

**Bachelor of Technology (Mechanical Engineering)**  
**SCHEME OF STUDIES/EXAMINATIONS**  
**Semester – IV**

S. No.	Course No.	Course Title	Teaching Schedule			Allotment of Marks				Duration of Exam (Hrs.)	
			L	T	P	Hours/Week	Theory	Sessional	Practical		Total
1	AS-201N/ HS-201N	Mathematics –III/ Fundamentals of Management	3	1	0	4	75	25	0	100	3
2	ME-202N	Production Technology-I	4	0	0	4	75	25	0	100	3
3	ME-204N	Steam Generation & Power	3	1	0	4	75	25	0	100	3
4	ME-206N	Mechanics of Solid-II	3	1	0	4	75	25	0	100	3
5	ME-208N	Fluid Mechanics	4	1	0	5	75	25	0	100	3
6	ME-210N	Dynamics of Machine	3	1	0	4	75	25	0	100	3
7	ME-214N	Fluid Mechanics Lab	0	0	2	2	0	40	60	100	3
8	ME-216N	Dynamics of Machine Lab	0	0	2	2	0	40	60	100	3
9	ME-218N	Steam Generation & Power Lab	0	0	2	2	0	40	60	100	3
10	ME-220N	Production Technology Lab	0	0	3	3	0	40	60	100	
		<b>Total</b>	<b>20</b>	<b>5</b>	<b>9</b>	<b>34</b>	<b>450</b>	<b>310</b>	<b>240</b>	<b>1000</b>	
10	MPC-202N	Energy Studies*	3	0	0	3	75	25	0	100	3

*\*MPC-202N is a mandatory course and student has to get passing marks in order to qualify for the award of degree but its marks will not be added in the grand total.*

**Note:** *All the students have to undergo six weeks industrial training after IV<sup>th</sup> semester and it will be evaluated in V<sup>th</sup> semester.*

## Lesson Plan

**Name of faculty** : Ms. Megha  
**Discipline** : B.Tech (ME)  
**Semester** : 6<sup>th</sup>  
**Subject** : Fundamentals of Management  
**Lesson Plan during** : 15 Weeks (From January 2018 to April, 2018)

**\*\* Work load (Lecture / practical) per week (In hours): lectures-03, practical – 00**

WEEK	THEORY	
	LECTURE	TOPIC
	DAY	( INCLUDING ASSIGNMENT/ TEST)
1.	1.	Meaning, Definition, Nature Of FOM
	2.	Importance & Functions Of FOM
	3.	Management As Art, Science & Profession
2.	4.	Management As Social System
	5.	Concepts Of Management-Administration
	6.	Evolution Of Management Thought
3.	7.	Development Of Management Thought
	8.	Scientific Management
	9.	Administrative Theory Of Management
4.	10.	Bureaucratic Organization, Behavioral Approach
	11.	Human Relations Movement
	12.	Behavioral Science Approach
5.	13.	Modern Approach To Management
	14.	Systems Approach And Contingency Approach
	15.	Nature, Purpose And Functions, Types Of Plans
6.	16.	Planning Process
	17.	Strategies And Policies

	18.	Concept Of Corporate Strategy, Formulation Of Strategy
7.	19.	Types Of Strategies
	20.	Management By Objectives (MBO)
	21.	SWOT Analysis, Types Of Policies
8.	22.	Principles Of Formulation Of Policies
	23.	Nature, Importance, Process, Organization Structure
	24.	Line And Staff Organization
9.	25.	Delegation Of Authority And Responsibility
	26.	Centralization And Decentralization
	27.	Decision Making Process & Models
10.	28.	Departmentalization: Concept And Types
	29.	Formal & Informal Organizations
	30.	Concept, Process, Features; Manpower Planning; Job Analysis: Concept And Process
11.	31.	Recruitment And Selection: Concept, Process, Sources Of Recruitment
	32.	Performance Appraisal, Training And Development
	33.	Communication- Nature, Process, Formal And Informal, Barriers To Effective Communication
12.	34.	Theories Of Motivation-Maslow, Herzberg, McGregor
	35.	Concept And Theories, Managerial Grid, Situational Leadership
	36.	Transactional And Transformational Leadership
13.	37.	Concept, Process, Types, Barriers To Controlling, Controlling Techniques:
	38.	Budgetary Control, Return On Investment
	39.	Management Information System-MIS , TQM-Total Quality Management, Network Analysis- PERT And CPM
14.	40.	Social Responsibility Of Management–Management Of Crisis, Total Quality

		Management, Stress Management
	41.	Concept Of Corporate Social Responsibility (CSR) And Business Ethics. Functional Aspects Of Business
	42.	Conceptual Framework Of Functional Areas Of Management
15	43.	Finance
.	44.	Marketing
	45.	Human Resources

## LESSON PLAN

**Name** : Mr. Kulvinder Singh(Theory )  
**Discipline** : MechanicalDepartment  
**Semester** : 4th  
**Subject** : Production Technology (ME-202N)  
**Lesson Plan Duration** : 15 weeks (from January, 2018 to April, 2018)  
**Work Load** : Lectures-04

Week	Theory		Practical	
	Lecture Day	Topic	Practical day	Topic
1 <sup>st</sup>	1 <sup>st</sup>	<b>UNIT-I Geometry of Cutting Tools: Introduction</b>	1 <sup>st</sup>	1. Practice of slab milling on milling machine.
	2 <sup>nd</sup>	Geometry of single point turning tools: Cutting edges, Rake and Clearance angles,		
	3 <sup>rd</sup>	Systems of description of tool geometry		
	4 <sup>th</sup>	Designation of tool geometry in Machine reference system		
2 <sup>nd</sup>	5 <sup>th</sup>	ORS system and NRS system	2 <sup>nd</sup>	2. Practice of slotting on milling machine.
	6 <sup>th</sup>	Geometry of Multi point cutting tools: Geometry of Milling cutters,		
	7 <sup>th</sup>	Geometry of Drills		
	8 <sup>th</sup>	<b>Mechanics of Metal cutting:</b> Cutting Tool Materials, Chip formation		
3 <sup>rd</sup>	9 <sup>th</sup>	Types of Chips, Chip control and chip breakers	3 <sup>rd</sup>	3. To cut gear teeth on milling machine using dividing head.
	10 <sup>th</sup>	orthogonal and oblique metal cutting, Chip thickness ratio, Velocity relationship in orthogonal cutting		
	11 <sup>th</sup>	Merchant's Analysis, Stress and Strain on the chip, Forces on single point cutting tool, Torque, heat produced, power		

		and MRR equations		
	12 <sup>th</sup>	Use of Merchant's circle diagram in force analysis in orthogonal cutting for single point cutting tool		
4 <sup>th</sup>	13 <sup>th</sup>	Popular theories on mechanics of metal cutting: Earnst Merchant Theory,	4 <sup>th</sup>	4. Introduction to gear hobber, demonstration of gear hobbing and practice.
	14 <sup>th</sup>	Merchant theory,		
	15 <sup>th</sup>	Stabler Theory.		
	16 <sup>th</sup>	<b>Assignment 1:</b> Tool geometry, Mechanism of chip formation, Popular Theories of mechanics of metal cutting.		
5 <sup>th</sup>	17 <sup>th</sup>	<b>UNIT-II</b> <b>Cutting Fluids and Tool life:</b> Cutting fluids, Purpose, Properties	5 <sup>th</sup>	5. Introduction to various grinding wheels and demonstration on the surface grinder.
	18 <sup>th</sup>	Types of lubricants, Types of cutting fluids, Tool Failure		
	19 <sup>th</sup>	Mechanisms of Tool wear, Tool Life		
	20 <sup>th</sup>	Factors affecting tool life.		
6 <sup>th</sup>	21 <sup>st</sup>	Taylor's Tool life equation	6 <sup>th</sup>	6. Introduction to tool and cutter grinder and dynamometer.
	22 <sup>nd</sup>	<b>Economics of metal machining:</b> Cost Considerations in Manufacturing, Elements of Machining cost, Minimum cost per piece		
	23 <sup>rd</sup>	Maximum Production rate		
	24 <sup>th</sup>	Optimum cutting speed and optimum tool life for minimum cost of production and maximum production rate		
7 <sup>th</sup>	25 <sup>th</sup>	Machinability, Machinability Index	7 <sup>th</sup>	Practice
	26 <sup>th</sup>	Improving Machinability, Measurement of cutting forces		
	27 <sup>th</sup>	Tool force Dynamometers , Numerical on Mechanics of Metal cutting and economics		
	28 <sup>th</sup>	<b>ASSIGNMENT-II :</b> Measurement of cutting forces & Tool force		

		Dynamometers		
8 <sup>th</sup>	29 <sup>th</sup>	<b>TEST 1 (FROM UNIT I &amp; II)</b>	8 <sup>th</sup>	7. Study the constructional detail and working of CNC lathes Trainer.
	30 <sup>th</sup>	<b>UNIT-III</b> <b>Milling Process:</b> Milling Machine Operations performed on Milling machine		
	31 <sup>st</sup>	Parts of Milling Machine, Types of Milling machines		
	32 <sup>nd</sup>	fundamentals of Milling process, Milling Cutters		
9 <sup>th</sup>	33 <sup>rd</sup>	Elements of Plain Milling cutter, Cutter Holing devices	9 <sup>th</sup>	8. To carry out welding using TIG/MIG welding set.
	34 <sup>th</sup>	Cutting speed , Feed and depth of cut		
	35 <sup>th</sup>	Force system in Milling, Dividing head or Indexing Head		
	36 <sup>th</sup>	Methods of Indexing		
10 <sup>th</sup>	37 <sup>th</sup>	<b>Drilling Machine:</b> Types of Drills, Drilling machine Types,	10 <sup>th</sup>	9. Introduction, demonstration & practice on profile projector & gauges.
	38 <sup>th</sup>	Drilling machine operations,, Size of Drilling machine,		
	39 <sup>th</sup>	Main parts of drilling machine,		
	40 <sup>th</sup>	Force system in Drilling,		
11 <sup>th</sup>	41 <sup>st</sup>	Cutting speed, Feed and Depth of cut in drilling,	11 <sup>th</sup>	10. To make a component on lathe machine using copy turning attachment.
	42 <sup>nd</sup>	MRR in drilling,		
	43 <sup>rd</sup>	Numerical Problems on Drilling		
	44 <sup>th</sup>	<b>ASSIGNMENT- III :</b> Fundamentals of Milling process & Force system in Milling, Force system in Drilling		
12 <sup>th</sup>	45 <sup>th</sup>	<b>Specification of Machine Tools:</b> Introduction, purpose of machine tool specifications,	12 <sup>th</sup>	11. To cut external threads on a lathe.
	46 <sup>th</sup>	Methods of specification of conventional machine tools: specification of lathes,		
	47 <sup>th</sup>	Specification of drilling and		

		boring machines,		
	48 <sup>th</sup>	Specification of shaper, planer and slotter machines,		
13 <sup>th</sup>	49 <sup>th</sup>	Specification of milling machine,.	13 <sup>th</sup>	12. To cut multi slots on a shaper machine.
	50 <sup>th</sup>	Specification of gear teeth generating machines		
	51 <sup>st</sup>	Specification of grinding machines		
	52 <sup>nd</sup>	<b>Metrology : Measurements,</b>		
14 <sup>th</sup>	53 <sup>rd</sup>	Linear Measurement, Callipers, Vernier Calliper	14 <sup>th</sup>	13. To perform drilling and boring operation on a Component.
	54 <sup>th</sup>	Micrometer, Angular Measurement,		
	55 <sup>th</sup>	Comparators-mechanical, electrical and optical,sine bar, auto-collimator,		
	56 <sup>th</sup>	Surface finish and its measurement,		
15 <sup>th</sup>	57 <sup>th</sup>	Surface Roughness Measurement methods, Factors affecting surface finish in machining,	15 <sup>th</sup>	Practice and internal viva-voce.
	58 <sup>th</sup>	micro and macro deviation, specifying surface finish		
	59 <sup>th</sup>	<b>ASSIGNMENT-IV:</b> Surface finish and its measurement. Surface Roughness Measurement methods		
	60 <sup>th</sup>	<b>TEST- 2 (FROM UNIT III &amp; IV)</b>		

**TEXT BOOKS:**

1. A Textbook of Production Technology by P.C.Sharma, S.Chand pub.
2. Workshop Technology: B.S.Raghuwanshi, DhanpatRai Publications.

## Lesson Plan

Name of the Faculty : **Mr. Amit Kumar**

Discipline : **Mechanical Engineering**

Semester : **4<sup>th</sup>**

Subject : **SGP (ME- 204 N)**

Lesson plan : **15 Weeks( From January, 2018 to April,2018)**

Lecture per Week (in Hours) : **Lectures-04**

Week	Theory		Week	Practical
	Lecture Day	Topic(including assignment/test)	Practical Day	
1 <sup>st</sup>	1.	<b>UNIT I:</b> classification of boilers; comparison of fire tube and water tube boiler	1	To study the Babcock-Wilcox boiler (Model)
	2.	description of boiler; Lancashire; locomotive; Babcock; Wilcox		
	3.	boiler mountings; stop valve; safety valve; blow off valve; feed check etc		
2 <sup>nd</sup>	4.	water level indicator; fusible plug; pressure gauge;	2	To study the locomotive boiler (Model )
	5.	preheater; superheater; economizer; natural draught chimney design		
	6.	artificial draught; stream jet draught		
3 <sup>rd</sup>	7.	mechanical draught; calculation of boiler efficiency	3	To study the Lancashire boiler (Model).
	8.	equivalent		

		evaporation		
	9.	boiler accessories; feed pump;		
4 <sup>th</sup>	10.	feed water heater	4	To prepare heat balance sheet for given boiler.
	11.	Revision		
	12.	<b>UNIT II:</b> Carnot cycle; simple		
5 <sup>th</sup>	13.	modified Rankine cycle	5	To study various parts of the vertical steam engine.
	14.	effect of operating parameters on rankine cycle performance; effect of superheating; effect of maximum pressure		
	15.	effect of exhaust pressure		
6 <sup>th</sup>	16.	reheating and regenerative Rankine cycle	6	Viva voce
	17.	types of feed water heater; reheat factor		
	18.	binary vapour cycle.		
7 <sup>th</sup>	19.	Simple steam engine, compound engine;	7	To find power output & efficiency of a steam turbine.
	20.	compound engine; function of various components.		
8 <sup>th</sup>	21.	Revision	8	To study cooling tower and find its efficiency
	22.	<b>UNIT III:</b> Function of steam nozzle; shape of nozzle for subsonics and supersonics flow of stream		
	23.	variation of velocity; area of specific volume		
9 <sup>th</sup>	24.	steady state energy equation; continuity equation; nozzle efficiency; critical pressure ratio for	9	To study the various mountings and accessories of a boiler

		maximum discharge		
	25.	physical explanation of critical pressure		
	26.	super saturated flow of steam		
10 <sup>th</sup>	27.	design of steam nozzle	10	To find the efficiency of condenser.
	28.	Advantage of steam condensation; component of steam condensing plant;		
	29.	types of condensers; air leakage in condensers		
11 <sup>th</sup>	30.	Dalton's law of partial pressure;	11	Viva voce
	31.	vacuum efficiency; calculation of cooling water requirement;		
	32.	air expansion pump.		
12 <sup>th</sup>	33.	<b>Revision</b>	12	Numerical Problem
	34.	<b>UNIT IV:</b> classification of steam turbine		
	35.	impulse turbine; working principal		
13 <sup>th</sup>	36.	compounding of impulse turbine	13	Numerical Problem
	37.	velocity diagram; calculation of power output and efficiency		
	38.	maximum efficiency of a single stage impulse turbine; design of impulse turbine		
14 <sup>th</sup>	39.	impulse reaction turbine; working principle	14	Numerical Problem
	40.	degree of reaction		
	41.	Parsonsturbine; velocity diagram		
15 <sup>th</sup>	42.	calculation of power output; efficiency of blade height	15	Numerical Problem
	43.	condition of		

		maximum efficiency		
	44.	internal losses in steam turbine governing of steam turbine		
	45.	<b>Revision</b>		

**Text Books: Steam Generation and power –R.S.khurmi**

## Lesson Plan

Name of the Faculty : **Mr. AJAY SHARMA**

Discipline : **Mechanical Engineering**

Semester : **4<sup>th</sup>**

Subject : **Mechanics of Solid-II (ME- 206 N)**

Lesson plan : **15 Weeks( From January, 2018 to April, 2018)**

Lecture per Week (in Hours) : **Lectures-04**

<b>Week</b>	<b>Theory</b>	
	<b>Lecture Day</b>	<b>Topics (including assignment/ Test)</b>
1 <sup>st</sup>	1	Strain Energy & Impact Loading
	2	Definitions, expressions for strain energy stored in a body when load is applied gradually
	3	Definitions, expressions for strain energy stored in a body when load is applied suddenly
	4	Definitions, expressions for strain energy stored in a body when load is applied with impact
2 <sup>nd</sup>	5	Test on strain energy expressions
	6	Strain energy of beam in bending
	7	Strain energy of beam deflections
	8	Strain energy of shafts in twisting
3 <sup>rd</sup>	9	Energy methods in determining spring deflection
	10	Castigliano's theorem
	11	Numerical Problems On Castigliano's theorem
	12	Introduction about Theories of Elastic Failure
4 <sup>th</sup>	13	Various theories of elastic failures with derivations and graphical representations
	14	Applications to problems of 2- dimensional stress system with Combined direct loading and bending
	15	Applications to problems of 2- dimensional stress system with combined torsional and direct loading, Numericals.
	16	Applications to problems of 2- dimensional stress system with direct loading

5 <sup>th</sup>	17	Numerical Problems on two dimensional Stress system
	18	Introduction about Thin Walled Vessels and Thick Cylinders & Spheres
	19	Hoop & Longitudinal stresses & strains in cylindrical & spherical vessels
	20	Test on stress system and thin walled vessels
6 <sup>th</sup>	21	Hoop & Longitudinal stresses & strains in cylindrical & spherical vessels derivations under internal pressure,
	22	wire wound cylinder Numerical
	23	Assignment on thin cylinder and wire wound Cylinder
	24	Derivation of Lamé's equations, radial & hoop stresses
7 <sup>th</sup>	25	Strains in thick, and compound cylinders subjected to internal fluid pressure only,
	26	Strains in spherical shells subjected to internal fluid pressure only
	27	Hub shrunk on solid shaft
	28	Numerical problems on thick Cylinder
8 <sup>th</sup>	29	Rotating Rims & Discs and Springs.
	30	Stresses in uniform rotating rings & discs
	31	Stresses rotating discs of uniform strength
	32	Stresses rotating discs of uniform strength, stresses in rotating rims, neglecting the effect of spokes
9 <sup>th</sup>	33	Stresses rotating discs of uniform strength, stresses in rotating cylinders
	34	Stresses rotating discs of uniform strength, stresses in hollow cylinders & solid cylinders
	35	Numerical. On Rotating Rim and Disc
	36	Test On Numerical Problem of rims and discs
10 <sup>th</sup>	37	Stresses in closed coiled helical springs
	38	Stresses in open coiled helical spring
	39	Numerical Problems on springs
	40	Stresses in open coiled helical spring subjected to axial loads
11 <sup>th</sup>	41	Stresses in open coiled helical spring subjected twisting couples,
	42	Stresses in leaf springs
	43	Assignment on open coiled and closed coil helical spring
	44	Stresses in flat spiral springs
12 <sup>th</sup>	45	Stresses in concentric springs
	46	Numerical Problems on springs
	47	Introduction to Bending of Curved Bars and Unsymmetrical Bending
	48	Stresses in bars of initial large radius of curvature
13 <sup>th</sup>	49	Stresses in bars of initial small radius of curvature
	50	Stresses in crane hooks and numerical problems

	51	Stresses in rings of circular & trapezoidal sections
	52	Deflection of curved bars & rings
14 <sup>th</sup>	53	Deflection of rings by Castigliano's theorem, stresses in simple chain link
	54	Deflection of simple chain links, and Numerical Problems
	55	Introduction to unsymmetrical bending
	56	Stresses due to unsymmetrical bending
15 <sup>th</sup>	57	Deflection of beam due to unsymmetrical bending
	58	Shear center for angle and numerical Problems
	59	Shear center for channel and Numerical Problems
	60	Shear center for and I-sections, Numericals Problems

Text Books:

T1. Strength of Material : Dr. Sadhu Singh , KHANNA PUBLISHERS

Reference Books/Websites:

R1. Strength of Material : R.K BANSAL, Laxami Publication

R2. Strength of Material : R.K RAJPUT, *Dhanpat Rai & Sons*

## Lesson Plan

Name of the Faculty : **Mr. Harpreet Singh**  
 Discipline : **Mechanical Engineering**  
 Semester : **4<sup>th</sup>**  
 Subject : **FLUID MECHANICS (ME- 208 N)**  
 Lesson plan : **15 Weeks( From January, 2018 to April,2018)**

Lecture per Week (in Hours):**Lectures-04**

Week	Theory		Week	Practical
	Lecture Day	Topic(including assignment/test)	Practical Day	
1 <sup>st</sup>	1.	Unit I Fluid Properties	1	To determine the coefficient of impact for vanes
	2.	Concept of fluid and flow		
	3.	ideal and real fluids	2	
	4.	continuum concept		
2 <sup>nd</sup>	5.	Properties of fluid	3	To determine coefficient of discharge of an orificemeter
	6.	mass density, weight density, specific volume		
	7.	specific gravity, viscosity, causes of viscosity		
	8.	surface tension, capillarity, vapour pressure	4	
3 <sup>rd</sup>	9.	compressibility and bulk modulus	5	To determine the coefficient of discharge of Notch ( V and Rectangular types).
	10.	Newtonian and non-Newtonian fluids		
	11.	Pressure, Pascal's law, hydrostatic law	6	
	12.	pressure measurement,		
4 <sup>th</sup>	13.	manometers	7	To determine the friction factor for the pipes.
	14.	hydrostatic forces on submerged plane		

	15.	curved surfaces		
	16.	buoyancy, stability of floating	8	
5 <sup>th</sup>	17.	submerged bodies	9	To determine the coefficient of discharge of venturimeter.
	18.	liquids in relative equilibrium		
	19.	Problems.	10	
	20.	<b>Assignment-I</b> Hydrostatic forces on submerged plane		
6 <sup>th</sup>	21.	<b>TEST-I</b>	11	To determine the coefficient of discharge, contraction & velocity of an orifice.
	22.	Concept of system and control volume, Euler's equation		
	23.	Bernoulli's equation, venturimeter,	12	
	24.	orifices, orificemeter		
7 <sup>th</sup>	25.	mouthpieces, kinetic and momentum correction factors	13	To verify the Bernoulli's Theorem
	26.	Impulse momentum relationship and its applications		
	27.	Uniform and vortex flow	14	
	28.	flow past a Rankin half body, source, sink		
8 <sup>th</sup>	29.	source-sink pair and doublet	15	To find critical Reynolds number for a pipe flow
	30.	flow past a cylinder with and without circulation		
	31.	Problems	16	
	32.	<b>Assignment-II</b> Bernoulli's equation, venturimeter		
9 <sup>th</sup>	33.	<b>TEST-II</b>	17	To determine the meta-centric height of a floating body
	34.	<b>UNIT III</b> Viscous Flow: Flow regimes and Reynold's number		
	35.	Relationship between shear stress and	18	

		pressure gradient		
	36.	uni-directional flow between stationary and moving parallel plates		
10 <sup>th</sup>	37.	movement of piston in a dashpot, power absorbed in bearings	19	To determine the minor losses due to sudden enlargement, sudden contraction and bends.
	38.	Flow Through Pipes		
	39.	Major and minor losses in pipes		
	40.	Hagen-Poiseuille law, hydraulic gradient and total energy lines	20	
11 <sup>th</sup>	41.	series and parallel connection of pipes	21	To show the velocity and pressure variation with radius in a forced vortex flow.
	42.	branched pipes		
	43.	equivalent pipe		
	44.	Power transmission through pipes.	22	
12 <sup>th</sup>	45.	Problems		Numerical Problem
	46.	<b>Assignment-III</b> Major and minor losses in pipes	23	
	47.	<b>TEST-III</b>		
	48.	<b>UNIT IV</b> Boundary Layer Flow: Boundary layer concept	24	
13 <sup>th</sup>	49.	displacement, momentum and energy thickness	25	Numerical Problem
	50.	von-karman momentum integral equation		
	51.	laminar and turbulent boundary layer flows	26	
	52.	drag on a flat plate		
14 <sup>th</sup>	53.	boundary layer separation and	27	Numerical Problem

		control		
	54.	Streamlined and bluff bodies		
	55.	lift and drag on a cylinder and an airfoil	28	
	56.	Turbulent Flow: Shear stress in turbulent flow		
15 <sup>th</sup>	57.	Prandtl mixing length hypothesis	29	Numerical Problem
	58.	friction coefficients for smooth and rough pipes		
	59.	<b>Assignment-IV</b> boundary layer separation and control	30	
	60.	<b>TEST-IV</b>		

NAME of the faculty: Mr. Hitesh Vohra

Discipline: Mechanical

Semester: 4<sup>th</sup>

Subject: Dynamics of Machine

Lesson plan duration: 15 weeks (from January 2018 to April 2018)

Work load (Lecture/Practical) per week (in hours): Lectures -4 ,Practical's -2

WEEK	THEORY		PRACTICAL	
	Lecture day	Topic	Practical day	Topic
1 <sup>st</sup>	1	Static equilibrium	1 <sup>st</sup>	To find experimentally, the moment of inertia of flywheel and axle compare with theoretical value.
	2	Equilibrium of two or three force members		
	3	Members with two forces and a torque		
	4	Equilibrium of four force members		
2 <sup>nd</sup>	5	free body diagram	2 <sup>nd</sup>	To find critical speed experimentally and to compare the whirling speed of shaft with theoretical values
	6	Principle of Superposition		
	7	Static force		
	8	Test on Above Topics		
3 <sup>rd</sup>	9	Analysis of Four bar Mechanism and Slider Crank Mechanism	3 <sup>rd</sup>	To find experimentally the gyroscopic couple on motorized gyroscope and compare with applied couple
	10	D'Alembert's principal		
	11	Equivalent offset inertia force		
	12	Dynamic force Analysis of Four Bar Mechanism and slider crank		

		Mechanism		
4 <sup>th</sup>	13	Engine force Analysis	4 <sup>th</sup>	To perform the experiment of balancing of rotating parts and find the unbalanced couple and forces
	14	Turning Moment on Crank Shaft		
	15	Dynamic Equivalent System		
	16	Test on Above Topics		
5 <sup>th</sup>	17	Inertia of connecting Rods	5 <sup>th</sup>	To determine experimentally the unbalanced forces and couple of reciprocating parts
	18	Inertia force in reciprocating engine		
	19	Turning Moment Diagrams		
	20	Fluctuation of Energy		
6 <sup>th</sup>	21	Flywheels, Flywheel Dimensions	6 <sup>th</sup>	To calculate the torque on a planet carrier and torque on internal gear using epicyclic gear train and holding torque apparatus.
	22	Punching press		
	23	Types of gears, terminology, condition for correct gearing		
	24	Test on Above Topics		
7 <sup>th</sup>	25	cyclical and involutes profiles of gear teeth, pressure angle, path of contact	7 <sup>th</sup>	To study the different types of centrifugal and inertia governor and demonstrate any one.
	26	arc of contact, Interference, undercutting		
	27	minimum number of teeth, number of pairs of teeth in contact		
	28	Assignment on helical, spiral, worm and worm gear, bevel gear		

8 <sup>th</sup>	29	Gear trains; simple, compound, reverted, and epicyclical	8 <sup>th</sup>	To study the automatic transmission unit
	30	Solution of gear trains, sun and planet gear		
	31	bevel epicyclical gear, compound epicyclical gear, preselective gear box		
	32	Test on Above Topics		
9 <sup>th</sup>	33	Differential of automobile, torque in gear taints.	9 <sup>th</sup>	To study the different types of brakes.
	34	Types of brakes, friction brakes, external shoe brakes		
	35	band brakes, band and block brakes, internal expanding shoe brake		
	36	dynamometers; absorption, and tensional		
10 <sup>th</sup>	37	Assignment on Types of governors; watt, Porter, Proell		
	38	spring loaded centrifugal, Inertia, Sensitiveness, Stability, Isochronism's		
	39	Hunting, Effort and power of governor, controlling force		
	40	Test on Above		

		Topics		
11 <sup>th</sup>	41	Static and dynamic balancing of rotating parts, balancing of I. C. Engines		
	42	balancing of multi-cylinder engine; V-engines		
	43	radial engines, balancing of machines		
	44	Gyroscope, Gyroscopic couple and its effect on craft		
12 <sup>th</sup>	45	naval ships during steering,		
	46	pinching and rolling		
	47	Stability of an automobile (2-wheers),		
	48	Test on Above Topics		
13 <sup>th</sup>	49	Introduction, open and closed loop control		
	50	Terms related to automatic control		
	51	error detector		
	52	Actuator		
14 <sup>th</sup>	53	Amplification		
	54	Transducers		
	55	lag in responses,		
	56	Test on Above Topics		
15 <sup>th</sup>	57	Damping		
	58	block diagrams, system with viscous damped output		
	59	transfer functions		
	60	relationship between open		

## Lesson Plan

Name of the Faculty : **Mr. Sunil Kumar**

Discipline : **Mechanical Engineering**

Semester : **4<sup>th</sup>**

Subject : **E.S (MPC-202N)**

Lesson plan : **15 Weeks( From January, 2018 to April, 2018)**

Lecture per Week (in Hours) : **Lectures-03**

Week	Theory	
	Lecture Day	Topic(including assignment/test)
1 <sup>st</sup>	1.	<b>UNIT-I</b> Types of energy, Conversion of various forms of energy, Conventional and Non
	2.	Conversion of various forms of energy
	3.	Conventional and Non
	4.	Conventional and Non-conventional sources
2 <sup>nd</sup>	5.	Need for Non-Conventional Energy based power generation.
	6.	General Principles of Energy Management
	7.	Energy Management Strategy
	8.	Energy Audit & Tariffs
3 <sup>rd</sup>	9.	Methodology and Approach
	10.	<b>Assignment-I</b> Need for Non-Conventional Energy based power generation.
	11.	<b>TEST-I</b>
	12.	Selection of site
4 <sup>th</sup>	13.	working of Thermal
	14.	Hydro, Nuclear and Diesel
	15.	power plants and their schematic diagrams
	16.	their comparative advantages
5 <sup>th</sup>	17.	<b>Assignment-II</b> power plants and their schematic diagrams
	18.	<b>TEST-II</b>
	19.	Non Conventional Energy sources
	20.	Basicprinciple
6 <sup>th</sup>	21.	site selection
	22.	power plant layout of Solar

	23.	energy, photovoltaic technologies,
	24.	PV Systems and their components
7 <sup>th</sup>	25.	power plant layout
	26.	PV Systems and their components
	27.	Wind energy
	28.	layout of Bio energy plants
8 <sup>th</sup>	29.	Geothermal energy plants
	30.	tidal energy plants.
	31.	<b>Assignment III</b> PV Systems and their components, Wind energy
	32.	<b>TEST-III</b>
9 <sup>th</sup>	33.	Energy Scenario
	34.	Lay out of power system,
	35.	Role of Energy in Economic development
	36.	Lay out of power system,
10 <sup>th</sup>	37.	energy demand
	38.	availability and consumption
	39.	Commercial and Non-commercial energy
	40.	Indian energy scenario
11 <sup>th</sup>	41.	long term energy scenario
	42.	energy pricing
	43.	energy sector reforms in India
	44.	energy strategy
12 <sup>th</sup>	45.	<b>TEST-IV</b>