ME 431: Design of Solar Thermal Systems

Course description: Design of solar thermal systems for heating and cooling of buildings, heating of water, electrical generation, industrial processes, and distillation.

Number of credits: 3

Course Coordinator: R.F. Richards

Prerequisites by course: ME 301; ME 303; ME 304; certified major in Mechanical Engineering


Course objectives: 1. Understand the basic principles of design and operation of solar thermal energy conversion 2. Apply those principles to a wide variety of systems and applications


Expected learning outcomes: Upon successful completion of the course, the students will be able to: 1. Understand how to estimate available solar energy for a given site and application 2. Design a passive solar heating system for a building 3. Design an active solar heating system for a building 4. Understand the design and economics of solar thermal power plants

Class schedule: Three 50-minute lectures per week, for one semester.
Laboratory schedule: None

Contribution to meeting the professional component: Engineering Topics

Relationship of course to student outcomes:
3 strongly supported; 2 supported; 1 minimally supported

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<th>Student Outcomes Pre-Fall 2018 (ABET EC2000)</th>
<th>Student Outcomes Fall 2018 forward (ABET EC2019)</th>
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Prepared by: Andrea Butcherite and R.F. Richards    Date: May 30, 2018