REGULAR COURSE SYLLABUS

College of: Professional Studies

Department: Engineering and Engineering Technology

Prefix & Course Number: SSE 4280  Crosslisted With*: ____

Course Title: Energy and Power

Transcript course title (30 characters): Energy and Power

Check All That Apply: Required for Major: X  Required for Minor: ____  Specified Elective: ____  
Required for Concentration: ____  Elective: Service Course: ____

To receive Title IV financial aid funds, all institutions of higher education must comply with the federal definition of a credit hour. The Higher Learning Commission requires institutions to maintain policies and procedures for verifying compliance with this definition.

**Federal Credit Hour Definition:** A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than:
(1) one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or (2) at least an equivalent amount of work as required in paragraph (1) of this definition for other activities as established by an institution, including laboratory work, internships, practica, studio work, and other academic work leading toward the award of credit hours. 34CFR 600.2 (11/1/2010)

Credit Hours: 3(2+2)

Face-to-Face or Equivalent Hours per course:
- Lecture 30  Lab 30  Internship ____  Practicum ____  Other (please specify type and hours): ____

Additional Student Work Hours per course: 75

Schedule Type: B  Grade Mode: L

Variable topics umbrella course: No ____  Yes ____  If Yes, number of credit hours allowed ____

Specified repeatable course: No ____  Yes ____

Prerequisite(s): SSE 3300, PHY 2310, and PHY 2320, with a grade "C" or better, or permission of instructor

APPROVED: ___________________________  10/17/2015

Department Chair OR Program Director

Dean OR Associate Dean  10-28-16

Associate VP, Academic and Student Affairs  10-14-15

*If crosslisted, attach completed Course Crosslisting Agreement Form
Prefix and Course Number: SSE 4280

Corequisite(s): __

Prerequisite(s) or Corequisite(s):

Banner Enforced:
  Prerequisite(s): SSE 3300, PHY 2310, and PHY 2320, with a grade “C” or better
  Corequisite(s): __
  Prerequisite(s) or Corequisite(s): __

Registration restrictions: Level _____ Class _____ Program/Major _____ Student attribute _____

Catalog Course Description:
In this course, the students will study global energy flow, sources and uses of energy. The students will be introduced to biological energy and ecosystems from the viewpoint of the engineering practice. The students will also deal with energy-related environment problems including air and thermal pollution plus radioactivity.

Specific Variable Topics Course Description (if applicable, umbrella course description included above):

Required Reading and Other Materials will be equivalent to:

Specific, Measurable Student Behavioral Learning Objectives:
Upon completion of this course the student should be able to:
1. Identify emerging techniques for energy generation, based on physical principles involved.
2. Compare energy choices using current economic and geographic limitations.
3. Make objective estimates of the trends in their development and user in the future.
4. Conduct a parametric computer study to identify the preferred energy design or approach to satisfy a particular application.
5. Write a concise technical report on the computer study and present the work, including the results and recommendations, orally.

Detailed Outline of Course Content:
  I. Nuclear Fusion and Fusion Power
     A. Processes
     B. Limitations
     C. Environmental Effects
  II. Wind Derived Power
     A. Design of windmills
     B. Economics
  III. Tidal Power
     A. Design
     B. Power Generations
  IV. Geothermal Power
     A. Energy Reservoirs
     B. Economics
  V. Solar Power
     A. Solar Energy Input to Earth
     B. Residential, Photovoltaic Conversion
  VI. Miscellaneous Sources
     A. Fuel Cells
     B. Magneto-hydrodynamics
     C. Biomass
Prefix and Course Number: SSE 4280

**Evaluation of Student Performance:**
1. Quizzes
2. Assignments
3. Examinations
4. Project Report