

## Lesson Plan

Name of the Faculty: Mr. Ankit Ghalyan

Discipline: Aeronautical Engineering

Semester: 3rd

Subject: Principle of Aerothermodynamics

Work Load (Lecture/Practical) per week (in hours): Lectures, Practical

Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1 <sup>st</sup>	1 <sup>st</sup>	Basic Concepts of Thermodynamics	1 <sup>st</sup>	Performance test on a 4-stroke engine
	2 <sup>nd</sup>	Thermodynamics system		
	3 <sup>rd</sup>	control volume, Properties		
	4 <sup>th</sup>	state, processes and cycle		
2 <sup>nd</sup>	5 <sup>th</sup>	equality of temperature	2 <sup>nd</sup>	Valve timing of a 4 – stroke engine and port timing of a 2 stroke engine
	6 <sup>th</sup>	Zeroth Law of thermodynamics, temperature scale		
	7 <sup>th</sup>	laws of perfect gas		
	8 <sup>th</sup>	Pure substances		
3 <sup>rd</sup>	9 <sup>th</sup>	vapour-Liquid –solid-phase equilibrium in a pure substances	3 <sup>rd</sup>	Valve timing of a 4 – stroke engine and port timing of a 2 stroke engine
	10 <sup>th</sup>	thermodynamic surfaces		
	11 <sup>th</sup>	Revision and Assignment-I		
	12 <sup>th</sup>	Test-I		
4 <sup>th</sup>	13 <sup>th</sup>	Principle of Work and heat	4 <sup>th</sup>	Determination of effectiveness of a parallel flow heat exchanger
	14 <sup>th</sup>	Law of conservation of mass and energy		
	15 <sup>th</sup>	First law of thermodynamics, steady state Processes		
	16 <sup>th</sup>	Second law of thermodynamics		
5 <sup>th</sup>	17 <sup>th</sup>	Heat engine, Carnot cycle	5 <sup>th</sup>	Determination of effectiveness of a counter flow heat exchanger
	18 <sup>th</sup>	thermodynamic temperature scale		
	19 <sup>th</sup>	entropy		
	20 <sup>th</sup>	change of entropy for different processes		
6 <sup>th</sup>	21 <sup>st</sup>	equivalence of Kelvin plank and clausius statements	6 <sup>th</sup>	Determination of the viscosity coefficient of a given liquid
	22 <sup>nd</sup>	clausius inequality		
	23 <sup>rd</sup>	Revision and Assignment-II		
	24 <sup>th</sup>	Test-II		
7 <sup>th</sup>	25 <sup>th</sup>	General concept of Available and unavailable energy	7 <sup>th</sup>	Determination of the viscosity coefficient of a given liquid
	26 <sup>th</sup>	General concept of Available and unavailable energy		
	27 <sup>th</sup>	availability of a non flow and steady flow system		
	28 <sup>th</sup>	availability of a non flow and steady		

		flow system		
<b>8<sup>th</sup></b>	<b>29<sup>th</sup></b>	Helmholtz Function	<b>8<sup>th</sup></b>	COP test on a vapour compression refrigeration test rig
	<b>30<sup>th</sup></b>	Gibb's functions		
	<b>31<sup>st</sup></b>	Thermodynamic Relations: Important mathematical relations		
	<b>32<sup>nd</sup></b>	Numerical		
<b>9<sup>th</sup></b>	<b>33<sup>rd</sup></b>	Maxwell relations	<b>9<sup>th</sup></b>	COP test on a vapour compression refrigeration test rig
	<b>34<sup>th</sup></b>	Tds Relations		
	<b>35<sup>th</sup></b>	Joule- Thomson coefficient		
	<b>36<sup>th</sup></b>	Clayperon relation		
<b>10<sup>th</sup></b>	<b>37<sup>th</sup></b>	Revision	<b>10<sup>th</sup></b>	COP test on a vapour compression air-conditioning test rig
	<b>38<sup>th</sup></b>	Numerical		
	<b>39<sup>th</sup></b>	Numerical and assignment-IV		
	<b>40<sup>th</sup></b>	Test-IV		
<b>11<sup>th</sup></b>	<b>41<sup>st</sup></b>	Basic knowledge on Air	<b>11<sup>th</sup></b>	COP test on a vapour compression air-conditioning test rig
	<b>42<sup>nd</sup></b>	standard power cycle		
	<b>43<sup>rd</sup></b>	Brayton cycle		
	<b>44<sup>th</sup></b>	Otto cycle, diesel cycle		
<b>12<sup>th</sup></b>	<b>45<sup>th</sup></b>	Otto cycle, diesel cycle	<b>12<sup>th</sup></b>	Study of a Gas Turbine Engine
	<b>46<sup>th</sup></b>	Dual cycle		
	<b>47<sup>th</sup></b>	Stirling cycle		
	<b>48<sup>th</sup></b>	Ericsson cycle and Atkinson cycle		
<b>13<sup>th</sup></b>	<b>49<sup>th</sup></b>	Mean effective pressure and efficiencies	<b>13<sup>th</sup></b>	Study of a Gas Turbine Engine
	<b>50<sup>th</sup></b>	Four stroke petrol and diesel engine		
	<b>51<sup>st</sup></b>	Four stroke petrol and diesel engine		
	<b>52<sup>nd</sup></b>	Two stroke Petrol and diesel engine		
<b>14<sup>th</sup></b>	<b>53<sup>rd</sup></b>	General study on properties of steam, phase change process	<b>14<sup>th</sup></b>	Determination of Conductive Heat Transfer Coefficient
	<b>54<sup>th</sup></b>	use of steam table & molier char		
	<b>55<sup>th</sup></b>	Rankine cycle, Reheat cycle, Regenerative cycle		
	<b>56<sup>th</sup></b>	Rankine cycle, Reheat cycle, Regenerative cycle		
<b>15<sup>th</sup></b>	<b>57<sup>th</sup></b>	Cogeneration vapour compression refrigeration cycle.	<b>15<sup>th</sup></b>	Determination of Conductive Heat Transfer Coefficient
	<b>58<sup>th</sup></b>	Numerical		
	<b>59<sup>th</sup></b>	Numerical and Assignments-V		
	<b>60<sup>th</sup></b>	Test-V		