

BHUBANANANDA ODISHA SCHOOL OF ENGINEERING, CUTTACK
DEPARTMENT OF MECHANICAL ENGINEERING



LESSON PLAN

SUBJECT: THERMAL ENGINEERING 1
FACULTY: MRS. SUSHREE PRIYADARSHINI

ACCADEMIC SESSION: 2023-24
SEMESTER: 3rd
SEC: B

Sd/-
H O D (MechEngg.)

LESSON PLAN

Discipline: Mechanical Engg.	Semester: 3 rd section-B	Name of the teaching faculty: Sushree priyadarshini
Subject: THERMAL ENGINEERING-I	No of days/per week class allotted: 4	Semester from date: 01/08/2023 to date: 30/11/2023
Week	Class day	No. of weeks-17
1 st	01/08/2023	Theory/practical topics
	03/08/2023	1. Thermodynamic concept & Terminology
	04/08/2023	1.1 Thermodynamic Systems (closed, open, isolated)
		1.1 Thermodynamic Systems (closed, open, isolated)
		1.2 Thermodynamic properties of a system (pressure, volume, temperature, entropy, enthalpy, Internal energy and units of measurement)
2 nd	07/08/2023	1.3 Intensive and extensive properties
	08/08/2023	1.4 Define thermodynamic processes, path, cycle, state, path function, point function.
	10/08/2023	1.5 Thermodynamic Equilibrium. 1.6 Quasi-static Process.
	11/08/2023	1.7 Conceptual explanation of energy and its sources
3 rd	14/08/2023	1.8 Work, heat and comparison between the two. 1.9 Mechanical Equivalent of Heat.
	17/08/2023	1.10 Work transfer, Displacement work
	18/08/2023	Problem solve
4 th	21/08/2023	2. Laws of Thermodynamics
	22/08/2023	2.1 State & explain Zeroth law of thermodynamics
	24/08/2023	2.2 State & explain First law of thermodynamics.
		2.3 Limitations of First law of thermodynamics

	25/08/2023	2.4 Application of First law of Thermodynamics (steady flow energy equation and its application to turbine and compressor)
5 th	28/08/2023	2.4 Second law of thermodynamics (Clausius & Kelvin Planck statements).
	29/08/2023	2.5 Application of second law in heat engine, heat pump, refrigerator & determination of efficiencies & C.O.P (solve simple numerical)
	31/08/2023	2.5 Application of second law in heat pump, refrigerator & determination of efficiencies & C.O.P (solve simple numerical)
	01/09/2023	3. Properties Processes of perfect gas 3.1 Laws of perfect gas: Boyle's law, Charles's law, Avogadro's law, Dalton's law of partial pressure, Gay Lussac law, General gas equation, characteristic gas constant, Universal gas constant.
6 th	04/09/2023	3.1 Laws of perfect gas: Boyle's law, Charles's law, Avogadro's law, Dalton's law of partial pressure, Gay Lussac law, General gas equation, characteristic gas constant, Universal gas constant.
	08/09/2023	3.1 Laws of perfect gas: Boyle's law, Charles's law, Avogadro's law, Dalton's law of partial pressure, Gay Lussac law, General gas equation, characteristic gas constant, Universal gas constant.
7 th	11/09/2023	3.2 Explain specific heat of gas (C_p and C_v)
	12/09/2023	3.3 Relation between C_p & C_v .
	14/09/2023	3.4 Enthalpy of a gas.
	15/09/2023	Class test-1
8 th	18/09/2023	3.5 Work done during a non-flow process.
	21/09/2023	3.5 Work done during a non-flow process.
	22/09/2023	3.6 Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytropic process) 3.6 Solve simple problems on above
9 th	25/09/2023	3.6 Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytropic process) 3.6

		Solve simple problems on above
	26/09/2023	3.6 Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytrophic process) 3.6 Solve simple problems on above
	28/09/2023	3.6 Application of first law of thermodynamics to various non flow process (Isothermal, Isobaric, Isentropic and polytrophic process) 3.6 Solve simple problems on above.
10 th	29/09/2023	Doubt clearing and revision
	03/10/2023	4. Internal combustion engine 4.1 Explain & classify I.C engine.
	05/10/2023	4.2 Terminology of I.C Engine such as bore, dead centers, stroke volume, piston speed & RPM.
	06/10/2023	4. Internal combustion engine 4.1 Explain & classify I.C engine.
11 th	09/10/2023	Internal assessment
	10/10/2023	Internal assessment
	12/10/2023	4.3 Explain the working principle of 2-stroke & 4- stroke engine C.I engine
	13/10/2023	4.3 Explain the working principle of 2-stroke & 4- stroke engine S.I engine
12 th	16/10/2023	4.3 Explain the working principle of 2-stroke & 4- stroke engine S.I engine
	17/10/2023	4.4 Differentiate between 2-stroke & 4- stroke engine C.I & S.I engine.
	19/10/2023	Doubt clearing and revision class
	20/10/2023	Doubt clearing and revision class
13 th	30/10/2023	5. Gas Power Cycle 5.1 Carnot cycle
	31/10/2023	5.2 Otto cycle.
	02/11/2023	5.3 Diesel cycle
	03/11/2023	5.4 Dual cycle

14 th	06/11/2023	5.5 Solve simple numerical
	07/11/2023	5.5 Solve simple numerical
	09/11/2023	Revision and doubt clearing class
	10/11/2023	6. Fuels and Combustion 6.1 Define Fuel..
15 th	13/11/2023	6.2 Types of fuel.
	14/11/2023	6.3 Application of different types of fuel
	16/11/2023	6.4 Heating values of fuel. 6.5 Quality of I.C engine fuels Octane number, Cetane number.
	17/11/2023	Revision and doubt clearing class
16 th	20/11/2023	Revision and doubt clearing class
	21/11/2023	Revision and doubt clearing class
	23/11/2023	Class test-2
	24/11/2023	Revision and doubt clearing class
17 th	28/11/2023	Revision and doubt clearing class
	30/11/2023	Revision and doubt clearing class

