SUBJECT NO-ME60232, SUBJECT NAME- THEORY OF COMBUSTION AND EMISSIONS

LTP- 3-1-0,CRD- 4

SYLLABUS :-

Theory of Combustion and EmissionsIntroductory concepts. Thermodynamics of reacting systems: conservation of mass and energy in a chemical reaction, adiabatic flame temperature, second law aspects of chemical reactions. Essentials of chemical Kinetics: molarity and order of chemical reaction, general equation for rate of reaction, equation of Arrhenius, activation energy. Theories of premixed laminar and turbulent flames; concepts of ignition, flame stabilization, extinction and quenching. Theories of gaseous diffusion flames; droplet and spray combustion: theories of atomization, spray combustion models, spray combustion characteristics and design of burners; mechanism and kinetics of coal combustion; fluidized bed combustion; flames related to industrial applications; Emissions from combustion: constituents and types of emission, mechanisms of hydrocarbon and particulate emissions, theories of soot and NOx formation. Control of emissions.