LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA	
Name of the Faculty: S N RAY / D BARIHA	Academic Year: 2019-20
Course No.: Th.1	Course Name: Theory of Machine
Program: Diploma	Branch: MECHANICAL
Year / Sem : II/ IV	Section:

Sl. No.	Period /Class	Time (min)	Unit	Topic to be covered	Teaching method
1.	1.	55	1	Simple mechanism , Link ,kinematic chain	Black board
2.	2.	55	1	Mechanism, machine inversion	Black board & smart class
3.	3.	55	1	four bar link mechanism and its inversion	Black board
4.	4.	55	1	Lower pair and higher pair	Black board
5.	5.	55	1	Cam and followers	Black board
6.	6.	55	1	Revision of Unit / Class -1	Black board
7.	7.	55	2	Friction ,Friction between nut and screw for square thread	Black board & smart class
8.	8.	55	2	screw jack	Black board
9.	9.	55	2	Bearing and its classification	Black board
10.	10.	55	2	Description of roller, needle roller & ball bearings	Black board
11.	11.	55	2	Torque transmission in flat pivot bearings	Black board & smart class
12.	12.	55	2	Torque transmission in conical pivot bearings	Black board & smart class
13.	13.	55	2	Flat collar bearing of single type	Black board
14.	14.		2	Flat collar bearing of multiple type	Black board
15.	15.	55	2	Torque transmission for single clutches	Black board & smart class
16.	16.		2	Torque transmission for multiple clutches	Black board
17.	17.	55	2	Working of simple frictional brakes	Black board & smart class
18.	18.	55	2	Working of Absorption type of dynamometer	Black board & smart class
19.	19.		2	Revision of Unit / Class -2	Black board
20.	20.	55	3	Power Transmission , Concept of power transmission	Black board
21.	21.	55		Type of drives, belt, gear and chain drive	Black board & smart class
22.	22.	55	3	Computation of velocity ratio, length of belts (open and cross)with and without slip	Black board
23.	23.	55	3	Ratio of belt tensions, centrifugal tension and initial tension	Black board
24.	24.	55	3	Power transmitted by the belt Determine belt thickness and width for given permissible stress for crossed belt considering centrifugal tension	smart class

25.	25.	55	3	Determine belt thickness and width for given permissible stress for crossed belt considering centrifugal tension	Black board
26.	26.	55	3	V-belts and V-belts pulleys, Concept of crowning of pulleys	Black board & smart class
27.	27.	55	3	Gear drives and its terminology	Black board
28.	28.	55	3	Gear trains, working principle of simple, compound	Black board
29.	29.	55	3	Reverted and epicyclic gear trains	Black board
30.	30.	55	3	Revision of Unit / Class -3	Black board
31.	31.	55	4	Governors and Flywheel	Black board
32.	32.		4	Function of governor, Classification of governor	Black board
33.	33.	55	4	Working of Watt, Porter	Blackboard
34.	34.	55	4	Proel and Hartnell governors	Black board
35.	35.	55	4	Conceptual explanation of sensitivity, stability and isochronisms	Black board & smart class
36.	36.	55	4	Function of flywheel, Comparison between flywheel & governor	Black board
37.	37.	55	4	Fluctuation of energy	Black board
38.	38.	55	4	Coefficient of fluctuation of speed	Black board
39.	39.	55	4	Revision of Unit / Class -4	Black board
40.	40.	55	5	Balancing of Machine ,Concept of static balancing	smart class
41.	41.	55	5	Dynamic balancing	Black board
42.	42.	55	5	Static balancing of rotating parts	smart class
43.	43.	55	5	Principles of balancing of reciprocating parts	smart class
44.	44.	55	5	Causes and effect of unbalance, Difference between static and dynamic balancing	Black board
45.	45.	55	5	Revision of Unit / Class -5	Black board
46.	46.	55	6	Vibration of machine parts, Introduction to Vibration and related terms (Amplitude, time period and frequency, cycle)	Black board
47.	47.	55	6	Classification of vibration, Basic concept of natural	Black board
48.	48.	55	6	forced vibration	Black board
49.	49.	55	6	Damped vibration	Black board
50.	50.	55	6	Torsional and Longitudinal vibration	Black board
51.	51.	55	6	Causes & remedies of vibration	Black board
52.	52.	55	6	Revision of Unit / Class -6	Black board
53.	53.	55		Tutorial Class for unit/chapter-1	Black board
54.	54.	55		Tutorial Class for unit/chapter-2	Black board
55.	55.	55		Tutorial Class for unit/chapter-3	Black board
56.	56.	55		Tutorial Class for unit/chapter-4	Black board
57.	57.	55		Tutorial Class for unit/chapter-5	Black board
58.	58.	55		Tutorial Class for unit/chapter-6	Black board
59.	59.	55		Semester Question paper discussion	Black board
60.	60.	55		Semester Question paper discussion	Black board

REFERENCES

1. Text Book of Theory of Machine , R.S Khurmi , S.Chand Publication
2. Text Book of Theory of Machine, R.K. Rajput , S.Chand Publication
3. Text Book of Theory of Machine, P.L.Ballany, Dhanpat Rai Publication
4. Text Book of Theory of Machine ,Thomas Bevan ,Pearsion Publication

LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA	
Name of the Faculty: RAKESH KUMAR MAHANTA	Academic Year: 2019-20
Course No.: Th.4	Course Name: Thermal- II
Program: Diploma	Branch: MECHANICAL
Year / Sem : II/ IV	Section:M_1 & M_2

Sl. No.	Period /Class	Time (min)	Unit	Topic to be covered	Teaching method
1.	1	55	1	Automobiles definition, need & classification	Black board
2.	1	55x1	1	Layout of automobile chassis with major components (Line diagram)	Black board & smart class
3.	1	55x1	1	Manufacturer's specification of auto engines of motorcycle, scooter, car & bus one from each.	Black board
4.	2	55x2	1	State the classification of engines basing on working principle, fuel used position of cylinder, arrangement of cylinder.	Black board
5.	3	55x3	2	Clutch System: Need, Types (Single & Multiple) and Working principle with sketch	Black board & smart class
6.	2	55x2	2	Gear Box: Purpose of gear box, Construction and working of a 4 speed gear box, Concept of automatic gear changing mechanisms	Black board & smart class
7.	3	55x2	2	Propeller shaft: Constructional features	Black board
8.	3	55x3	2	Differential: Need, Types and Working principle	Black board & smart class
9.	1	55	3	Braking systems in automobiles: Need and types.	Black board
10.	2	55x2	3	Mechanical Brake	Black board
11.	2	55x2	3	Hydraulic brake	Black board
12.	1	55	3	Air brake	Black board
13.	1	55	3	Air assisted hydraulic brake	Black board
14.	1	55	4	Wiring diagram of Horn circuit	Black board
15.	1	55	4	Lighting circuit	Black board
16.	1	55	4	Cut-out circuit	Black board
17.	1	55	4	Voltage current regulator circuit and Flasher circuit (Sketch and description)	Black board
18.	2	55x2	4	State the common ignition troubles and its remedies.	Black board
19.	2	55x2	4	Spark plugs: Purpose, construction and specifications	Black board
20.	1	55	5	Description of the conventional suspension system for Rear and Front axle.	Black board & smart class
21.	1	55	5	Description of independent suspension system used in cars (coil spring and tension bars)	Black board & smart class

22.	2	55x2	5	Constructional features and working of a telescopic shock absorber.	Black board & smart class
23.	1	55	5	Tyre specifications & causes and remedies of tyre wear.	Black board
24.	1	55	6	Describe necessity of engine cooling.	Black board
25.	2	55x2	6	Describe defects of cooling and their remedial measures	Black board
26.	2	55x2	6	Describe the Function of lubrication.	Black board
27.	2	55x2	6	Describe the lubrication System of I.C. engine.	Black board
28.	2	55x2	7	For petrol Engine: Description of carburetion and Air fuel ratio.	Black board & smart class
29.	3	55x3	7	Description of the Battery ignition and Magnet ignition system.(For petrol Engine)	Black board
30.	2	55	7	Multipoint fuel injection system.(For petrol Engine)	Black board & smart class
31.	3	55x3	7	For Diesel engine: Working principle of Fuel feed pump, Injector and Fuel filter.	Black board & smart class
32.	2	55x2	7	For Diesel engine: Working principle of fuel injection system for multi cylinder engine.	Black board & smart class
Total Period					

References

Text books

1 R.B.Gupta Automobile Engineering Satya Prakashan
2 Dr Kirpal Singh Automobile Engineering Vol- I & II Standard Publishers
3 C.P.Nakra Automobile Engineering Dhanpat Rai Publication
4 W.H.Course Automotive Engine McGraw Hill

Internate

5.Youtube

6.NPTEL

LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL, JHARSUGUDA	
Name of the Faculty:MISS PUJA SWAIN MR. ALOK BARA	Academic Year:2019-20
Course No.: TH3	Course Name: FLUID MECHANICS
Program: Diploma	Branch:Mechanical
Year/Sem: II / III	Section:

Sl. No.	Period	Time (min)	Unit/ Chapter	Topic to be covered	Teaching method
1.	1	55	1	Introduction to fluid and fluid mechanics	Chalkboard
2.	2	55	1	Properties of fluid: density, specific weight, specific gravity, specific volume	chalkboard
3.	3	55	1	Solve numericals	chalk board
4.	4	55	1	Defined dynamic viscosity, kinematic viscosity	chalk board
5.	5	55	2	Surface tension, capillary phenomenon	Chalkboard, smart class
6.	6	55	2	Class test	Pen paper
7.	7	55	2	FLUID PRESSURE & ITS MEASUREMENTS: Defined pressure & unit of fluid pressure, pressure intensity and pressure head.	chalkboard
8.	8	55	2	State pascal law	chalk board
9.	9	55	2	State atmospheric pressure, absolute pressure, vacuum pressure, gauge pressure	chalk board
10.	10	55	2	Demonstrate pressure measuring instrument 1-manometer-simple	chalk board
11.	11	55	2	Demonstrate differential manometer	chalk board
12.	12	55	2	Explain bourdon tube pressure gauge, solve numericals	Chalk board, smart class
13.	13	55	2	Solve numericals: manometer	chalk board
14.	14	55	3	HYDROSTATICS: define hydrostatics pressure	chalk board
15.	15	55	3	Explain total pressure, center of pressure on immerg body: vertical, horizontal	Smart class
16.	16	55	3	Solve numerical	Chalkboard
17.	17	55	3	State Archimedes principle & concept of buoyancy	chalkboard smart class
18.	18	55	3	Defined meta center, metacentric height	chalkboard
19.	19	55	3	Explain concept of flotation	Chalk board

20.	20	55	4	KINEMATICS OF FLOW: explain type of fluid flow Explain Continuity equation and prove it.	Chalk board
21.	21	55	4	Explain and prove Bernoulli's theorem	Chalk board
22.	22	55	4	Solve numericals on bernoulli's eqution	Chalk board
23.	23	55	4	Demonstrate Applications :venturimeter,pitot tube state limitation of bernoulli's theorem	Chalk board,smart class
24.	24	55	4	Solve numericals: venturimeter, pitot tube	Chalk board
25.	25	55	5	ORIFICES,NOTCHES& WEIRS: define orifice ,flow through orifice	Chalk board, smart class
26.	26	55	5	Defined orifice coefficient ,state relation between orifice coefficient	chalk board
27.	27	55	5	Classification of notches & weirs	chalk board
28.	28	55	5	Discharge over rectangular notches	chalk board
29.	29	55	5	Discharge over triangular notches	chalk board
30.	30	55	5	Solve numericals	chalk board
31.	31	55	6	FLOW THROUGH PIPE: Define pipe, explain loss of energy in pipe	Chalk board, smart class
32.	32	55	6	Head loss due to friction: explaindarchy's & chezy's formula	Chalk board
33.	33	55	6	Solve problem using darchy's & chezy's formula	Chalk board
34.	34	55	6	Explain hydraulic gradient line, total gradient line	chalk board
35.	35,36	55	7	IMPACT OF JET: Impact of jet on fixed & moving flat plate	chalkboard, smart class
36.	37,38	55	7	Derivation of workdone on series of vane & condition of maximum efficiency	chalk board
37.	39	55	7	Impact of jet on moving curved vane	chalk board smart class
38.	40,41	55	7	Velocity triangle	Chalkboard
39.	42,43	55	7	Derive Workdone, efficiency	chalk board
40.	44	55		Revision	chalk board
41.	45	55		Revision	Chalk board
42.	46	55		Revision	Chalk board
43.	47	55		Class test	Pen paper
44.	48	55		Class test	Pen paper

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LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA	
Name of the Faculty: P BASKEY / M SOREN	Academic Year:2019-20
Course No.: Th.2	Course Name: MANUFACTURING TECHNOLOGY
Program: Diploma	Branch: Mechanical
Year/Sem: IV	Section:

Sl NO.	**Period**	**Time (min)**	**Unit/ Chapter**	**Topic to be cover**	**Teaching Method**
1	1	55	1	Introduction of various tool materials	Black Board
2	2	55	1	Composition of various tool materials	Black Board
3	3	55	1	Physical propertiesvarious tool materials	Black Board
4	4	55	1	Uses of various tool materials	Black Board
5	5.	55	1.	Revision of Chapter-1	Black Board
6	6	55	2	Cutting action of tools such as Chisel	Black Board
7	7	55	2	Cutting action of various tools such hacksaw blade, dies and reamer	Black Board
8	8	55	2	Turning tool geometry	Smart Class
9	9	55	2	Purpose of tool angle	Smart Class
10	10	55	2	Machining process parameters (Speed, feed and depth of cut)	Black Board
11	11	55	2	Coolants and lubricants in machining and purpose	Black Board
12	12	55	2	Revision of Chapter-2	Black Board
13	13	55	3	Operations carried out in a Lathe (Turning, thread cutting)	Black Board
14	14	55	3	Operations carried out in a Lathe (Taper turning, internal machining, parting off, facing, knurling)	Black Board
15	15	55	3	Safety measures during machining, Difference between engine lathe and Capstan lathe	Black Board
16	16	55	3	Major components of Capstan lathe and their function	Smart Class
17	17	55	3	Define multiple tool holders ofCapstan Lathe	Black Board

18	18	55	3	Major components and their function (Turret lathe)	Black Board
19	19	55	3	Draw the tooling layout for preparation of a hexagonal bolt &bush	Black Board
20	20	55		**INTERNAL ASSESMENT**	
21	21	55	4	Introduction and application areas of a shaper machine	Black Board
22	22	55	4	Major components of Shaper Machine and their function	Smart Class
23	23	55	4	Explain the automatic feed mechanism Of Shaper Machine	Smart Class
24	24	55	4	Explain the construction &working of tool head of shaper Machine	SMART CLASS AND PRACTICAL OBSERVATION IN WORKSHOP
25	25	55	4	Explain the quick return mechanism through sketch of Shaper Machine	Smart Class
26	26	55	4	State the specification of a Shaper machine	Black Board
27	27	55	5	Application area of a Planning Machine and its difference with respect to Shaper Machine	Black Board
28	28	55	5	Major components and their functions of Planner machine	Smart Class
29	29	55	5	The table drive mechanism of Planner machine	Smart Class
30	30	55	5	Working of tool and tool support of planner Clamping of work through sketch	Black Board
31	31	55	5	Revision of Chapter-3	Black Board
32	32	55	6	Types of milling machine and operations performed by them and also same for CNC milling machine	Black Board
33	33	55	6	Explain work holding attachment of Milling machine	Black Board and practical observation
34	34	55	6	Construction & working of simple dividing head	Black Board
35	35	55	6	Construction & working of Universal dividing Head	Black Board
36	36	55	6	Procedure of simple Indexing, Compound indexing	Black Board
37	37	55	6	Illustration of different indexing methods	Black Board
38	38	55	6	Revision of Chapter-6	Black Board

39	39	55	7	Major components and their	Smart Class
40	40	55	7	Construction Slotter machine	Black Board
41	41	55	7	working of Slotter machine	Black Board
42	42	55	7	Tools used in Slotter	Black Board
43	43	55	7	Revision of Chapter-7	Black Board
44	44	55	8	Significance of grinding operations	Black Board
45	45	55	8	Manufacturing of grinding wheels	Black Board
46	46	55	8	Criteria for selecting of grinding wheels	Black Board
47	47	55	8	Criteria for selecting of grinding wheels	Black Board
48	48	55	8	Specification of grinding wheels and Working of Cylindrical Grinder	Black Board
49	49	55	8	Specification of grinding wheels and Working ofSurface Grinder, Centreless Grinder	Black Board
50	50	55	8	Revision of Chapter-8	Black Board
51	51	55	9	Working of Bench drilling machine	Smart Class
52	52	55	9	Working of Pillar drilling machine, Radial drilling machine	Black Board
53	53	55	9	Basic Principle ofBoring Difference between Boring and drilling	Black Board
54	54	55	9	Broaching Machine (pull type, push type) Advantages of Broaching and applications	Black Board
55	55	55	10	Definition of Surface finish	Black Board
56	56	55	10	Description of lapping& explain their specific cutting	Black Board
57	57	55		Class Discussion on Chapter-1 & 2	Black Board
58	58	55		Class Discussion on Chapter-3 & 4	Black Board
59	59	55		Class Discussion on Chapter-5,7 & 8	Black Board
60	60	55		Class Discussion on Chapter-6,9 & 10	Black Board

LESSON PLAN	
JHARSUGUDA ENGINEERING SCHOOL,JHARSUGUDA	
Name of the Faculty: RAKESH KUMAR MAHANTA	Academic Year: 2019-20
Course No.: Th.4	Course Name: Thermal- II
Program: Diploma	Branch: MECHANICAL
Year / Sem : II/ IV	Section:M_1 & M_2

Sl. No.	Period /Class	Time (min)	Unit	Topic to be covered	Teaching method
1.	1	55	1	Recapitulation of Thermal engineering-I & Introduction about Thermal Engineering-II	Black board
2.	3	55x5	1	Defining mechanical efficiency, Indicated thermal efficiency, Relative Efficiency, brake thermal efficiency overall efficiency	Black board
3.	2	55x2	1	Idea about Mean effective pressure & specific fuel consumption.	Black board
4.	2	55x2	1	Work out problems to determine efficiencies & specific fuel consumption	Black board
5.	2	55x2	2	Brief idea about Compressor & Explanation of functions of compressor & industrial use of compressor air	Black board & smart class
6.	1	55		Classification air compressor & principle of operation.	Black board
7.	1	55	2	Description of the parts and working principle of reciprocating Air compressor.	Black board
8.	3	55x3	2	Explanation of terminology of reciprocating compressor such as bore, stroke, pressure ratio free air delivered &Volumetric efficiency.	Black board
9.	3	55x3	2	Derivation of the work done of single stage & two stage compressor with and without clearance	Black board
10.	2	55x2	2	Solving simple problems (without clearance only)	Black board
11.	1	55	3	Difference between gas & vapours.	Black board
12.	1	55	3	Formation of steam.	Black board
13.	1	55	3	Representation on P-V, T-S, H-S, & T-H diagram.	Black board
14.	1	55	3	Definition & Properties of Steam.	
15.	4	55x4	3	Use of steam table & mollier chart for finding unknown properties.	Black board
16.	2	55x2	3	Non flow & flow process of vapour.	Black board
17.	2	55x2	3	Determine the changes in properties & solve simple numerical.	Black board

18.	1	55	4	Classification & types of Boiler.	
19.	1	55	4	Important terms for Boiler.	Black board
20.	1	55	4	Comparison between fire tube & Water tube Boiler.	Black board & smart class
21.	4	55x4	4	Description & working of common boilers (Cochran, Lancashire, Babcock & Wilcox Boiler)	Black board & smart class
22.	2	55x3	4	Boiler Draught (Forced, induced & balanced)	Black board
23.	3	55x3	4	Boiler mountings & accessories.	Black board
24.	1	55	5	Carnot cycle with vapour.	Black board
25.	1	55x1	5	Derivation of work & efficiency of the Carnot cycle.	Black board
26.	2	55x2	5	Rankine cycle. Representation in P-V, T-S & h-s diagram, Derive Work & Efficiency. Effect of Various end conditions in Rankine cycle.	Black board & smart class
27.	2	55x2	5	Reheat cycle & regenerative Cycle.	Black board
28.	2	55x2	5	Solving simple numerical on Carnot vapour Cycle & Rankine Cycle.	Black board
29.	1	55	6	Modes of Heat Transfer (Conduction, Convection, Radiation).	Black board
30.	2	55	6	Fourier law of heat conduction and thermal conductivity (k).	Black board
31.	1		6	Newton's laws of cooling.	Black board
32.	2	55	6	Radiation heat transfer (Stefan, Boltzmann & Kirchhoff's law) only statement, no derivation & no numerical problem.	Blackboard
33.	2	55	6	Black body Radiation, Definition of Emissivity, absorptivity, & transmissibility.	Black board
Total Period	60				

Sl No.	Reference Book	Author Name	Publisher Name
1	Thermal Engineering	R.S. Khurmi	S.Chand
2	Thermal Engineering	A.R.Basu	Dhanpat Rai
3	Thermal Engineering	A.S. Sarao	Satya Prakash
4	Engineering Thermodynamics	P.k.Nag	TMH
5	Thermal Engineering	Mahesh M Rathore	TMH