****SOLAR ENERGY COURSES**

ECH 2217: Energy, Environment and Sustainability: Students learn to analyze innovative energy systems and technologies that support sustainable energy use, energy security, and environmental harmony for life on Earth.

ECH 5931 and ECH 6931: Solar Energy Fundamentals and Applications: This course is designed to give students an ability to estimate solar radiation on any surface and to design solar energy components, subsystems and systems for various solar energy applications. Knowledge of heat transfer, fluid dynamics and thermodynamics would be helpful but is not required.

EEL 6935 Power Market: Students will learn about renewable energy power delivery and smart grids.

EEL 6936: Design of Solar Power Plants: Acquire knowledge and tools to design Photovoltaic (PV) and Concentrated Solar Power (CSP) power plants. Prerequisites: ECH 5931/6931 – Solar Energy Fundamentals and Application or equivalent

EML 4416: Solar Energy: Topics covered include Nature of Solar Radiation; Earth Sun Relationship; Measurement/Modeling of Solar Radiation; Solar Collectors; Thermal Performance Standards; Basics of Photovoltaic Cells and Modules; Thermal Energy Storage; Power Cycles for Solar Applications; Battery Storage for PV Systems; System Integration (heating, photovoltaic and solar thermal power systems, solar photocatalytic detoxification systems); System Design.

EML 6417: Solar Energy Utilization: Students explore the nature and availability, collection and storage, solar properties of materials, conversion to heat, power and electricity for domestic and industrial consumption including transportation.