"PVC" NSSK G.P. BILASPUR at KALOL	Department :- Mechanical Engg. (3rd Sem.)		Subject- BME (MEPC201)		
	Course- Diploma		Duration -3 Years		
SYLLABSE COVERRAGE	Total Periods – 56 (Lecture-42 + DCS- 14)		Theory-56 (Lecture-42 + DCS- 14)		
Sr no.	Period No's	Topic	Details	Instruction Reference	Additional Study Recommended	Remarks
1	1-12	**Introduction to Thermodynamics**	Role of Thermodynamics in Engineering and science, Types of Systems, Thermodynamic Equilibrium, Properties, State, Process and Cycle, Elementary introduction to Zeroth, First and Second laws of thermodynamics, Heat and Work Interactions for various processes; Concept of Heat Engine, Heat Pump & Refrigerator, Efficiency/COP; Kelvin-Planck and Clausius Statements, Carnot Cycle, Carnot Efficiency, T-S and P-V Diagrams, Concept of Entropy.	Basic Mechanical Engineering – M.P.Poonia & S.C. Sharma	Engineering Thermodynamics –Spalding and Cole	
2	13-23	**Heat transfer & Thermal Power Plant**	Heat Transfer, Modes of Heat Transfer; Conduction: Fourier Equation, Conduction heat transfer through Composite Walls, Simple Numerical Problems, Convection Heat transfer: : Natural and forced convection, Radiation: Absorption, Reflection and transmission of radiation, Concept of black body, Stefan-Boltzman Law (concept only , No derivation), Thermal Power Plant Layout; Rankine Cycle; Fire Tube and Water Tube boilers, Babcock& Wilcox, Cochran Boilers.	-----do-----	Engineering Heat Transfer–Gupta & Prakash	
3	24-34	**Steam Turbines & Internal Combustion Engines**	Impulse and Reaction Turbines; Condensers: Jet & Surface Condensers, Cooling Towers; Otto, Diesel and Dual cycles; P-V and T-S Diagrams; IC Engines:2-Stroke and 4-Stroke I.C. Engines, S.I. and C.I. Engines.	-----do-----	Elements of Mechanical Engineering– M.L. Mathur, F.S.Mehta and R.P. Tiwari	
4	35-45	**Materials and Manufacturing Processes**	Engineering Materials, Classification and their Properties; Metal Casting, Moulding, Patterns, Metal Working: Hot Working and Cold Working, Metal Forming: Extrusion, Forging, Rolling, Drawing, Gas Welding, Arc Welding, Soldering, and Brazing	-----do-----	Workshop Technology (Vol.1and2)– B.S. Raghuvanshi, Dhanpath Rai and Sons	
5	46-56	**Machine Tools and Machining Processes**	Machine Tools: Lathe Machine and types, Lathe Operations, Milling Machine and types, Milling Operations, Shaper and Planer Machines: Differences, Quick Return Motion Mechanism , Drilling Machine: Operations, Grinding Machine: Operations.	-----do-----	-----do-------	

Approved	HOD Sign
Date : 01/08/25	