

List of Topics Covered	
UNIT I CHEMICAL REACTIONS	9
Fuels and combustion, Theoretical and actual combustion processes, Enthalpy of formation and enthalpy of combustion, First law analysis of Reacting systems, Adiabatic flame temperature, Entropy change of reacting systems, Second law analysis of reacting systems, problems	
UNIT II COMBUSTION OF GASEOUS AND VAPORIZED FUELS	9
Review of types of fuels, Types of flames, Energy balance and furnace efficiency, Burner type, Emissions from gas-fired furnaces, Emissions control, Chamber design, Detonation	
UNIT III COMBUSTION OF LIQUID FUELS	9
Spray combustion in furnace, spray formation and droplet behaviour, Gas turbine operating parameters, combustor design, ignition delay, and detonation of liquid fuel sprays	
UNIT IV COMBUSTION OF SOLID FUELS	9
Drying of solid fuels, devolatilization of solid fuels, stoker-fired boilers, Refuse and biomass fired boilers, Pulverized coal-burning systems, Pulverized coal combustion, Emission from pulverized coal, Problems	
UNIT V FLUIDIZED BED COMBUSTION	9
Fluidization fundamentals, combustion in bubbling bed, atmospheric fluidized bed combustion systems, circulating fluidized beds, pressurized fluidized bed combustion, problems.	