 Linear Systems (12) MW2:30-4:20
18-777 Complex Large-Scale Dynam Sys (12)
18-879M Optim in Energy Networks (12) TR 4:30-5:50, R 3-4:20
18-879S Networked Control Systems (12)
18-875 Econ & Engr Electric Energy Systems (12)
18-882A S.T. Power Electronics (12)
18-418 Electric Energy Processing (12)ug

Engineering & Public Policy

19-612 Int. Life Cycle Assessment (12)
19-624 S.T. Emerging Energy Policy (12) TR12-1:20
19-625 Sust. Energy for the Dev. World (12)
19-683 S.T. Sci, Tech, & Innov. Policy (6A2)
19-696 S.T. Sus Dev & Innovation (9)
19-717 (12-712) Intro Sustainable Engr (12) MW 1:30-2:20
19-736 (27-726) Energy & Materials in Policy (6)
19-740 (24-740) Cmbstn & Air Pollut Ctrl (12) TR1:30-2:50
19-638 (18-618) Smart Grids & F. Elec. (12)
19-881 S.T. Sem. Elect. Mkt. Restr (6A2) TR3:30-5:20
19-626 Climate Science & Policy (12)
19-653 (24-640) S.T. Climate Change Mit (12)
19-656 S.T. CO2 Capture & Sequestration
19-655 S.T. Climate Change Sci & Adapt. (12) MW9-10:20
19-714 (12-714) Env. Life Cycle Assmt
19-724 (27-724) Materials Energy Storage (6)
19-739 (18-875) Engr & Econ Elec Engr Sys (12)
19-751 (12-751) Air Quality Engr (12) MWF 2:30-3:20
19-424 (24-424) Energy & Environment (9ug) TR12-1:20
19-472 Fund. Electric Pwr Sys (12ug) TR 12-1:20

Materials Science and Engineering

27-798 Thermodynamics I (6A1) MW4:30-6:20
27-718 Soft Materials (12)
27-724 Materials for Energy Storage (6)
27-727 Mechanical Behavior in Extreme Env. (6)
27-729 Solid State Dev. Energy Conv. (6A2)
27-765 Special Topics: Materials & Society (6)
27-794 Chem. Stab. Materials Extr. Env. (6)
27-796 Structure of Materials (6A1) MW8:30-10:20
27-799 Thermodynamics II (6A2) MW4:30-6:20
27-721 Processing Design (6A2)
27-725 Materials in Nuclear Systems (6)
27-728 Materials for Future Energy Sys (6A1)
27-730 Energy Consum. & Min. Metals Prod (6)
27-766 Diffusion in Materials (6A2) TR 3:30-5:20
27-788 Defects in Materials (6A1) TR 3:30-5:20
27-797 Bonding of Materials (6A2) MW8:30-10:20

Mechanical Engineering

24-722 Energy System Modeling (12) TR5:30-7:20
24-616 Tribology-Fric. Lubric. & Wear (12)
24-628 ST Energy Trans+Conv Nano-scale (12)
24-721 Advanced Thermodynamics (12)
24-731/733 Conductive/Radiative Heat Transfer (6)
24-736 Two-Phase Flow & Heat Transfer
X 24-642 Fuel Cell Systems (12) TR 8:30-10:20 conflict
X 24-643 Electrochem. Energy Storage (12) TR 10:30-11:50 conflict
24-640 S.T. Climate Change Mitigation (12)
24-711 Fluid Dynamics (12) MW9:30-11:20
24-718 Computational Fluid Dynamics (12) TR 12-1:20
24-730 Advanced Heat Transfer (12) MW 1:30-3:20
24-732 Convective Heat Transfer (6)
24-740 Combustion & Air Pollution (12) TR 1:30-2:50
24-629 Dir Solar & Therm Energy Conv (12)
24-644 S.T. Adv. Power Plant Design

BREADTH ELECTIVES

EST&P and EST&P-AS Degrees:

**36 units of
relevant grad-
level engineering
courses,**

including up to 18
units of pre-
approved energy
related courses
from outside the
college of
engineering

also for the 3 semester EST&P-AS Degree:

additional **24
units** of faculty-
supervised
master's project,
independent
study, internship,
and/or specific
pre-approved
engineering
project courses

M.S. EST&P

**M.S. EST&P-AS
(Applied Studies)**