

# **PANIPAT INSTITUTE OF ENGINEERING & TECHNOLOGY**

## **Department of Mechanical Engineering**

**Faculty Name: - Sidharth Gandhi**

**Subject Name: - ICGT**

**Year/Semester: 5th sem**

**Subject Code: - ME-301N**

### **LESSON PLAN**

<b>Sr. No.</b>	<b>Lecture No.</b>	<b>Tentative Date</b>
Unit 1		
Lecture 1	Heat engines; Internal and external combustion engines;	15-07-2019
Lecture 2	Classification of I.C. Engines; Cycle of operations in four strokes and two-stroke IC engines	16-07-2019
Lecture 3	Wankle Engine	18-07-2019
Lecture 4	Assumptions made in air standard cycles	22-07-2019
Lecture 5	Otto cycle	23-07-2019
Lecture 6	Diesel cycle	26-07-2019
Lecture 7	Dual combustion cycle	29-07-2019
Lecture 8	Sterling and Ericsson cycles;	30-07-2019
Lecture 9	Air standard efficiency, Specific work output. Specific weight;	01-08-2019
Lecture 10	Work ratio; Mean effective pressure; Deviation of actual engine cycle from ideal cycle	05-08-2019
Lecture 11	Comparison of Otto, diesel and dual combustion cycles;	06-08-2019
Unit 2		
Lecture 12	Mixture requirements for various operating conditions in S.I. Engines; Elementary carburetor, Calculation of fuel air ratio;	12-08-2019
Lecture 13	The complete carburetor; Requirements of a diesel injection system; Type of injection system; Petrol injection;	13-08-2019
Lecture 14	Requirements of ignition system; Types of ignition systems, ignition timing; Spark plugs.	19-08-2019
Lecture 15	. S.I. engines; Ignition limits; Stages of combustion in S. I. Engines; Ignition lag; Velocity of flame propagation;	20-08-2019
Lecture 16	Detonation; Effects of engine variables on detonation; Theories of detonation; Octane rating of fuels;	22-08-2019
Lecture 17	Stages of combustion in C.I. Engines; Delay period; Variables affecting delay period;	26-08-2019
Lecture 18	Knock in C.I. Engines; Cetane rating; C.I. Engine combustion chambers	27-08-2019
Lecture 19	Pre-ignition; S.I. engine combustion chambers.	29-08-2019
Unit 3		
Lecture 20	Functions of a lubricating system, Types of lubrication system;	02-09-2019
Lecture 21	;Mist, Wet sump and dry sump systems; Properties of lubricating oil; SAE rating of lubricants;	03-09-2019
Lecture 22	Engine performance and lubrication; Necessity of engine cooling; Disadvantages of overcooling;	09-09-2019
Lecture 23	Performance parameters; BHP, IHP, Mechanical efficiency;	10-09-2019
Lecture 24	Brake mean effective pressure and indicative mean effective pressure, Torque, Volumetric efficiency;	12-09-2019

Lecture 25	Specific fuel consumption (BSFG, ISFC); Thermal efficiency; Heat balance; Basic engine measurements	16-09-2019
Lecture 26	Fuel and air consumption, Brake power, Indicated power and friction power,	17-09-2019
Lecture 27	Heat lost to coolant and exhaust gases; Performance curves;	19-09-2019
Lecture 28	Heat lost to coolant and exhaust gases; Performance curves;	26-09-2019
Unit 4		
Lecture 29	Pollutants from S.I. and C.I. Engines; Methods of emission control, Alternative fuels for I.C. Engines;	30-10-2019
Lecture 30	The current scenario on the pollution front. Working of a single stage reciprocating air compressor;	01-10-2019
Lecture 31	Calculation of work input; Volumetric efficiency; Isothermal efficiency;	03-10-2019
Lecture 32	Advantages of multi stage compression; Two stage compressor with inter-cooling;	07-10-2019
Lecture 33	Perfect inter cooling; Optimum intercooler pressure; Rotary air compressors and their applications;	10-10-2019
Lecture 34	Isentropic efficiency. Brayton cycle	15-10-2019
Lecture 35	Components of a gas turbine plant	24-10-2019
Lecture 36	Open and closed types of gas turbine plants	31-10-2019
Lecture 37	Optimum pressure ratio	04-11-2019
Lecture 38	Improvements of the basic gas turbine cycle	05-11-2019
Lecture 39	Multi stage compression with inter-cooling	07-11-2019
Lecture 40	Types of friction, Laws of dry friction, Wedge	14-11-2019
Lecture 41	Multi stage expansion with reheating between stages	18-11-2019
Lecture 42	Exhaust gas heat exchanger	19-11-2019
Lecture 43	Application of gas turbines	21-11-2019

Sidharth Gandhi  
(COURSE INCHARGE)