

- Course Number and Title: M E 481. Alternative and Renewable Energy
- Catalog Description: Current and future energy needs of the United States and the world will be considered primarily from the standpoint of renewable energy sources such as solar, geothermal, wind, hydro, and others. Technical, economic, and environmental aspects of each technology will be addressed.
- Credit Hours: 3 Credits (3)
- Prerequisite(s) / Corequisite(s): Prerequisite(s): M E 341
Corequisite(s): None
- Required: Elective for BSME Degree
- Course Availability: Spring Semester
- Instructor (Usual): Dr. Sarada Kuravi (See <https://mae.nmsu.edu/people/faculty.html>)
 - 1) Textbook:
 - (1) *Fundamentals And Applications of Renewable Energy*, Authors: Mehmet Kanoglu, Yunus A. Cengel, John M. Cimbala, ISBN-13: 9781260455304
 - (2) *Concentrating Solar Power Technology; Principles, Developments and Applications*; Editors: K Lovegrove, W Stein
 - (3) *Renewable Energy: Power for a Sustainable Future*; Third Edition; Editor: Geoffrey Boyle
- Course Learning Objectives: After completing this course, a student should be able to:
 - 1) Understand the energy and environmental needs of the United States and the world.
 - 2) Understand the role of renewable and alternative energies in addressing these needs.
 - 3) Conduct basic techno-economic analysis of various renewable and alternative energy technologies.
- Topics Covered:
 - Introduction to Renewable and Alternative Energy
 - Renewable Energy Types and Applications - Solar, Wind, Hydro, Geothermal, Biomass
 - Economics, System Advisor Model (SAM)
 - Introduction to Hydrogen Energy and Fuel Cells