Course Number and Name														
	BME006 - COMBUSTION ENGINEERING													
Credits and Contact Hours														
3&45 Course Coordinator's Name														
Mr.Thirumavalavan														
Text Books and References														
TEXTBOOK:														
1. Yunus.A.Cengel- A textbook of Thermodynamics														
DEFEDENCES.														
REFERENCES:														
1. Gary.L.Borman, Combustion Engineering-McGraw Hill international Edition, 1998														
2. Roger.A.Strehlow-Combustion fundamentals- McGraw Hill international Edition,1989.														
3. www.goodreads.com/book/show/3785353-combustion-engineering														
Course Description														
To understand and analyze the combustion with emphasis on engineering applications.														
Prerequisites						Co-requisites								
IC ENGINES Nil														
required, elective, or selected elective (as per Table 5-1)														
Core Elective Course Outcomes (COs)														
COurse Outed	Understand various types of fuels and its ppts													
CO2														
		Understand the concept of gaseous fuels												
CO3	Will a	Will able to differentiate gaseous and liquid fuels												
CO4	Will u	Will understand the concept of solid fuels												
CO5	Student learns about fluidized bed combustion													
CO6	Student understands the fundamentals in combustion of fuels.													
Student Outcomes (SOs) from Criterion 3 covered by this Course														
COs/SOs	a	b	С	d	e	f	g	h	i	j	k	1		
CO1	Н													
CO2	Н		Н				L						1	
CO3	Н		Н		М	М			L		L		1	
CO4	Н		Н									L		
CO5	Н					М		М						
CO6	Н		Н									L		

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.