

PD115 The Gas Turbine: Principles and Applications

Day One

- Gas Turbine Performance and Process Thermodynamics
 - Principals and applications
 - Performance
 - Size and weight
- Gas Turbine Cycles
 - Brayton cycle
 - Design and cycle variations
- Component and accessory design fundamentals
 - Turbines
 - Combustors
 - Inlets
 - Practical design features; limits
- Characteristics, advantages and problems of specific applications
 - Open cycle
 - Aircraft
 - Electrical power generation
 - Mechanical Drive (compressor; pumps; marine propellers, and shafts for vehicular drives)
 - Hot gas generators
 - Closed cycle
 - Gas-cooled nuclear reactors
 - Fossil fuel fired air heaters
- Materials: Alloys and ceramics
 - High temperature materials
 - Requirements and considerations for gas turbine engines
 - Coatings

Day Two

- Combustion and Emissions
 - NO_x
 - CO
 - UHC
 - Smoke and particulate
 - Odor
- Alternate Fuels
 - Distillate fuel oils, residuals, methanol, manufactured gas, coal, solar and nuclear
 - Additives

- Reliability and maintenance
 - Individual machine differences
 - Inlet conditions
 - Operating cycle
 - Fuel
 - Monitoring
- Gas Turbine future potential and developments
 - Higher turbine inlet temperatures
 - Better use of Reject Heat
 - New fuels
 - Component performance improvements
 - New applications
- Questions and Answer Session