

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

Spring 2019 Schedule -- v1.0 NS 10/23/2018
Underlined Courses are available based on the preliminary published schedule information for Spring 2019. **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 5421 & 5403 (TR 9:30-11:20)
39-611 A3-mini (Prof. Samaras)
39-612 A4-mini (Prof. Muller)



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

CONCENTRATION (36 units: **bold/required**, underlined/Spring '19)

Chemical Engineering

06-665 Process Systems Modeling (12) MW 12:30-2:20
06-623 Math. Mod. Chem.E. Process(12)
06-625 Chemical & Reactive Systems (12)
06-663 Analysis & Modeling Trans. Phenom. (12) MW 4:30-6:20
06-713 Math Techniques in Chem. Engr.(12)
06-705 Adv. Chem. Eng. Thermo (12)
06-702 Advanced Reaction Kinetics(12) MW 8:30-10:20
06-703 Advanced Fluid Dynamics (12)
06-704 Adv Heat & Mass Transfer (12) MW 2:30-4:20
06-720 Adv Process Systems Engr(12) MW 10:30-12:20

Civil & Environmental Engineering

12-704 Prob & Est Methods for Engr Sys (12) MW 8:30-10:20
12-706 Civil Systems Invest. Plan & Pricing (12)
12-712 Intro to Sustainable Engineering (12)
12-740 Data Acquisition (6)
12-741 Data Management (6)
12-751/651 Air Quality Engr. (12)
12-761 S.T. Sense & Data Mine Smart Structures (12)
12-745 Adv Infra Systems Project (12) MW 6:30-8:20
12-747 Sustainable Buildings (6)
12-714 Environ. Life Cycle Asst. (12) MW 1:30-2:50
12-749 S.T. Climate Change Adapt. (6A4) TR12-1:20
12-750 Infrastructure Management (12) TR 3-4:20
12-752 S.T. Data Drv Bldg Energy Mang (6)
12-766 S.T. Climate Change Sci & Adapt. (12)

Electrical & Computer Engineering

18-418 El. Energy Processing: Fundamentals & App. (12ug)
18-618 Smart Grids & F. El. Eng. Sys (12)
18-743 Energy Aware Computing (12)
18-649 Distr. Embedded Systems (12)
18-730 Intro Computer Security (12)
18-731 Network Security (12) MW 12:30-2:20
18-882A S.T. Power Electronics (12)
18-631 Intro to Info Security (12)
18-771 Linear Systems (12)
18-777 Complex Large-Scale Dynam Sys(12)
18-879M Optim in Energy Networks (12) TR 4:30-5:50
18-879S Networked Control Systems (12)
18-875 Econ & Engr Electric Energy Sys (12) TR 1:30-2:50

Engineering & Public Policy

19-881 Sem. Elec. Markt Restruct (6)
19-617(12-750) Infrastructure Mgmt. (12) TR 3-4:20
19-624 S.T. Emerging Energy Policy (12)
19-625 Sust Energy for Dev World(12) MW 10:30-11:50
19-683 S.T. Sci, Tech, & Innov. Policy (6)
19-696 S.T. Sus Dev & Innovation (9)
19-717 (12-712) Intro Sustainable Engr (12)
19-736 (27-726) Energy & Materials in Policy (6)
19-740 (24-740) Cmbstn & Air Pollut Ctrl (12)
19-638 (18-618) Smart Grids & F. Elec. (12)
19-655 S.T. Design, Innov & Strat (12)
19-882 Sem. Low Carbon Elec. Power (6A4) TR 3:30-5:20
19-626 Climate Science & Policy (12)
19-653 (24-640) S.T. Climate Change Mit (12)
19-656 S.T. CO2 Capture & Sequestration (6A3)
19-655 S.T. Climate Change Sci & Adapt. (12)
19-714 (12-714) Env. Life Cycle Assmt. (12) MW 1:30-2:50
19-724 (27-724) Materials Energy Storage (6)
19-739(18-875) Engr&Econ Elec Engr Sys(12) TR 1:30-2:50
19-751 (12-751) Air Quality Engr. (12)
19-424 (24-424) Energy & Environment (9ug)
19-472 Fund. Electric Pwr Sys (12ug)

Materials Science and Engineering

27-705 Nanostructured Mat. (12) TR 1:30-3:20
27-718 Soft Materials (12)
27-721 Processing Design (6)
27-724 Materials for Energy Storage (6)
27-725 Materials in Nuclear Systems(6A3)MW11:30-1:20
27-727 Mech. Behavior in Extreme Env.(6A4)
27-728 Materials for Future Energy Sys (6)
27-729 Solid State Dev. Energy Conv.(6)
27-730 Energy Consum. & Min. Metals Prod (6)
27-752 Fnd. of Semicond. Nanostructures (12)
27-765 Special Topics: Materials & Society (6)
27-766 Diffusions in Materials (6)
27-788 Defects in Materials (6)
27-794 Chem. Stab. Materials Extr. Env. (6)
27-796 Structure of Materials
27-798 Thermodynamics I (6A1)
27-799 Thermodynamics II (6A2)
27-722 Basics & Apps Power Magnetic Devices MW6:30-8:20

Mechanical Engineering

24-722 Energy System Modeling (12)
24-616 Tribology-Fric. Lubric. & Wear (12)
24-628 Energy Trans&Conv Nano-scale (12)
24-721 Advanced Thermodynamics (12)
24-731/733 Conductive/Radiative Heat Transfer (6)
24-740 Combustion & Air Pollution (12)
24-643 S.T. Electrochem. Energy Storage Sys (12)
24-618 Comp. Trans Phen (12) MW 4:30-6:20
24-640 Climate Change Mitigation (12)
24-711 Fluid Dynamics I (12)
24-718 Computational Fluid Dynamics (12)
24-730 Advanced Heat Transfer (12) MW 9:30-11:20
24-736 Two-Phase Flow & Heat Transfer
24-642 Fuel Cell Systems (12) TR 3:00-4:50
24-629 Dir Solar & Therm Energy Conv (12)

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

M.S. EST&P

also for the EST&P-AS Degree (3 semesters):

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

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