Heat Transfer and Thermodynamics

I. Thermodynamic Properties Measurements and Conversions
   - Energy Transfer Systems
   - Properties of Working Fluids
   - Forms of Energy
   - Work and Heat
   - Energy and Power Equivalencies
   - Enthalpy
   - Phases of Matter
   - Property Diagrams

II. Thermodynamics
   - The Study of Thermodynamics
   - The First Law of Thermodynamics
   - Applications of the General Energy Equation
   - The Second Law of Thermodynamics
   - Steam Tables
   - Use of Saturated Steam Tables
   - Use of Superheated Steam Tables
   - Liquid Heat Capacity
   - Mollier Diagram

III. Heat Transfer Methods
   - Modes of Heat Transfer
   - Fundamentals of Heat Transfer
   - Conduction
   - Convection
   - Combined Heat Transfer
   - Radiation
   - Boiling Heat Transfer

IV. Heat Cycles
   - Types of Cycles
   - Carnot Cycles
   - Rankine Cycles
   - Moisture Separator Reheaters and
   - Feedwater Heaters
   - Power Plant Components
   - Typical Power Cycle
   - Overall Plant Efficiency

V. Heat Exchangers
   - Types of Heat Exchangers
   - Operation of Heat Exchangers
   - Steam Generator Heat Transfer
   - Condenser Heat Transfer

VI. Reactor Heat Generation and Transfer
   - Power Operation In the Reactor Core
   - Factor Affecting Power Distribution
   - Indications of Core Power and Heat Generation

VII. Reactor Fuel Heat Transfer
   - Fuel Rod Temperature Profiles
   - Temperature Profiles Across Coolant Channels
   - Factors Affecting Reactor Heat Transfer