



Sample Brief Course Description	
Course title	Sustainable Energy
Course code	PHYS 277
College	Engineering
Department / Program	Electrical Engineering/Renewable Energy
Year/ Level	5/9
Course Type	A. <input type="checkbox"/> University <input type="checkbox"/> College <input type="checkbox"/> Department <input checked="" type="checkbox"/> Program <input type="checkbox"/> Others b. <input type="checkbox"/> Required <input checked="" type="checkbox"/> Elective
Credited Hours	3
Contact Hours	(LT:3, LB:0, TR:0)
Pre-requisites (if any)	CHEM 103, PHYS 103
Co-requisites (if any)	---
Course description	This course takes a holistic view of energy production and consumption, aiming to expedite sustainable energy transitions by analyzing systems. Sustainability is assessed by examining global and regional environmental impacts, economic factors, energy efficiency, consumption trends, and energy policies. Initially, the course introduces the physics of energy and various energy accounting techniques.



	<p>Subsequently, it delves into the current energy system, covering both the supply side (resource extraction, conversion processes) and the demand side (end uses). Detailed exploration is undertaken into strategies and interventions for addressing climate change and other sustainability issues, with a focus on emerging renewable energy technologies such as biomass, wind, and photovoltaics, alongside building and alternative vehicle technologies, and methods for enhancing end-use efficiency and conservation.</p>
<p>Course Main Objectives</p>	<ol style="list-style-type: none"> 1. Analyze energy production and consumption from a systems perspective to expedite sustainable energy transformations. 2. Evaluate sustainability by examining global and regional environmental impacts, economic factors, energy efficiency, consumption patterns, and energy policies. 3. Introduce the physics of energy and various energy accounting methods to establish foundational knowledge. 4. Explore the current energy system, encompassing both the supply side (resource extraction, conversion processes) and the demand side (end-uses). 5. Investigate strategies and interventions aimed at addressing climate change and other sustainability challenges, with a focus on emerging renewable energy technologies such as biomass, wind, and photovoltaics, alongside building technologies, alternative vehicle technologies, and methods for enhancing end-use efficiency and conservation.
<p>Learning Outcomes</p>	<p>Characterize current and future states for energy supply and demand (trends, challenges, opportunities, projections) from technology, policy, business, and sustainability perspectives.</p> <ul style="list-style-type: none"> –Develop energy models for energy supply and demand technologies and sectors – Evaluate the sustainability performance of the current and future energy systems, technologies and use patterns – Analyze strategy and policy to promote sustainable energy transformations <p>Support work teams providing leadership and creating a collaborative and inclusive environment while establishing goals to meet and planning tasks.</p>