**SSMS2040 Engineering Innovation for Sustainable Energy and Environment**

**Course Description:**

This course provides a comprehensive understanding of the latest advancements in sustainable energy and environmental engineering. It begins with an overview of the current energy landscape and environmental challenges. Students will explore renewable energy technologies such as solar, wind, and hydropower, and delve into innovative energy storage solutions. The curriculum covers smart grids, energy management, carbon capture, utilization, and storage (CCUS), and the emerging hydrogen economy. Topics also include energy efficiency, circular economy principles, advanced waste management, sustainable transportation, environmental monitoring, and water treatment technologies. Presentation sessions allow students to share insights and research, fostering a collaborative learning environment. This course equips students with the skills to drive innovation and implement sustainable solutions in the energy and environmental sectors.

**Course Outline:**

1. Overview
2. Renewable Energy Technologies
3. Energy Storage Solutions
4. Smart Grids and Energy Management
5. Carbon Capture, Utilization, and Storage (CCUS)
6. Hydrogen Economy
7. Presentation 1
8. Energy Efficiency
9. Circular Economy and Waste Management
10. Sustainable Transportation
11. Environmental Monitoring and Sensing
12. Water Treatment and Desalination
13. Presentation 2