AET - ALTERNATIVE ENERGY TECHNOLOGY

AET 5110 Fundamental Fuel Cell Systems Cr. 4
Introduce various types of fuel cells, materials properties of electrodes and polymeric membranes, and electrochemical mechanisms. Reforming of various types of hydrocarbon fuel to hydrogen, and reforming technology. Offered Fall.
Restriction(s): Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.
Equivalent: CHE 5110, EVE 5130, ME 5110

AET 5120 Fundamentals of Alternative Energy Technology Cr. 3
Provide an overview/review of thermodynamics. Cover advanced thermodynamics topics of energy and chemical reacting systems. Introduce general areas of alternative energy technology, engineering analysis and design of solar angle/time/radiation, solar heating, solar photovoltaic, and wind power. Offered Winter.
Restriction(s): Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

AET 5250 Alternative Energy Technology System and Design Cr. 4
Topics such as: batteries, flywheels, capacitors, motors, controllers, power management, heat dissipation, systems containment, manufacturing processes, systems dynamics. Lectures and design projects. Offered Fall.
Prerequisites: AET 5120
Restriction(s): Enrollment is limited to Graduate or Undergraduate level students; enrollment limited to students in the College of Engineering.

AET 5310 Fundamentals of Battery Systems for Electric and Hybrid Vehicles Cr. 4
Fundamental electrochemistry and engineering aspects for electric propulsion batteries, including lead acid, nickel metal hydride, and lithium ion technologies. Offered Intermittently.
Equivalent: CHE 5120, EVE 5120, ME 5215

AET 5410 Energy, Emissions, Environment (E3) Design Cr. 3
Provides students the tools to uncover the relation between energy consumption and energy generation and optimize processes to take most advantage of low emitting energy options. Exposes students to design tools and methodologies from a diverse group of sources including US EPA, DOE, EIA, and the latest in emerging research. Offered Fall.
Equivalent: CE 5410, STE 5410

AET 5600 Integrated Product Development Cr. 3
Product development process: product architectures, concurrent engineering. Integration of marketing, design, and manufacturing functions for product development. How such processes are designed to account for various manufacturing and other business constraints to ensure that customer needs are met. Offered Fall.
Restriction(s): Enrollment limited to students in the College of Engineering.
Equivalent: EVE 5600, IE 6405

AET 5800 Charging Infrastructures for Electric Vehicles Cr. 3
This course provides the students with technical knowledge into concept development, product design, and manufacturing of charging infrastructures for electric vehicles. Students will also get to explore recent developments and future plans on global EV charging technologies. Offered Spring/Summer.

AET 5810 Power Management for Advanced Energy Storage Systems and its Applications Cr. 4
Operating principles and modeling of energy storage techniques; control and power management, power electronic converters, electric machines, and power systems; power management strategies of hybrid energy systems including HEV and alternative energy systems. Offered Fall, Winter.
Prerequisites: ECE 4470
Restriction(s): Enrollment limited to students in the College of Engineering.
Equivalent: EVE 5810

AET 7990 Directed Study Cr. 1-4
Independent projects on subjects of interest in advanced energy technology. Offered Every Term.
Restriction(s): Enrollment is limited to Graduate level students.
Repeatable for 4 Credits

AET 7991 Internship in Industry Cr. 1-4
Industrial internship in alternative energy technology. Offered Every Term.
Restriction(s): Enrollment is limited to Graduate level students.

AET 8996 Directed Research Cr. 1-4
Independent research projects. Offered Every Term.
Restriction(s): Enrollment is limited to Graduate level students.

AET 8999 Master's Thesis Research and Direction Cr. 1-8
Offered Every Term.
Restriction(s): Enrollment is limited to Graduate level students.
Repeatable for 8 Credits