

GANDHI INSTITUTE OF TECHNOLOGY AND MANAGEMENT

Lesson Plan

Name of the Program	Diploma in Mechanical Engineering			
Course Name	THERMAL ENGINEERING-I		Course Code	C204
Course Year	Second	Semester	3rd	Academic Period
No. of Classes allotted per Week		05	Planned Classes Required to Complete the Course	
			60	

Sl. No.	Topics to be covered	Module	No. of hours Required	Mode of Teaching
1	Thermodynamic concept & Terminology	I	01	LM/ IM
2	Thermodynamic Systems (closed, open, isolated)	I	03	LM/ IM
3	Thermodynamic properties of a system (pressure, volume, temperature, entropy, enthalpy, Internal energy and units of measurement)	I	01	LM/ IM
4	Intensive and extensive properties	I	02	LM/ IM/ ICT
5	Define thermodynamic processes, path, cycle, state, path function, point function	I	02	LM/ IM
6	Thermodynamic Equilibrium and Quasi-static Process.	I	01	LM/ IM
7	Conceptual explanation of energy and its sources	II	01	LM/ IM
8	Work, heat and comparison between the two, Mechanical Equivalent of Heat.	II	02	LM/ IM/ ICT
9	Work transfer, Displacement work	II	02	LM/ IM
10	State & explain Zeroth law of thermodynamics and State & explain First law of thermodynamics.	II	02	LM/ IM
11	Limitations of First law of thermodynamics	II	01	LM/ IM
12	Application of First law of Thermodynamics (steady flow energy equation and its application to turbine and compressor)	III	01	LM/ IM
13	Second law of thermodynamics (Clausius & Kelvin Planck statements)	III	03	LM/ IM
14	Application of second law in heat engine, heat pump, refrigerator & determination of efficiencies & C.O.P (solve simple numerical)	III	03	LM/ IM
15	Laws of perfect gas: Boyle's law, Charle's law, Avogadro's law, Dalton's law of partial pressure	III	02	LM/ IM
16	Guy lussac law, General gas equation, characteristic gas constant, Universal gas constant.	III	03	LM/ IM/ ICT
17	Explain specific heat of gas (Cp and Cv) and Relation between Cp & Cv.	IV	01	LM/ IM
18	Enthalpy of a gas.& Work done during a non- flow process	IV	03	LM/ IM/ ICT
19	Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytropic process)	IV	02	LM/ IM

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20	Solve simple problems on above	IV	04	LM/ IM
21	Free expansion & throttling process.	IV	02	LM/ IM
22	Explain & classify I.C engine	V	01	LM/ IM/ ICT
23	Terminology of I.C Engine such as bore, dead centers, stroke volume, piston speed & RPM.	V	02	LM/ IM
24	Explain the working principle of 2-stroke & 4- stroke engine C.I & S.I engine	V	03	LM/ IM
25	Differentiate between 2-stroke & 4- stroke engine C.I & S.I engine	V	04	LM/ IM
26	Carnot cycle & Solve simple numerical	VI	01	LM/ IM/ ICT
27	Otto cycle & Solve simple numerical	VI	01	LM/ IM
28	Diesel cycle & Solve simple numerical	VI	01	LM/ IM
29	Dual cycle & Solve simple numerical	VI	02	LM/ IM
30	Define Fuel & types of fuel	VI	01	LM/ IM/ ICT
31	Application of different types of fuel	VII	01	LM/ IM
32	Heating values of fuel &	VII	01	LM/ IM
33	Quality of I.C engine fuels Octane number, Cetane number	VII	02	LM/ IM

Signature of the Faculty

Signature of the HoD