

LESSON PLAN.

Academic Session :- 2022-23

Subject :- THERMAL ENGG. -1 , Subject code -Theory 4

Total Period : 60

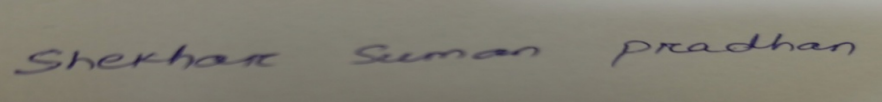
Teacher :- SHEKHAR SUMAN PRADHAN (PTGF, MECHANICAL ENGINEERING DEPT.)

Theory :- 4p/week

SEMESTER:-3rd

| MONTH | Week | DATE | UNIT NO/PERIOD ALLOTTED | Syllabus to be covered | Syllabus actually covered | Short fall | Signature |
|-----------|------|------------|--|---|---------------------------|------------|-----------|
| SEPTEMBER | 4TH | 19-09-2022 | 13 | 1) THERMODYNAMIC CONCEPTS AND TERMINOLOGY - Introduction | COVERED | NILL | |
| | 4TH | 21-09-2022 | | Thermodynamic systems and its types - pressure , volume | COVERED | NILL | |
| | 4TH | 22-09-2022 | | Temperature and its different scale of measurement | COVERED | NILL | |
| | 4TH | 24-09-2022 | | Macroscopic and microscopic approach of thermodynamics | COVERED | NILL | |
| | 5TH | 26-09-2022 | | Basic of Entropy, Enthalpy and Internal Energy | COVERED | NILL | |
| | 5TH | 28-09-2022 | | Intensive and Extensive properties | COVERED | NILL | |
| | 5TH | 29-09-2022 | | Basic concept of process, path, cycle and state | COVERED | NILL | |
| OCTOBER | 3RD | 10/10/2022 | | Path function , Point function and its Difference | COVERED | NILL | |
| | 3RD | 12/10/2022 | | State Thermodynamic equilibrium (what is Thermal, chemical and mechanical equilibrium) | COVERED | NILL | |
| | 3RD | 13/10/2022 | | Discuss about Quasistatic process | COVERED | NILL | |
| | 3RD | 15/10/2022 | | Concept of Energy and its sources | COVERED | NILL | |
| | 4TH | 17/10/2022 | | Define Work and Heat and its comparision | COVERED | NILL | |
| | 4TH | 19/10/2022 | | Mechanical equivalent of heat ,work transfer and Displacement work | COVERED | NILL | |
| | 4TH | 20/10/2022 | 2) LAWS OF THERMODYNAMICS - State and Explain Zeroth law of Thermodynamics | COVERED | NILL | | |
| | 4TH | 22/10/2022 | Zeroth law explanation and its application | COVERED | NILL | | |
| | 5TH | 26/10/2022 | State and Explain 1st Law of Thermodynamics | COVERED | NILL | | |
| | 5TH | 27/10/2022 | 1st law of thermodynamics for process and cycle for closed system | COVERED | NILL | | |
| | 5TH | 29/10/2022 | Limitation of 1st law of thermodynamics | COVERED | NILL | | |

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| | 6TH | 31/10/2022 | | 1st law of thermodynamics for open system and basic of control volume | COVERED | NILL | |
| NOVEMBER | 1ST | 2/11/2022 | 13 | Define steady flow energy equation and its derivation for open system | COVERED | NILL | |
| | 1ST | 3/11/2022 | | Application of 1st law of thermodynamics equation in Turbine and Compressor | COVERED | NILL | |
| | 1ST | 5/11/2022 | | Introduction to 2nd law of thermodynamics | COVERED | NILL | |
| | 2ND | 7/11/2022 | | Discussion about Kelvin- Planks and Clausius statement | COVERED | NILL | |
| | 2ND | 9/11/2022 | | State and define heat engine, heat pump and refrigerator | COVERED | NILL | |
| | 2ND | 10/11/2022 | | Efficiency calculation of heat engine and COP calculation of heat pump and refrigerator | COVERED | NILL | |
| | 2ND | 12/11/2022 | | Numerical practice on SFEE , and efficiency of heat engine and cop of heat pump and refrigerator | COVERED | NILL | |
| | 3RD | 14/11/2022 | | 3) PROPERTIES PROCESSES OF PERFECT GAS - INTRODUCTION | COVERED | NILL | |
| | 3RD | 16/11/2022 | | Define perfect gas and real gas and its difference, Boyles law | COVERED | NILL | |
| | 3RD | 17/11/2022 | | Define Charle's law and Gaylussac law | COVERED | NILL | |
| | 3RD | 19/11/2022 | | Define Avogadro's law and Dalton's law of partial pressure | COVERED | NILL | |
| | 4TH | 21/11/2022 | | Discuss about General gas equation , characteristics gas constant and universal gas constant | COVERED | NILL | |
| | 4TH | 23/11/2022 | | Explain specific heat of Gas (Cp and Cv) , relation between Cp and Cv | COVERED | NILL | |
| | 4TH | 24/11/2022 | | Define Enthalpy of Gas , derieve relation between enthalpy , internal energy , pressure and volume | COVERED | NILL | |
| | 4TH | 26/11/2022 | 14 | workdone during nonflow process of Isobaric, Isochoric and Isothermal process | COVERED | NILL | |
| | 5TH | 28/11/2022 | | Derieve workdone of isothermal and adiabatic process | COVERED | NILL | |
| | 5TH | 30/11/2022 | | derieve workdone of polytropic process | | | |
| | | 1ST | 1/12/2022 | | Discussion of free expansion and throttling process | | |
| | 1ST | 3/12/2022 | | numerical on Boyle's law , Charle's law , gaylussac law | | | |
| | 2ND | 5/12/2022 | | Numerical on AVogadro's law and Daitons's law of partial pressure and General gas equation | | | |
| | 2ND | 7/12/2022 | | Numerical on work transfer and heat transfer for different nonflow process | | | |

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| DECEMBER | 2ND | 8/12/2022 | 18 | Numerical on enthalpy , specific heat Cp,Cv | | | |
| | 2ND | 10/12/2022 | | 4) INTERNAL COMBUSTION ENGINE - INTRODUCTION | | | |
| | 3RD | 12/12/2022 | | Explain and classify IC engine | | | |
| | 3RD | 14/12/2022 | | Terminology of IC engine such as bore, dead centre,stroke volume , piston speed and RPM | | | |
| | 3RD | 15/12/2022 | | Explain the working principle of 4-stroke SI engine | | | |
| | 3RD | 17/12/2022 | | Explain the working principle of 4- stroke CI engine | | | |
| | 4TH | 19/12/2022 | | Discussion of difference between 4-stroke SI and CI engine | | | |
| | 4TH | 21/12/2022 | | Explain the working principle of 2-stroke SI engine | | | |
| | 4TH | 22/12/2022 | | Explain the working principle of 2-stroke CI engine | | | |
| | 4TH | 24/12/2022 | | Discussion of difference between 2-stroke SI and CI engine | | | |
| | 5TH | 26/12/2022 | | Discussion claussius ineuqality and explanation of entropy | | | |
| | 5TH | 28/12/2022 | | Entropy calculation for different process and phase cahnge | | | |
| | 5TH | 29/12/2022 | | Entropy calculation for different process and phase cahnge | | | |
| | 5TH | 31/12/2022 | | Discussion of carnot theorem and its proof | | | |
| JANUARY | 2ND | 2/1/2022 | 5 | Explanation of Carnot cycle and its derivation | | | |
| | 2ND | 4/1/2022 | | Numericals on both Carnot theorem and carnots cycle | | | |
| | 2ND | 5/1/2022 | | Explanation about Otto cycle and its efficiency derivation | | | |
| | 2ND | 7/1/2022 | | Explanation about Diesel cycle and its efficiency derivation | | | |
| | 3RD | 9/1/2022 | | Comaprision between Otto ,Diesel and Dual cycle | | | |
| | 3RD | 11/1/2022 | | 5) FUELS AND COMBUSTION - INTRODUCTION | | | |
| | 3RD | 12/1/2022 | | Define fuel and its types explanation | | | |
| | 3RD | 14/1/2022 | | Application of different types of fuel | | | |
| | 4TH | 16/1/2022 | | Heating value of fuel and its types | | | |
| | 4TH | 18/1/2022 | | Quality of IC engine fuels , octane no. and cetane no. | | | |
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