1. ME 5101, Vapor Power Cycles

2. 4 credits, 4 contact hours.

3. Instructors: D. B. Kittelson, W. Northrop


5. Specific course information:
   a. Catalog description: Vapor power cycle analysis, regeneration, reheat, compound cycle modifications, combined gas turbine--vapor cycle systems, components, fuels and combustion, heat sources -- solar, nuclear, geothermal, low T cycles, bottoming cycles, environmental concerns. EES software used extensively for cycle analysis.
   b. Prerequisites: ME 3331, CSE upper division or grad student.
   c. Elective for ME students.

6. Course outcomes (related ABET student outcomes indicated in square brackets):
   a. An understanding of the construction, operation and performance of typical vapor cycle power systems. [1]
   b. An understanding of modern steam power plants. [1]
   c. An ability to compare a simple cycle and a more complex cycle that may include superheat, reheat and regeneration. [1]
   d. An understanding of the influence of the working fluid on performance, economics, and environmental impact of vapor power cycles. [2,4,7]
   e. An understanding of the influence of heat sources on performance, economics, and environmental impact of vapor power cycles. [2,4,7]
   f. An understanding of the interactions between a vapor cycle system and another power cycle such as a gas turbine. [1,2]
   g. An understanding of environmental impact and sustainability of vapor power cycle systems. [2,4,7]

7. Course topics
   a. Vapor power cycles.
   b. Compound cycle modifications.
   d. Low T and bottoming cycles.
   e. Heat sources – combustion, nuclear, solar, geothermal.
f. Environmental concerns.