

Fall 2009
Special Topic
EE 490/890: Renewable Energy Systems

Instructor: Dr. Adel Nasiri

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Time: M 05:30 PM - 08:15 PM, **Office Hrs:** M 03:00 PM - 04:30 PM

Course Outline:

Individual Energy Sources: Solar PV, Solar Thermal, Wind, Biomass

Solar PV power conversion

Solar thermal systems

Wind power conversion

Biomass power conversion

Grid integration issues

Energy storage

Course Purpose:

Utilization of renewable energy systems are on steady rise in the electrical power grid. This course is the entry level course for undergraduate and graduate students on renewable energy. The purpose of this course is to provide the students the fundamental knowledge on renewable energy. The students need to take additional courses on specific topics including wind and solar energy to gain in-depth knowledge. In this course, the energy content and characteristics of three renewable energy sources namely solar, wind and biomass are discussed. The energy conversion circuitry, grid integration, and energy storage utilization will also be discussed. The materials for course grading include one midterm exam, final exam, homework and term project.

Prerequisite:

EE 362: Electromechanical Energy Conversion

Course Text:

1- Photovoltaic Systems Engineering by R. A. Messenger and J. Ventre published by CRC Press, ISBN: 0-8493-1793-2.

2- Renewable Energy by B. Sorensen published by Elsevier, ISBN: 978-0-12-656153-1.