GYANMANJARI INSTITUTE OF TECHNOLOGY

Department of Mechanical Engineering

LECTURE AND LAB/TUTORIAL PLAN

Course Code :	2131905	Year/Semester :	BE II Year/ 3rd Semester
Course Name :	Engineering Thermodynamics	Academic Year :	20116-17/ ODD
L –T- P :	4-1-0	Credit :	5
Course Detail :	Theory and Tutorial	Term Start Date :	04/07/2016
Course Coordinator :	Prof.Krunal Khiraiya	Term End Date :	12/11/2016
Team of Instructors :		Class Test 1 :	4/8/2016
		Class Test 2 :	8/9/2016
		Mid Term Exam :	20.10.2016

Gyanmanjari Institute of Technology

Sidsar Road. Bhavnagar

Department of Mechanical Engineering

<u>Lesson Plan</u>

Academic Year : 2016-17 First Term	**Sem. : 3rd sem**
Name of Teacher : Krunal Khiraiya	**Name of Department : Mechanical Engineering**
Subject : ET	**Hrs./Week : 4**
Theory/Tutorial : Theory	**Days : Tuesday Wednesday Thursday Friday**

Sr. No.	Name of Unit/Topics	Hrs. Alloted	Planned Date	Actual Date	Teaching Aid Code	Remarks
1	**Unit 1**	**4**				
A	Basic Concepts: Microscopic & macroscopic point of view	1	5/7/2016		5	
B	thermodynamic system and control volume, thermodynamic properties	1	7/7/2016		5	
C	processes path and cycles	1	8/7/2016		5	
D	Thermodynamic equilibrium, Quasi-static process	1	12/7/2016		5	
2	**Unit 2**	**5**				
A	First law of Thermodynamics: First law for a closed system undergoing a cycle and change of state, energy,	1	13/7/2016		5	
B	PMM1, first law of thermodynamics for steady flow process	1	14/7/2016		2	
C	steady flow energy equation applied to nozzle, diffuser,	1	15/7/2016		2,5	
D	steady flow energy equation applied to boiler, turbine, compressor, pump, heat exchanger	1	19/7/2016		2	
E	steady flow energy equation applied to throttling process, filling and emptying process	1	20/7/2016		2	
3	**Unit 3**	**6**				
A	Limitations of first law of thermodynamics	1	21/7/2016		5	
B	Second law of thermodynamics	1	22/7/2016		5	
C	Kelvin-Planck and Clausius statements and their equivalence	1	26/7/2016		5	
D	PMM2, causes of irreversibility	1	27/7/2016		2,5	
E	Carnot theorem, corollary of Carnot theorem	1	28/7/2016		2,5	
F	thermodynamic temperature scale	1	29/7/2016		2	
4	**Unit 4**	**5**				
A	Entropy: Clausius theorem, property of entropy,	1	2/8/2016		5	
B	inequality of Clausius, entropy change in an	1	3/8/2016		5	

	irreversible process,				
	CLASS TEST 1		**4/8/2016**		
C	Principle of increase of entropy,	1	5/8/2016		2,5
D	Entropy change for non-flow and flow processes,	1	9/8/2016		2
E	Third law of thermodynamics	1	10/8/2016		2,5
5	**Unit 5**	**9**			
A	Energy: Energy of a heat input in a cycle	1	11/8/2016		5
B	Exergy destruction in heat transfer process,	1	12/8/2016		5
C	Exergy of finite heat capacity body	1	16/8/2016		5
D	Exergy of closed system	1	17/8/2016		5
E	Exergy of steady flow system,	1	19/8/2016		5
F	Irreversibility	1	23/8/2016		5
G	Gouy-Stodola theorem	1	24/8/2016		5
H	Irreversibility and Gouy-Stodola theorem and its applications,	1	26/8/2016		2,5
I	Second law efficiency	1	30/8/2016		2,5
6	**Unit 6**	**10**			
A	Vapor Power cycles: Carnot vapor cycle	1	31/8/2016		2,5
B	Rankine cycle,	1	1/9/2016		5
C	Comparison of Carnot and Rankine cycle	1	2/9/2016		5
D	Calculation of cycle efficiencies	1	6/9/2016		2,5
E	Variables affecting efficiency of Rankine cycle, reheat cycle	1	7/9/2016		2,5
	CLASS TEST 2		**8/9/2016**		
F	Regenerative cycle	1	9/9/2016		5
G	Reheat-regenerative cycle	1	13/9/2016		5
H	Feed water heaters	1	14/9/2016		5
I	Numerical	1	16/9/2016		
7	**Unit 7**	**10**			
A	Gas Power cycles: Recapitulation of Carnot,	1	20/9/2016		5
B	Otto and Diesel cycle	1	21/9/2016		5
C	Dual cycle,	1	22/9/2016		5

D	Comparison of Otto, Diesel and Dual cycles,	1	23/9/2016		5	
E	air standard efficiency	1	4/10/2016		5	
F	mean effective pressure, brake thermal efficiency, relative efficiency	1	5/10/2016		5	
G	Brayton cycle, effect of reheat, regeneration, inter cooling	1	6/10/2016		2,5	
H	Turbine and compressor efficiency on Brayton cycle	1	7/10/2016		2,5	
I	Numerical	1	13/10/2016		5	
J	Numerical	1	13/10/2016		5	
8	**Unit 8**	**7**				
A	Properties of gases and gas mixtures	1	14/10/2016		5	
B	Avogadro's law, equation of state, ideal gas equation.	1	18/10/2016		5	
C	Vander Waal's equation, reduced properties,	1	19/10/2016		5	
D	law of corresponding states	1	20/10/2016		5	
E	compressibility chart	1	21/10/2016		5	
F	Gibbs-Dalton law, internal energy	1	25/10/2016		5	
G	enthalpy and specific heat of a gas mixtures	1	26/10/2016		2,5	

	Teaching Aid Code:	
1	O.H.P	
2	L.C.D PROJECTER	Sign of Teacher : _____
3	MODEL	
4	CHART	
5	OTHER (VIDEO)	Sign of H.O.D : _____

*** Remark column should cover any slippages and remedial action planned**

LESSON PLANNING, Rev. no. :00	Page no.:__of __

Reference Books:

1. Engineering Thermodynamics by P.K. Nag, McGraw-Hill Education
2. Fundamentals of Thermodynamics by Borgnakke & Sonntag, 7th Ed. Wiley India (P) Ltd.
3. Thermodynamics – An Engineering Approach by Yunus Cengel & Boles, McGraw-Hill Education
4. Engineering Thermodynamics by Gordon Rogers and Yon Mayhew, Pearson Education Ltd.
5. Engineering Thermodynamics by Krieth, CRC Press
6. Engineering Thermodynamics by Jones and Dugan, PHI Learning Pvt. Ltd.