

PADMASHREE KRUTARTHA ACHARYA INSTITUTE OF
ENGINEERING & TECHNOLOGY, BARGARH



LESSON PLAN
Session-2022-2023

Discipline: Mechanical Engg. Semester: 3rd

Name of the Teaching Faculty: Shashanka Sekher Bhoi

Subject: Thermal Engg - 1 No. of Days/per week class allotted 04

Semester From Date: 15/09/2022 To Date: 22/12/2022 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
01	01	Introduction to Thermodynamic Concept
	02	Thermodynamic Systems
	03	Thermodynamic properties of a system
	04	Intensive and Extensive properties
02	05	Define thermodynamic processes, path, cycle, state path function, point function.
	06	Thermodynamic Equilibrium
	07	Quasi-static process.
	08	Conceptual explanation of energy and its sources.
03	09	Work, Heat and comparison between the two.
	10	Mechanical Equivalent of Heat
	11	Work transfer, Displacement work.
	12	Doubt clear class.

Shashanka Sekhar Bhoi
Signature of the Faculty

Subject: THERMAL ENGG-1 No. of Days/per week class allotted 04

Semester From Date: 15/09/2022 To Date: 22/12/2022 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
04	13	Introduction to laws of Thermodynamics.
	14	State Zeroth law of thermodynamics
	15	Explain Zeroth law of thermodynamics.
	16	State First law of thermodynamics.
05	17	Explain First law of thermodynamics.
	18	Limitations of First law of thermodynamics
	19	Application of First law of thermodynamics
	20	Second law of thermodynamics Clausius statements
06	21	Second law of thermodynamics Kelvin Planck statements.
	22	Application of Second law in Heat engine, Heat pump, refrigerator.
	23	Application of Second law, determination of efficiencies & COP.
	24	Solve simple numericals.

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Subject: Thermal Engg-I No. of Days/per week class allotted 04

Semester From Date: 15/09/2022 To Date: 22/12/2022 No. of Weeks: 15

Week	Class Day	Theory / Practical Topics
07	25	Introduction to Properties Processes & of perfect gases.
	26	Laws of perfect gas: Boyle's law, Charles's law, Dalton's law, Gay Lussac law.
	27	General gas equation, characteristic gas constant, Universal gas constant.
	28	Explain specific heat of gas (C_p & C_v)
08	29	Relation between C_p & C_v .
	30	Enthalpy of a gas.
	31	Work done during a non-flow process
	32	Application of first law of thermodynamics to various nonflow process
09	33	Solve simple problems on above.
	34	Free expansion & throttling process.
	35	Introduction to I.C. engines.
	36	Explain I.C engine.

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Subject: Thermal Engg 1 No. of Days/per week class allotted 04

Semester From Date: 15/09/2022 To Date: 22/12/2022 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
10	37	classify I.C engine.
	38	Terminology of I.C engine such as bore, dead centers, stroke volume, RPM.
	39	Explain the working principle of 2-stroke & 4-stroke C.I engine.
	40	Explain the working principle of 2-stroke & 4-stroke S.I engine.
11	41.	Difference between 2-stroke & 4-stroke engine C.I & S.I engine.
	42.	Doubt clear class.
	43.	Introduction to Gas Power Cycle.
	44	Carnot cycle
12	45	carnot cycle.
	46	Otto cycle
	47	Otto cycle
	48	Diesel cycle

Shankar Seshan Blue
Signature of the Faculty

Subject: THERMAL ENERGY-I No. of Days/per week class allotted 04

Semester From Date: 15/09/2022 To Date: 22/12/2022 No. of Weeks: 15

Week	Class Day	Theory /Practical Topics
13	49	Diesel cycle
	50	Dual cycle
	51	Dual cycle
	52	Solve simple numericals.
14	53	Introduction to fuels & Combustion
	54	Define Fuels
	55	Types of fuels
	56	Application of different types of fuel.
15	57	Heating value of fuels
	58	Quality of I.C engine fuels Octane number
	59	Cetane number.
	60	Doubt clear class.

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