

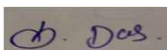


UTKAL INSTITUTE OF ENGINEERING & TECHNOLOGY

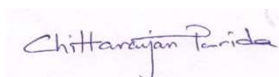
DISCIPLINE: Mechanical Engineering	SEMESTER: 3rd Sem	NAME OF THE TEACHING FACULTY: Er.Sujit Kumar		
SUBJECT: THERMAL ENGINEERING-I	No of Days/Per week class allotted: 4 Class P/W(60)	Semester From Date:15/09/2022 To Date:22/12/2022 No. Of Weeks: 15		
WEEK	CLASS DAY	THEORY TOPICS	REMARKS	
1 st	1 st	Thermodynamic Systems (closed, open, isolated)	Date	Dean/Principal
	2 nd	Thermodynamic properties of a system (pressure, volume, temperature, entropy, enthalpy, Internal energy and units of measurement).		
	3 rd	Intensive and extensive properties		
	4 th	Define thermodynamic processes, path, cycle, state, path function, point function		
2 nd	1 st	Doubt clear class		
	2 nd	Thermodynamic Equilibrium.		
	3 rd	Quasi-static Process		
	4 th	Assignment		
3 rd	1 st	Assignment question Discussion		
	2 nd	Conceptual explanation of energy and its sources		
	3 rd	Work, heat and comparison between the two.		
	4 th	Doubt clear class		
4 th	1 st	Mechanical Equivalent of Heat.		
	2 nd	Work transfer, Displacement work		
	3 rd	State & explain Zeroth law of thermodynamics.		
	4 th	State & explain First law of thermodynamics.		
	1 st	Class Test		

5 th	2 nd	Limitations of First law of thermodynamics		
	3 rd	Application of First law of Thermodynamics (steady flow energy equation and its application to turbine and compressor)		
	4 th	Application of second law in heat engine, heat pump, refrigerator & determination of efficiencies & C.O.P (solve simple numerical)		
6 th	1 st	Revision of Last Class		
	2 nd	Assignment		
	3 rd	Laws of perfect gas: Boyle's law, Charle's law, Avogadro's law, Dalton's law of partial pressure, Guy lussac law, General gas equation, characteristic gas constant, Universal gas constant.		
	4 th	Explain specific heat of gas (Cp and Cv)		
7 th	1 st	Doubt clear class		
	2 nd	Revision		
	3 rd	Doubt clear Class		
	4 th	Assignment		
8 th	1 st	Relation between Cp & Cv.		
	2 nd	Assignment question Discussion		
	3 rd	Enthalpy of a gas		
	4 th	Doubt Clearing Class.		
9 th	1 st	Work done during a non- flow process		
	2 nd	Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytropic process)		
	3 rd	Revision Class		
	4 th	Solve simple problems on above.		
10 th	1 st	Solve simple problems on above.		
	2 nd	Internal Question Discussion		
	3 rd	Free expansion & throttling process.		
	4 th	Free expansion & throttling process.		

11 th	1 st	Doubt Clear Class		
	2 nd	Explain & classify I.C engine.		
	3 rd	Class Test		
	4 th	Terminology of I.C Engine such as bore, dead centers, stroke volume, piston speed & RPM.		
12 th	1 st	Doubt Clear Class		
	2 nd	Explain the working principle of 2-stroke & 4- stroke engine C.I & S.I engine.		
	3 rd	Differentiate between 2-stroke & 4- stroke engine C.I & S.I engine.		
	4 th	Carnot cycle		
13 th	1 st	Carnot cycle		
	2 nd	Otto cycle.		
	3 rd	Otto cycle.		
	4 th	Class Test		
14 th	1 st	Diesel cycle.		
	2 nd	Dual cycle.		
	3 rd	Solve simple numerical.		
	4 th	Define Fuel, Types of fuel.		
15 th	1 st	Application of different types of fuel.		
	2 nd	Heating values of fuel.		
	3 rd	Quality of I.C engine fuels Octane number, Cetane number.		
	4 th	Discussion Sample paper question		



HOD



DEAN



PRINCIPAL