RGPV,BHOPAL		OCBC-19 CHEMICAL ENGG III SEMESTER					FORMAT-3	sheet no-1
		COURSE NAME-CHEMICAL PROCESS UTILITIES AND MAINTENANCE					teaching hr	marks
COURSE OUTCOME 1		Identify the composition, characteristics and combustion process of fuels.						
LEARNING OUTCOME-1		To Identify the composition, characteristics and combustion of solid fuel.						
CONTENTS		Introduction to coal and wood charcoal, origin of coal and theories, classification of coal by rank and characteristics, significance of the constituent of coal, moisture, volatile matter, ash content and fixed carbon, ultimate and proximate analysis of coal, calorific value and its determination, storage of coal – oxidation and spontaneous combustion, pulverization of coal – advantages and disadvantages, introduction to coke, high temperature and low temperature carbonization.						
METHOD OF ASSESSMENT								
LEARNING OUTCOME-2		To explain characteristics of liquid & gaseous fuel						
CONTENTS		Characteristics of liquid and gaseous fuel and comparison with solid fuel. Some common liquid and gaseous fuels Name and Composition.						
METHOD OF ASSESSMENT								
COURSE OUTCOME-2		To Identify the principles involved in the formation of compressed air, steam and other utilities.						
LEARNING OUTCOME-1								
CONTENTS		Compressed air and its uses in chemical industries, steam, formation of steam, wet and dry steam, dryness fraction of steam, superheated steam, uses of steam boilers, classification of boilers, various mounting and accessories of boilers.						
METHOD OF ASSESSMENT								
LEARNING OUTCOME-2								
CONTENTS								

METHOD OF ASSESSMENT								
COURSE OUTCOME-3		To economise and select best among the available alternatives of energy						
LEARNING OUTCOME-1		To locate sources of heal losses and their remedies						
CONTENTS		Sources of heat losses from furnaus and other equipment methods of recover the waste heat from chemical plants brief ideal of waste heal boiler and regenerators.						
METHOD OF ASSESSMENT								
LEARNING OUTCOME-2								
CONTENTS								
METHOD OF ASSESSMENT								
COURSE OUTCOME-4		To select appropriate maintenance technique and coordinate in organization of chemical plant.						
LEARNING OUTCOME-1		To coordinate with maintenance department and plan accordingly.						
CONTENTS		Concept of maintenance, objectives and importance of maintenance, types of maintenance : their significance, merits and demerits,organization structure of maintenance department, control and coordination of various related functions, job order.						
METHOD OF ASSESSMENT								
LEARNING OUTCOME-2		To describe the general procedure for fault finding and trouble shooting.						
CONTENTS		Meaning of fault finding and trouble shooting, general procedure adopted for fault, finding and trouble shooting, simple. Problems and their maintenance associated with piping systems, joints, values and pumps.						
METHOD OF ASSESSMENT								

COURSE OUTCOME-5		To apply engineering aspects of industrial safety in chemical industries						
LEARNING OUTCOME-1		To follow provisions of industrial safety to combat accidents and hazards						
CONTENTS		General aspects of industrial safety, industrial accidents, direct and indirect losses due to accidents, mechanical electrical and chemical accidents and preventions, Anotomy of fire, various steps in controlling fire hazards, fire extinguishers used for fire fighting, storage, handling and transportation of dangerous materials, personal protective devices used for safety, significance of colour coding, industrial safety act 1948.						
METHOD OF ASSESSMENT								
LEARNING OUTCOME-2								
CONTENTS								
METHOD OF ASSESSMENT								