

Dicipline: <u>Mechanical</u>	Semester: <u>3rd</u>	Name of the Teaching Faculty: <u>Shashank a. Sechawat</u>	
Subject: <u>Thermal Engineering-1</u>	No of Days/Week Class Allotted: <u>4</u>	Semester From date: <u>01.10.21</u> To date: <u>18.01.22.</u>	No. of Weeks: <u>15</u>

WEEK	Class Day	Theory Topics
1st	1st	Introduction of Thermodynamics, describe about thermal dynamic system [open, closed, isolated]
	2nd	Thermodynamic properties of a system - pressure, volume, temperature.
	3rd	Thermodynamic properties of a system - Enthalpy, Internal Energy and units of measurement
	4th	Intensive and extensive properties.
	5th	
2nd	1st	Thermodynamic Equilibrium, static process
	2nd	conceptual explanation of energy and its source
	3rd	Define work, heat
	4th	Comparison bet ⁿ heat and work.
	5th	
3rd	1st	Mechanical equivalent of heat
	2nd	work transfer
	3rd	Displacement work
	4th	1st class test - thermodynamic concept & terminology.
	5th	

WEEK	Class Day	Theory Topics
4 th	1st	state and explain zeroth law of thermodynamic
	2nd	state and explain 1st law of thermodynamic
	3rd	Application of first law of thermodynamic
	4th	steady flow energy equation.
	5th	
5 th	1st	Steady flow energy eq ⁿ application to turbine
	2nd	steady flow energy eq ⁿ application to compressor
	3rd	Second law of thermodynamic. classical statement.
	4th	second law of thermodynamic kelvin plank statement.
	5th	
6 th	1st	Application of 2nd law in heat engine
	2nd	Application of 2nd law in heat pump.
	3rd	Application of 2nd law in refrigerator. determine efficiency & COP.
	4th	Class test - II, laws of thermodynamic
	5th	

Dicipline: Mechanical	Semester: 3rd	Name of the Teaching Faculty: Shashanka Sachar Pande	
Subject: Thermal Engg-1	No of Days/Week Class Allotted: 4	Semester From date: 01.10.21 To date: 12.01.22	No. of Weeks: 15

WEEK	Class Day	Theory Topics
7th	1st	Laws of perfect gas :- (i) Boyles law (ii) Charles law
	2nd	(iii) Avogadro law (iv) Dalton's law of partial pressure
	3rd	General gas eqn. characteristic gas constant universal gas constant.
	4th	Explain specific heat of gas (C_p & C_v)
	5th	
8th	1st	Relation bet ⁿ C_p & C_v
	2nd	Enthalpy of a gas
	3rd	work done during a non-flow process
	4th	Application of 1st law of thermodynamics to various non-flow process [to thermal, to baric]
	5th	
9th	1st	Application of 1st law of thermodynamic to various non-flow process [isotropic & polytropic]
	2nd	Free expansion & throttling process. solve the problem
	3rd	Introduction of I.C engine & its classification
	4th	Terminology of I.C engine such as bore, dead centre.
	5th	

WEEK	Class Day	Theory Topics
10th	1st	Terminology of I.C Engine such as stroke volume, piston speed and RPM
	2nd	Explain the working principle of 2-stroke C.I Engine
	3rd	Explain the working principle of 2-stroke S.I Engine
	4th	Explain the working principle of 4-stroke C.I Engine.
	5th	
11th	1st	Explain the working principle of 4 stroke S.I Engine
	2nd	Difference bet ⁿ 2-stroke and 4-stroke Engine C.I and S.I Engine
	3rd	Explain Carnot cycle
	4th	problem solve on Carnot cycle.
	5th	
12th	1st	Explain Otto cycle
	2nd	problem solve on Otto cycle
	3rd	Explain Diesel cycle
	4th	Problem solve on Diesel cycle.
	5th	

Dicipline: <u>Mechanical</u>	Semester: <u>3rd</u>	Name of the Teaching Faculty: <u>Shashanka Sakhar Parde</u>	
Subject: <u>Thermal Engg-1</u>	No of Days/Week Class Allotted: <u>4</u>	Semester From date: <u>01.10.21</u> To date: <u>18.01.22</u>	No. of Weeks: <u>15</u>

WEEK	Class Day	Theory Topics
13th	1st	Explain dual combustion cycle
	2nd	Problem solve on dual combustion cycle
	3rd	Doubt clearing, class of gas power cycle
	4th	Class test-I-III, Gas power cycle & I.C engine.
	5th	
14th	1st	Define fuel
	2nd	Types of fuel
	3rd	Application of different types of fuel.
	4th	Application of different types of fuel continuing
	5th	
15th	1st	Heating values of fuel.
	2nd	Quality of I.C engine fuels octane number, cetane number.
	3rd	Doubt clearing, class fuels and combustion.
	4th	class test-IV, fuels and combustion
	5th	