GREEN AND ALTERNATE
ENERGY (GAE)

GAE 32000 FUEL CELL TECHNOLOGY 3 Credit Hours
Designed to provide a general perspective to fuel cell technology. Students are introduced to the various types of fuel cells, historical perspective, terminology, applications, fuel cell operation, basic electrochemical and thermodynamics principles involved in fuel cells, fuel cell components, materials and systems. Students learn basic fuel cell design principles and calculations.
Prerequisite: PHY 13012 or PHY 13002.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

GAE 42002 ENERGY MANAGEMENT SYSTEMS 3 Credit Hours
Covers modern theory and applications of energy management. Students use software tools for the control and effective energy management of systems of diverse configurations. Students learn how to build device-to-enterprise applications and Internet-enabled products and software applications for controlling and managing diverse smart devices across an enterprise in real time.
Prerequisite: junior standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

GAE 42003 LEAN MANUFACTURING, SIX SIGMA AND OPERATIONS TECHNOLOGY 3 Credit Hours
Designed to provide a better understanding of the components and underlying philosophy of Theory of Constraints, Lean, and Six Sigma and how the elements and philosophies work together to support an companies operational plan.
Prerequisite: none.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

GAE 42004 ADVANCED FUEL CELL TECHNOLOGY 3 Credit Hours
Covers the theory and applications of fuel cell technology with an emphasis to proton exchange membrane fuel cells (PEMFCs). Students learn fuel cell component, stack and system design principles and fabrication methods, performance characterization, fuel cell testing and diagnostics methods. Students are introduced to transport phenomena in fuel cells. Introduction to hydrogen storage, generation and delivery, as well as hydrogen safety and regulations.
Prerequisite: GAE 32000.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter