

ENGRD 221: ENGINEERING THERMODYNAMICS

Lecture 14: October 11, 2007

Reading Assignments (from Moran & Shapiro, Sixth Edition): All of chapter 8 including example problems.

Particular topics reviewed:

- The ideal Rankine cycle, conventional vapor power cycles
- The ideal Rankine cycle, $h - s$ diagram, Rankine cycle efficiency
- The conventional vapor power plant
- Issues that define thermal efficiency and possible options for increased efficiency
- Rankine cycle with superheat, reheat cycle efficiency
- The improved Rankine cycle
- Raising the average temperature of heat addition
- Rankine cycle with regeneration, principle of the regenerative cycle
- The $h-s$ diagram for the regenerative cycle
- Feedwater heaters, open and closed feedwater heaters
- Regeneration with an open feedwater heater
- Regenerative cycle with a closed feedwater heater
- Commercial steam power plants, reheat in multiple stages, regeneration with multiple extractions
- The Rankine cycle with reheat and regeneration for large plants