INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad -500 043

MECHANICAL ENGINEERING

ASSIGNMENT

Course Name	:	**THERMODYNAMICS**
Course Code	:	**A30306**
Class	:	IIB. Tech I Semester
Branch	:	Mechanical Engineering
Year	:	2016 – 2017
Course Faculty	:	Mr S. V. Durga Prasad, Assistant Professor

OBJECTIVES:

To get the basic concepts of thermodynamics, temperature measurement, first law and also ability to determine the heat, work in various flow & non-flow processes.

I. To gain the knowledge about second law of thermodynamics and determine the change in entropy, availability in various processes.

II. To get the knowledge various phases of pure substance and calculate its properties using steam tables and Mollier chart to determine properties of perfect gases in various processes.

III. To develop to learn the concepts of mixture of gases and to calculate the property values during any process.

IV. To get the knowledge about the working of different types of cycles and their performance which emphasizes knowledge in IC engines.

S. No	QUESTION	Blooms Taxonomy Level	Course Outcome
	ASSIGNMENT-I		
1	a) Discuss the thermodynamic fundamentals in detail with suitable examples and diagrams. b) Explain the working principle of Constant volume gas thermometer? c) Explain the reversibility and irreversibility and causes of irreversibility?	Understand Remember	1,2
2	a) Discuss the different types of processes from the point of view of properties. b) Explain Joule's experiment? c) Write the Zeroth law, First law and Second law of thermodynamics?	Understand Remember	1,2
3	Derive the steady flow energy equation and apply to all mechanical devices.	Understand Remember	1,2
4	a) Explain the Corollaries of First law of thermodynamics b) Explain Carnot's principle?	Understand Remember	1,2,6
5	Explain the following: a)Thermal Reservoir,	Understand Remember	1,2,6

	b)Heat Pump c)Kelvin-Plank statement, d)Clausius statement e)Thermodynamic scale of temperature		
ASSIGNMENT – II			
1	a) Write the Maxwell relations? Explain the importance? b) Explain the importance of Gibb's Helmholtz functions? c) Explain the importance of Third law of thermodynamics?	Understand Remember	1,2
2	a) Explain the Changes of internal energy in perfect gas? b) Explain the phase transformation and Triple point at critical state?	Understand Remember	1,2
3	a) Derive the Vander Waals equation, b) Derive the Clausius-Claperon Equation	Understand Remember	1,2
4	a) Explain the following laws: Dalton's Law of partial pressure, Avagadro's laws of additive volumes b) Derive the Carrier's Equation? c) Explain the Psychrometric Properties?	Understand Remember	1,2
5	Explain the following thermodynamic cycles: a) Otto cycle b) Diesel cycle c) Dual cycle d) Bell-Coleman cycle e) Vapor compression cycle	Understand Remember	1,2,6

Prepared by: Mr. SV Durgaprasad, Assistant Professor

HOD, MECHANICAL ENGINEERING