Lesson Plan

Name of faculty : **Poonam Kamboj**

Discipline : **B.Tech (ME)**

Semester **4th**

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 DAY	TOPIC (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 : Er. Viney Sharma

Discipline : Mechanical Department

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

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

	28th	**ASSIGNMENT-II :** Measurement of cutting forces & Tool force		
		Dynamometers		
8th	29th	**TEST 1 (FROM UNIT I & II)**	8th	7. Study the constructional detail and working of CNC lathes Trainer.
	30th	**UNIT-III** **Milling Process:** Milling Machine Operations performed on Milling machine		
	31st	Parts of Milling Machine, Types of Milling machines		
	32nd	fundamentals of Milling process, Milling Cutters		
9th	33rd	Elements of Plain Milling cutter, Cutter Holing devices	9th	8. To carry out welding using TIG/MIG welding set.
	34th	Cutting speed , Feed and depth of cut		
	35th	Force system in Milling, Dividing head or Indexing Head		
	36th	Methods of Indexing		
10th	37th	**Drilling Machine:** Types of Drills, Drilling machine Types,	10th	9. Introduction, demonstration & practice on profile projector & gauges.
	38th	Drilling machine operations,, Size of Drilling machine,		
	39th	Main parts of drilling machine,		
	40th	Force system in Drilling,		
11th	41st	Cutting speed, Feed and Depth of cut in drilling,	11th	10. To make a component on lathe machine using copy turning attachment.
	42nd	MRR in drilling,		
	43rd	Numerical Problems on Drilling		
	44th	**ASSIGNMENT- III :** Fundamentals of Milling process & Force system in Milling, Force system in Drilling		

12th	45th	**Specification of Machine Tools:** Introduction, purpose of machine tool specifications,	12th	11. To cut external threads on a lathe.
	46th	Methods of specification of conventional machine tools: specification of lathes,		
	47th	Specification of drilling and		
		boring machines,		
	48th	Specification of shaper, planer and slotter machines,		
13th	49th	Specification of milling machine,.	13th	12. To cut multi slots on a shaper machine.
	50th	Specification of gear teeth generating machines		
	51st	Specification of grinding machines		
	52nd	**Metrology :** Measurements,		
14th	53rd	Linear Measurement, Callipers, Vernier Calliper	14th	13. To perform drilling and boring operation on a Component.
	54th	Micrometer, Angular Measurement,		
	55th	Comparators-mechanical, electrical and optical,sine bar, auto-collimator,		
	56th	Surface finish and its measurement,		
15th	57th	Surface Roughness Measurement methods, Factors affecting surface finish in machining,	15th	Practice and internal vivavoce.
	58th	micro and macro deviation, specifying surface finish		
	59th	**ASSIGNMENT-IV:** Surface finish and its measurement. Surface Roughness Measurement methods		
	60th	**TEST- 2 (FROM UNIT III & IV)**		

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 : **Er. Munish Jain**

Discipline : **Mechanical Engineering**

Semester : **4th**

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	
1st	1.	**UNIT I:** 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		
2nd	4.	water level indicator; fusible plug; pressure gauge;	2	To study thelocomotive boiler (Model)
	5.	preheater; superheater; economizer; natural draught chimney design		
	6.	artificial draught; stream jet draught		
3rd	7.	mechanical draught; calculation of boiler efficiency	3	To study the Lancashire boiler (Model).
	8.	equivalent		

		evaporation		
	9.	boiler accessories; feed pump;		
4th	10.	feed water heater	4	To prepare heat balance sheet for given boiler.
	11.	Revision		
	12.	**UNIT II:** Carnot cycle; simple		
5th	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		
6th	16.	reheating and regenerative Rankine cycle	6	Viva voce
	17.	types of feed water heater; reheat factor		
	18.	binaryvapour cycle.		
7th	19.	Simple steam engine, compound engine;	7	To find power output & efficiency of a steam turbine.
	20.	compound engine; function of variouscomponents.		
8th	21.	Revision	8	To study cooling tower and find its efficiency
	22.	**UNIT III:** Function of steam nozzle; shape of nozzleforsubsonics and supersonics flow of stream		
	23.	variation of velocity; area of specific volume		

9th	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		
10th	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		
11th	30.	Dalton's law of partial pressure;	11	Viva voce
	31.	vacuum efficiency; calculation of cooling water requirement;		
	32.	air expansion pump.		
12th	33.	**Revision**	12	Numerical Problem
	34.	**UNIT IV:** classification of steam turbine		
	35.	impulse turbine; working principal		
13th	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		
14th	39.	impulse reaction turbine; working principle	14	Numerical Problem

	40.	degree of reaction		
	41.	Parsonsturbine; velocity diagram		
15th	42.	calculation of power output; efficiency of blade height	15	Numerical Problem
	43.	condition of		
		maximum efficiency		
	44.	internal losses in steam turbinegoverning of steam turbine		
	45.	**Revision**		

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

Lesson Plan

Name of the Faculty : **Er. Krishan Kamboj**

Discipline : **Mechanical Engineering**

Semester : **4th**

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**

Week	**Theory**	
	Lecture Day	**Topics (including assignment/ Test)**
1st	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
2nd	5	Test on strain energy expressions
	6	Strain energy of beam is in bending
	7	Strain energy of beam deflections
	8	Strain energy of shafts in twisting
3rd	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
4th	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

5th	17	Numerical Problem s 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
6th	21	Hoop & Longitudinal stresses & strains in cylindrical &spherical vessels derivations under internal pressure,
	22	wire would cylinder Numerical
	23	Assignment on thin cylinder and wire wound Cylinder
	24	Derivation of Lame's equations, radial & hoop stresses
7th	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
8th	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
9th	33	Stresses rotating discs of uniform strength, stresses in rotating cylinders
	34	Stresses rotating discs of uniform strength, stresses in hollow cylinders & solids cylinders
	35	Numerical. On Rotating Rim and Disc
	36	Test On Numerical Problem of rims and discs
10th	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
11th	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
12th	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
13th	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
14th	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
15th	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 : **Er. Russi Kamboj**

Discipline : **Mechanical Engineering**

Semester : **4th**

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	
1st	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		
2nd	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	
3rd	9.	compressibility and bulk modulus	5	To determine the coefficient of discharge of Notch (V and Rectangular types).
	10.	Newtonian and nonNewtonian fluids		
	11.	Pressure, Pascal's law, hydrostatic law	6	
	12.	pressure measurement,		
4th	13.	manometers	7	To determine the friction factor for the pipes.
	14.	hydrostatic forces on submerged plane		

	15.	curved surfaces	8	
	16.	buoyancy, stability of floating		
5th	17.	submerged bodies	9	To determine the coefficient of discharge of venturimeter.
	18.	liquids in relative equilibrium		
	19.	Problems.	10	
	20.	**Assignment-I** hydrostatic forces on submerged plane		
6th	21.	**TEST-I**	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		
7th	25.	mouthpieces, kinetic and momentum correction factors	13	To verify the Bernoullis Theorem
	26.	Impulse momentum relationship and its applications		
	27.	Uniform and vortex flow	14	
	28.	flow past a Rankin half body, source, sink		
8th	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.	**Assignment-II** Bernoulli's equation, venturimeter		
9th	33.	**TEST-II**	17	To determine the meta-centric height of a floating body
	34.	**UNIT III** 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		
10th	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	20	
	40.	Hagen-Poiseuilli law, hydraulic gradient and total energy lines		
11th	41.	series and parallel connection of pipes	21	To show the velocity and pressure variation with radius in a forced vertex flow.
	42.	branched pipes		
	43.	equivalent pipe	22	
	44.	Power transmission through pipes.		
12th	45.	Problems	23	Numerical Problem
	46.	**Assignment-III**Major and minor losses in pipes		
	47.	**TEST-III**	24	
	48.	**UNIT IV** Boundary Layer Flow: Boundary layer concept		
13th	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		
14th	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		
15th	57.	Prandtl mixing length hypothesis	29	Numerical Problem
	58.	friction coefficients for smooth and rough pipes		
	59.	**Assignment-IV**boundary layer separation and control	30	
	60.	**TEST-IV**		

NAME of the faculty: Er. Shanti Parkash

Discipline: Mechanical

Semester: 4th

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
1st	1	Static equilibrium	1st	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		
2nd	5	free body diagram	2nd	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		
3rd	9	Analysis of Four bar Mechanism and Slider Crank Mechanism	3rd	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		
4th	13	Engine force Analysis	4th	To perform the experiment of balancing of rotating parts
	14	Turning Moment on Crank Shaft		

	15	Dynamic Equivalent System		and find the unbalanced couple and forces
	16	Test on Above Topics		
5th	17	Inertia of connecting Rods	5th	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		
6th	21	Flywheels, Flywheel Dimensions	6th	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		
7th	25	cyclical and involutes profiles of gear teeth, pressure angle, path of contact	7th	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		

8th	29	Gear trains; simple, compound, reverted, and epicyclical	8th	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		
9th	33	Differential of automobile, torque in gear taints.	9th	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		
10th	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		
11th	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		
12th	45	naval ships during steering,		
	46	pinching and rolling		
	47	Stability of an automobile (2wheeers),		
	48	Test on Above Topics		
13th	49	Introduction, open and closed loop control		
	50	Terms related to automatic control		
	51	error detector		
	52	Actuator		
14th	53	Amplification		
	54	Transducers		
	55	lag in responses,		
	56	Test on Above Topics		
15th	57	Damping		

	58	block diagrams, system with viscous damped output		
	59	transfer functions		
	60	relationship between open		

Lesson Plan

Name of the Faculty : **Er. BrijBhushan**

Discipline : **Mechanical Engineering**

Semester : **4th**

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)
1st	1.	**UNIT-I** 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
2nd	5.	Need for Non-Conventional Energy based power generation.
	6.	General Principles of Energy Management
	7.	Energy Management Strategy
	8.	Energy Audit & Tariffs
3rd	9.	Methodology and Approach
	10.	**Assignment-I**Need for Non-Conventional Energy based power generation.
	11.	**TEST-I**
	12.	Selection of site
4th	13.	working of Thermal
	14.	Hydro, Nuclear and Diesel
	15.	power plants and their schematic diagrams
	16.	their comparative advantages
5th	17.	**Assignment-II** power plants and their schematic diagrams
	18.	**TEST-II**
	19.	Non Conventional Energy sources
	20.	Basicprinciple
6th	21.	site selection
	22.	power plant layout of Solar

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

Lesson Plan

Name of the Faculty : Er. Rahul Bhan

Discipline : **Mechanical Engineering**

Semester : **6th**

Subject : **Essentials of IT(CSE-209N)**

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

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

Week	Theory	
	Lecture Day	Topic(including assignment/test)
1st	1	Problem Solving Techniques: Introduction to Problem Solving,
	2	Introduction to Algorithms and Flowchart,
	3	Searching algorithms: Linear search, Assignment 1 , Searching
2nd	4	Binary search, Sorting algorithms
	5	Insertion and Selection sort,
	6	Test 1, Sorting
3rd	7	Basic Data Structures
	8	Stack, and Linear Queue
	9	Programming Basics: Identifiers, Assignment 2 , Stacks and Queue
4th	10	Variables,
	11	Data Types,
	12	Test 2, Stacks and Queue
5th	13	Control Structures
	14	Operators,
	15	Loop, If else, Assignment 3, Control structure
6th	16	Nested If,
	17	Switch Statement

	18	Test 3, Loops
7th	19	Arrays, Strings,
	20	Object Oriented Concepts: Class & Object,
	21	Operator, Instance Variables & Methods, Assignment 4, Arrays and Strings
8th	22	Access Specifiers, Reference Variables
	23	This, Super,
	24	Test 4, Classes and objects/ arrays and strings
9th	25	Parameter Passing Techniques,
	26	Constructors, Static, and Command Line Arguments
	27	Relationships, Inheritance, Assignment 5, Parameters and arguments
10th	28	Types of Inheritance
	29	Static Polymorphism
	30	Test 5, Inheritance
11th	31	Method Overloading
	32	Constructor Overloading
	33	Method Overriding Assignment 6, Overloading and overriding
12th	34	Abstract, Interface
	35	Introduction to Packages
	36	Test 6, Packages and interface
13th	37	RDBMS: Data Processing, Database Technology, Data Models,
	38	Data Independence, ER Modeling Concept
	39	ER-notations, Assignment 7, DBMS and RDBMS
14th	40	Converting ER Diagram into Relational Schema
	41	Definition of Keys, Primary key, Foreign key, Unique Key
	42	Test 7, ER Diagrams and Schemas
15th	43	DML Statements, ,
	44	DCL Statements, Joins
	45	Sub queries, Views. Assignment 8 Queries and statements.

Books on Java

1. Java: The Complete Reference, Seventh Edition. Herbert Schildt, McGrawHill Education. Programming with Java 3e A Primer, E Balagurusamy, McGraw Hill Education.
2. Introduction to Java Programming, K. Somasundaram , Jaico Publishing House; 1st edition

Books on RDBMS, Oracle, MYSQL

1. Fundamentals of Database Systems, with E-book (3rd Edition) by Shamkant B. Navathe, RamezElmasri, Published by Addison Wesley Longman , January 15th , 2002
2. MySQL by Paul DuBois Published by New Riders.
3. Murach's MySQL Paperback, Joel Murach , Published by Shroff/Murach, 2012.
4. SQL: The Complete Reference , James R. Groff, Paul N. Weinberg, Published by McGraw-Hill Companies, March 1999.
5. Schaum's Outline of Fundamentals of Relational Databases, Ramon MataToledo, Published by McGraw-Hill, 2000.

NAME of the faculty: Er. Russi Kamboj

Discipline: Mechanical

Semester: 6th

Subject: R.A.C

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

Work load (Lecture/Practical) per week (in hours): Lectures -3, Practical's -2

WEEK	THEORY		PRACTICAL	
	Lecture day	Topic	Practical WEEK	Topic
1	1	Basics of Heat Pump & Refrigerator, COP of Refrigerator and Heat Pump	1	Study & Performance of basic vapour compression Refrigeration Cycle using Capillary tube.
	2	Carnot's Refrigeration and Heat pump, Units of Refrigeration, Carnot's COP.		
	3	ICE Refrigeration, Evaporative Refrigeration.		
2	4	Refrigeration by Throttling of Gas	2	To find performance of a refrigeration test rig system by using different expansion devices.
	5	Vapor Refrigeration System, Steam Jet Refrigeration.		
	6	Thermoelectric Cooling, Adiabatic Demagnetization.		
3	7	Basic Principles of Operation of Air Refrigeration System	3	To find COP of water cooler
	8	Bell-Coleman Air Refrigerator		

	9	Advantages of		

		Using Air-Refrigeration in Aircrafts. Disadvantages of air Refrigeration in Comparison to Other Cold Producing Methods.		
4	10	Simple Evaporative Type Air Refrigeration in Aircraft, Necessity of Cooling The Aircraft.	4	To study the walk in cooler
	11	Simple Vapor Compression Refrigeration System.		
	12	Different Compression Processes (Wet Compression, Dry or Dry and Saturated Compression, Superheated Compression).		
5	13	**TEST** on Topics from 1 to 12	5	To find the performance parameters of Ice Plant.
	14	Representation of Theoretical and Actual Cycle on T-S and P-H charts,Effects of Operating Conditions on the Performance of the System		
	15	Methods of Improving COP.		

6	16	Flash Chamber, Flash Inter Cooler, Optimum Interstate	6	To find the performance parameter of cooling tower.

		PressureFor Two Stage Refrigeration System.		
	17	Single Expansion and Multi Expansion Processes		
	18	Basic Introduction of Single Load and Multi Load Systems, Cascade Systems		
7	19	Basic Absorption System, COP and Maximum COP of The Absorption System	7	To study and perform experiment on vapour absorption apparatus.
	20	Actual NH3Absorption System, Functions of Various Components.		
	21	Li-Br Absorption System.		
8	22	Selection of Refrigerant And Absorbent Pair in Vapour Absorption System	8	To study various compressor

	23	Electro Refrigerator, Comparison of Compression and Absorption Refrigeration Systems.		
	24	Psychometric Properties of Moist Air (Wet Bulb, Dry Bulb, Dew Point		

		Temperature).		
9	25	Relative and Specific Humidity of Moist Air		
	26	Temperature of Adiabatic Saturation.		
	27	Empirical Relation to Calculate Pv in Moist Air		
10	28	Psychometric Chart, Construction and Use, Mixing of Two Air Streams		
	29	Humidification and Dehumidification, Cooling With Dehumidification.		
	30	By-Pass Factor of Coil, Sensible Heat Factor; ADP of Cooing Coil, Air Washer.		

11	31	Classification Factors Affecting Air Conditioning Systems, Comfort Air-Conditioning System.	
	32	Winter and Summer Air Conditioning System	
	33	**Test** on topics of 22 to 30	
12	34	Year Round Air Conditioning.	
	35	Unitary AirConditioning System	
	36	Central Air Conditioning System.	
13	37	Room Sensible Heat Factor, Grand Sensible Heat factor, Effective Room Sensible Heat Factor.	
	38	Inside Design Conditions, Comfort Conditions, Components of Cooling Loads.	
	39	Internal Heat Gains From (Occupancy, Lighting, Appliances, Product and Processes).	
14	40	System Heat Gain (Supply Air Duct, A.C. Fan, Return Air Duct).	

	41	External Heat Gain (Heat Gain Through Building, Solar Heat Gains Through Outside Walls and Roofs).	
	42	Solar Air Temperature, Solar Heat Gain Through Glass Areas	
15	43	Heat Gain Due to Ventilation and Infiltration	
	44	Transport Air Conditioning, Evaporative Condensers	
	45	Cooling Towers,	

LESSON PLAN

Name : Er. Shanti Parkash

Discipline: MECHANICAL ENGG.PEPARTMENT

Semester: 6TH

Subject: M.V. & TRIBOLOGY (ME-304)

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load: Lectures-04

Week	Theory		Practical	
	Lecture Day	Topic	Practical day	Topic
1st	1st	**Unit – I: FUNDAMENTALS OF VIBRATIONS:**	1	1. To study undamped free vibrations of equivalent spring mass system and determine the natural frequency of vibrations
	2nd	ELEMENT OF VIBRATION SYSTEM		
	3rd	Simple harmonic motions	2	
	4th	Degree of freedom		
2nd	5th	Types of vibrations	3	2. To study the free vibration of system for different damper settings. Draw decay curve and determine the log decrement and damping factor. Find also the natural frequency
	6th	Work done by harmonic force		
	7th	Undamped free vibration ,	4	
	8th	Natural frequency by equilibirium. Energy method, equivalent spring.		
3rd	9th	Linear and torsional system	5	3. To study the torsional vibration of a single rotor shaft system and to determine the natural frequency.
	10th	Damped free vibration:		
	11th	Different types of damping, differantail equation of damped free vibrations.	6	
	12th	Intail condition lograrithmic decrement.		
4th	13th	Vibrational energy	7	4. To determine the radius of gyration of given bar using bifilar suspension.
	14th	**Unit – II: single degree of freedom system-forced vibration**		
	15th	Source of excitation	8	

	16th	Equation of motion with 9harmonic force		
5th	17th	Response of rotating and reciprocating unbalanced system	9	5. To verify the dunker ley's rule
	18th	Support motion, vibration isolation		
	19th	Forced and motion transmissivity	10	
	20th	Forced vibration with coloumb damping		
6th	21st	Structural and viscous damping	11	6. To study the forced vibration of system with damping. Load magnification factor vs. Frequency and phase angle vs frequency curves. Also determine the damping factor.
	22nd	NUMERICAL		
	23rd	Assignment- 1(Equation of motion with harmonic force)	12	
	24th	test		
7th	25th	**Unit – II1: Multi degree of freedom system:**	13	7. To study the pressure distribution of a journal bearing using a journal bearing apparatus.
	26th	Principle mode of vibrations, influence coefficient ,		
	27th	Matrix method, orthogonalty principle	14	
	28th	Method of harmonic balance.		
8th	29th	Dunkerleys equation, Matrix iteration,	15	8. To determine the rate of wear of a metallic pin from the plot of displacement vs time curves by using friction and wear monitor apparatus.
	30th	Holzer method, Rayleigh method, and Rayleigh-Ritz method		
	31st	Stodola method, Hamilton method	16	
	32nd	Continues system:		
9th	33rd	Transverse vibration of strings, Longitudinal vibrations of bars	17	9. To determine abrasion index of a material with the help of dry abrasion test rig.
	34th	Lateral vibration of beams,		
	35th	Torsional vibration of circular shafts,	18	

	36th	Whirling of shafts.		
10th	37th	numericals	19	10. To evaluate the load wear index and the weld point of a lubricant with the help of a four ball stream pressure tester.
	38th	Assignment-2 (Stodola method, Hamilton method)		
	39th	test	20	
	40th	problems		
11th	41st	**Unit –IV:** introduction to tribology, tribology in design & industry.	21	11. To determine the two frequencies of torsional spring type double pendulum & compare them with theoretical values.
	42nd	Economic aspects of tribology.		
	43rd	LUBRICATIONS:	22	
	44th	Basic modes of lubrications, lubricant, properties of lubricant		
12th	45th	Types of additives,	23	12. To determine the radius of gyration of a compound pendulum.
	46th	Pressure lubricants		
	47th	Recycling of used oils and oil conversion.	24	
	48th	Disposal of scrap oil.		
13th	49th	Friction & wear, law of friction	25	13. To determine the radius of gyration of disc using trifilar suspension.
	50th	Kinds of frictions, causes of friction		
	51st	Friction measurement	26	
	52nd	Theories of friction, effect of surface preparation		
14th	53rd	Introduction, mechanism of wear, types of wear,	27	PRACTICAL- VIVA
	54th	measurement of wear, wears resistance materials		
	55th	Wear between solid & liquids	28	
	56th	Theory of wear		
15th	57th	problems	29	PRACTICAL- VIVA
	58th	Assignment-3(Theories of friction, Theory of wear)		
	59th	revision	30	
	60th	test		

Lesson Plan

Name of the Faculty : Er. Munish Jain

Discipline : **Mechanical Engineering**

Semester : **6th**

Subject : **Operation Research_ME 306 E**

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

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

Week	Theory	
	Lecture Day	Topic(including assignment/test)
1st	1.	**Unit: 1** Development of operations Research
	2.	characteristics and scope of operations Research
	3.	Operations Research in Management, Models in operations Research
	4.	**Assignment No 1:** Model Formulation
2nd	5.	Types of mathematical models
	6.	Limitations of operations Research.
	7.	L.P. models, simplex method
	8.	**Test 1:** Different models in operation research
3rd	9.	The algebra of simplex method. (Minimization and Minimization problems)
	10.	The big M method
	11.	Post optimality analysis
	12.	Simplex method
4th	13.	Essence of duality theory
	14.	Application of sensitivity analysis
	15.	**Unit 2:** Introduction to model
	16.	Matrix terminology
5th	17.	Formulation and solution of Transportation model (least cost method, Vogel's Approximation method)
	18.	Least time transportation problems
	19.	**Assignment No 2:** Different transportation models
	20.	**Test 2:**Different transportation models problems

6th	21.	Introduction to net work logic
	22.	Numbering of events (Fulkersen Rule)
	23.	PERT calculations - Forward path, back-ward path
	24.	Slack
7th	25.	comparison with PERT
	26.	Critical path
	27.	Project cost
	28.	crashing the net work
8th	29.	Updating (PERT and CPM).
	30.	Floats
	31.	probability
	32.	**Unit 3:** Introduction and applications of simulation
9th	33.	advantages and limitations of simulation technique
	34.	generation of random numbers
	35.	Time-flow mechanism
	36.	**Assignment No 3:** simulation techniques
10th	37.	simulation languages
	38.	Steps in decision theory approach
	39.	Decision Machinery environment
	40.	Decision machining under certainty and uncertainty, Decision machining under condition of risk
11th	41.	Decision trees, Minimum enchained criteria
	42.	Advantages and limitations of decision tree solutions, post Optimality
	43.	**Test 3:**Simulation techniques and decision trees
	44.	Definition of assignment models
12th	45.	Comparison with transport model
	46.	Mathematical representation of assignment model
	47.	Formulation and solution of argument models
	48.	Variation of the argument model, Alternate optimal solutions
13th	49.	**Assignment 4:** Assignment model and its solution
	50.	**Unit 4:** Introduction and Applications of queuing Theory
	51.	Waiting time and idle time costs
	52.	Single channel queuing theory and multi channel queuing theory with Poisson
14th	53.	Arrivals and Exponential services
	54.	Numerical on single channel and multi channel queuing theory
	55.	**Assignment 5:**Queing theory models
	56.	Theory of games, competitive games , Rules and Terminology in game Theory
15th	57.	Rules for game theory- saddle point, dominance
	58.	Mixed strategy (2 x2 games) , mixed strategy (2 x n games or m x 2 games), mixed strategy (3 x3 games)

	59.	Two person zero sum games, n-person zero sum games
	60.	**Test 4:** Queing Theory and Game theory numerical problems

Text Books: Operations Research - By P.K. Gupta and D.S. Hira

Lesson Plan

Name of the Faculty : **Mr. Brij Bhushan**

Discipline : **Mechanical Engineering**

Semester : **6th**

Subject : **CAD/CAM (ME-308 N), CAD LAB(ME-316N)**

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	
1st	1.	**UNIT I** Introduction to CAD/CAM	1	Introduction about cad
	2.	Historical Development		
	3.	Industrial look at CAD/CAM	2	
	4.	Introduction to CIM Basic of Geometric		
2nd	5.	Solid modeling	3	Basic commands Draw : line, polyline, Construction line, rectangle, polygon. Modify: copy, mirror, offset.
	6.	Coordinate systems		
	7.	Explict, Implict		
	8.	Intrinsic and parametric equation	4	
3rd	9.	Part families	5	Practice of basic commands
	10.	Part classification and coding		
	11.	product flow analysis	6	
	12.	Machine cell Design		
4th	13.	Advantages of GT	7	Basic commands

	14.	**Assignment – I** Solid modeling, Part classification and coding		Draw : circle, arc and all arc options, elips, elips arc, make block, insert block, hatching, table. etc.

	15.	**TEST-I**	8	Modify: scale, strach trim, extand, explode. Etc.
	16.	Transformation of points & line		
5th	17.	2-D rotation	9	Practice of basic commands
	18.	Reflection		
	19.	Scaling and combined transformation	10	
	20.	Homogeneous coordinates		
6th	21.	3-D scaling	11	Co-ordination systems
	22.	shearing, rotation		
	23.	reflection and translation	12	
	24.	combined transformations		
7th	25.	Orthographic and perspective projections	13	Work on 2d drawing
	26.	Algebric and geometric forms		
	27.	tangent & normal blending functions	14	
	28.	Reparametrization Straight line,		
8th	29.	conics, cubic splines	15	Practice of 2d drawings.
	30.	bezier curves and Bspline curves		
	31.	**Assignment – II** 3-D scaling, reflection and translation	16	
	32.	**TEST-II**		
9th	33.	Algebraic and geometric forms	17	Introduction about all Dimensions
	34.	tangent & twist vectors		
	35.	normal blending	18	
	36.	function, reparametrization,		

10th	37.	Sixteen point form	19	Practice of 2d drawings.
	38.	four Curve form		
	39.	Plane surface, ruled surface	20	
	40.	Surface of revolution		
11th	41.	tabulated cylinder Bi-	21	Practice of 2d drawings with
		cubic surface		dimensions
	42.	bezier surface		
	43.	B-spline surface Solid models	22	
	44.	representation scheme B-rep		
12th	45.	CSG, sweep representation	23	Modify system of dimensions.
	46.	Cell decomposition		
	47.	spatial occupancy enumeration	24	
	48.	**Assignment – III** function, reparametrization , B-spline surface Solid models		
13th	49.	**TEST-III**	25	Practice
	50.	Introduction, fixed programmable and flexible automation		
	51.	Types of NC systems, MCU & other components	26	
	52.	Co-ordinate system, NC manual part programming		
14th	53.	G & M codes, part program for simple parts	27	3d introduction
	54.	Computer assisted part programming		
	55.	FMS component, Types of FMS, FMS layout	28	
	56.	Planning for FMS, advantage and applications		

15th	57.	conventional process planning, Steps in variant process planning	29	Practice of 3d
	58.	CAPP, planning for CAPP		
	59.	**Assignment – IV** G & M codes, part program for simple	30	
		parts		
	60.	**TEST-IV**		

Text Books:

1.CAD/CAM theory & practice (Ibrahim Zeid)

Lesson Plan

Name of the Faculty : **Er. Ashwani Kaushik**

Discipline : **Mechanical Engineering**

Semester : **6th**

Subject : **Machine Design - II_ME 310 N**

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

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

Week	Theory	
	Lecture Day	Topic(including assignment/test)
1st	1.	**UNIT I** Classification of Gears; Selection of type
	2.	Law of Gearing, Standard system of Gear tooth
	3.	Various Failure modes
	4.	Interference, undercutting & minimum no. of teeth
2nd	5.	Force Analysis ,Beam strength of Gear tooth
	6.	Effective load on tooth
	7.	Estimation of module based on beam strength and wear strength
	8.	Gear lubrication, materials
3rd	9.	Design Procedure, Gear Box design
	10.	**Assignment-1**Gear lubrication , Design Procedure
	11.	Terminology, Force Analysis
	12.	Virtual no. of teeth, Beam strength
4th	13.	Effective load, Wear strength
	14.	Terminology, force analysis
	15.	beam strength & wear strength
	16.	effective load on gear tooth Terminology
5th	17.	properties, force analysis, friction

	18.	material selection
	19.	**TEST - 1**
	20.	**UNIT II** Design of flat belts &Pulleys
6th	21.	Design /selection of V belts &Pulleys
	22.	Design/selection of wire
	23.	Design/selection of ropes
	24.	Design/selection of chains
7th	25.	Single Plate clutch
	26.	multiple Plate clutch
	27.	Cone clutch
	28.	Problem
8th	29.	External shoe brake
	30.	Internal shoe brakes
	31.	**Assignment – II**multiple Plate clutch , Design/selection of wire
	32.	**TEST-II**
9th	33.	**UNIT III** Coil Springs
	34.	Leaf Springs
	35.	Hydro dynamically lubricated bearings
	36.	Selection of ball bearings
10th	37.	Selection of roller bearings
	38.	Selection of taper roller bearings
	39.	Mechanism Design
	40.	Design of cam
11th	41.	Design of Follower
	42.	Follower Design processing
	43.	Follower Design processing
	44.	Follower Design processing
12th	45.	**Problem**
	46.	**TEST-III**
	47.	**UNIT IV** Design of Cylinder
	48.	Design of Piston
13th	49.	Design of Piston
	50.	Design of Crank shaft
	51.	Design of Crank shaft
	52.	Design of connecting rod
14th	53.	Design of connecting rod
	54.	Design of Crane Hook
	55.	Design of Crane Hook
	56.	Design of Flywheels

15th	57.	Design of Flywheels
	58.	**Problems**
	59.	**Assignment III** Design of Piston , Design of connecting rod
	60.	**TEST-IV**

Text Books:

Machine Design Sharma AggarwalKatson Publishers

Lesson Plan

Name of the Faculty : **Mr. Satbeer Singh**

Discipline : **Mechanical Engineering**

Semester : **8th**

Subject : **ENT (ME -402 E)**

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

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

Week	Theory	
	Lecture Day	Topic(including assignment/test)
1st	1.	**UNIT I** Definition and concept
	2.	Importance of economics for engineers,
	3.	present value and future value
2nd	4.	Wealth, Goods, Wants, Value and price
	5.	capital, money, utility of consumer
	6.	Introduction, Elements of cost, Prime cost,
3rd	7.	Overhead, Factory cost, Total cost, Selling price,
	8.	Nature of cost, Types of cost
	9.	Definition and concept, Causes of depreciation, Methods of calculating depreciation.
4th	10.	Introduction, Nature of selection problem
	11.	Nature of replacement problem, Replacement of items which deteriorate
	12.	Replacement of machines whose operating cost in crease with time and the value of money also changes with time
5th	13.	methods used in selection of investment and replacement alternatives.
	14.	Entrepreneurship, Role of Entrepreneur in Indian economy

	15.	Characteristics of an entrepreneur
6th	16.	Types of entrepreneurs, some myths
	17.	realities about entrepreneurship
	18.	**UNIT III** Introduction, Role and scope of small scale industries,
7th	19.	concept of small scale and ancillary
	20.	industrial undertakings, How to start a small scale industry,
8th	21.	Steps in launching own venture,
	22.	procedure for registration of small scale industries
	23.	arious developmental agencies-their functions
9th	24.	role in industrial and entrepreneurship development
	25.	Infrastructure facilities available for entrepreneurship development in India.
	26.	Infrastructure facilities available for entrepreneurship development in India.
10th	27.	Introduction, Requirement of a good product design
	28.	Product development process
	29.	Elements of concurrent engineering, quality function developmen
11th	30.	Rapid prototyping
	31.	Various controlling agencies involved -their role and formalities for getting clearance before starting individual ventur
	32.	ASSIGNMENT
12th	33.	**UNIT IV** Financial concept for small-scale industries
	34.	financial requirements Financial support programmer of banks
	35.	government financial agencies, Hire-purchase facilities alternate sources of finance
13th	36.	The modern concept of marketing,

	37.	Definitions, functions and principle of marketing
	38.	Market survey, Pre-feasibility and feasibility of project. Identification and evaluation of business opportunity
14th	39.	preparation of business plan
	40.	Tools for evaluation of techno economic feasibility project report 1
	41.	Tools for evaluation of techno economic feasibility project report 2
15th	42.	SWOT analysis
	43.	marketing research
	44.	Advertising, Market survey
	45.	**ASSIGNMENT**

Text Books: The practice of Entrepreneurship - By G. G. Meredikh, R.E. Nelson and P.A. Neck

Lesson Plan

Name of Faculty: Er. Devender Chaudhary

Discipline: Mechanical Engineering

Semester: 8th

Subject Name and Code: P.P.E. (ME-404E)

Lesson Plan Duration: 15 weeks (January, 2018 to April, 2018)

Work load (Lecture) per week (in hours): Lectures -4

Week	Theory	
	Lecture Day	**Topic**
1st	1	Intro to PPE and conventional sources of energy
	2	Geothermal power plant and its types.
	3	Tidal and solar power plant
	4	Energy sources in India
2nd	5	Test on above topics
	6	Intro to hydrology, runoff, hydrograph, and flow duration curve
	7	Classification of hydro power plant.
	8	Advantage and dis advantage of hydro power plant.
3rd	9	Test
	10	Combination of hydro and steam plants.
	11	High pressure boiler and its types, la-mont and its working
	12	Benson boiler and its working
4th	13	Test
	14	Velox boiler and its working
	15	Loeffler boiler and its working
	16	Economizer and its types
5th	17	Test
	18	Air preheater and its types
	19	Feed water heater and its types.
	20	General layout of thermal power plant
6th	21	Site selection for thermal power plant

	22	Classification and types of coal.
	23	Analysis of coal
	24	Combination of coal and coal burning methods.
7th	25	Test
	26	Over feed and its types.
	27	Under feed stokers and its types
	28	Ash handling and disposal
8th	29	Test
	30	Component of diesel electric power plant
	31	Supercharging of diesel engine.
	32	Advantage of diesel power plant over thermal plant.
9th	33	Element of gasturbine power plant,
	34	Thermal refinement and comparion with other plant.
	35	Combined steam and gasturbine power plant.
	36	Advantage of gas turbine power plant over other.
10th	37	Heat balance sheet for thermal power plants.
	38	Nuclear power plant in india
	39	Layout of nuclear power plant and component of nuclear reactor
	40	Types and classification of nuclear reactor
11th	41	Liquid cooled and gas cooled reactor
	42	Breeder reactor and its types.
	43	Functioning of breeder reactor.
	44	Molten metal cooled nuclear reactor

12th	45	Disposal of nuclear waste.
	46	Cost of electrical energy and selection of types of generation
	47	Performance of power plants.
	48	Tariff method for electrical energy
13th	49	Operating characterstics of power plants
	50	Load division among generators.
	51	Operational characterstics of power plants.
	52	Assignment 1
14th	53	Revision of Nuclear power plant in india
	54	Revision of Layout of nuclear power plant and component of nuclear reactor
	55	Revision of Types and classification of nuclear reactor
	56	TEST
15th	57	Disposal of nuclear waste
	58	Assignment 2
	59	Molten metal cooled nuclear reactor.
	60	Revision of syllabus and doubt clarification

Lesson Plan

Name of the Faculty : **Er. Munish Jain**

Discipline : **Mechanical Engineering**

Semester : **8th**

Subject : **Operation Research_ME 406 E**

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

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

Week	Theory	
	Lecture Day	Topic(including assignment/test)
1st	1.	**Unit: 1** Development of operations Research
	2.	characteristics and scope of operations Research
	3.	Operations Research in Management, Models in operations Research
	4.	**Assignment No 1:** Model Formulation
2nd	5.	Types of mathematical models
	6.	Limitations of operations Research.
	7.	L.P. models, simplex method
	8.	**Test 1:** Different models in operation research
3rd	9.	The algebra of simplex method. (Minimization and Minimization problems)
	10.	The big M method
	11.	Post optimality analysis
	12.	Simplex method
4th	13.	Essence of duality theory
	14.	Application of sensitivity analysis
	15.	**Unit 2:** Introduction to model
	16.	Matrix terminology
5th	17.	Formulation and solution of Transportation model (least cost method, Vogel's Approximation method)
	18.	Least time transportation problems
	19.	**Assignment No 2:** Different transportation models
	20.	**Test 2:**Different transportation models problems
6th	21.	Introduction to net work logic

	22.	Numbering of events (Fulkersen Rule)
	23.	PERT calculations - Forward path, back-ward path
	24.	Slack
7th	25.	comparison with PERT
	26.	Critical path
	27.	Project cost
	28.	crashing the net work
8th	29.	Updating (PERT and CPM).
	30.	Floats
	31.	probability
	32.	**Unit 3:** Introduction and applications of simulation
9th	33.	advantages and limitations of simulation technique
	34.	generation of random numbers
	35.	Time-flow mechanism
	36.	**Assignment No 3:** simulation techniques
10th	37.	simulation languages
	38.	Steps in decision theory approach
	39.	Decision Machinery environment
	40.	Decision machining under certainty and uncertainty, Decision machining under condition of risk
11th	41.	Decision trees, Minimum enchained criteria
	42.	Advantages and limitations of decision tree solutions, post Optimality
	43.	**Test 3:**Simulation techniques and decision trees
	44.	Definition of assignment models
12th	45.	Comparison with transport model
	46.	Mathematical representation of assignment model
	47.	Formulation and solution of argument models
	48.	Variation of the argument model, Alternate optimal solutions
13th	49.	**Assignment 4:** Assignment model and its solution
	50.	**Unit 4:** Introduction and Applications of queuing Theory
	51.	Waiting time and idle time costs
	52.	Single channel queuing theory and multi channel queuing theory with Poisson
14th	53.	Arrivals and Exponential services
	54.	Numerical on single channel and multi channel queuing theory
	55.	**Assignment 5:**Queing theory models
	56.	Theory of games, competitive games , Rules and Terminology in game Theory
15th	57.	Rules for game theory- saddle point, dominance

	58.	Mixed strategy (2 x2 games) , mixed strategy (2 x n games or m x 2 games), mixed strategy (3 x3 games)
	59.	Two person zero sum games, n-person zero sum games
	60.	**Test 4:** Queing Theory and Game theory numerical problems

Lesson Plan

Name of the Faculty : **Er. Viney Sharma**

Discipline : **Mechanical Engineering**

Semester : **8th**

Subject : MANAGEMENT INFORMATION SYSTEM– ME 432 E

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

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

Week	Theory	
	Lecture Day	Topic(including assignment/test)
1st	1.	**Unit 1:**What is MIS? Decision support systems, systems approach
	2.	The systems view of business, MIS
	3.	MIS organization within the company management organizational theory
	4.	**Assignment No 1:**The systems approach
2nd	5.	Development of organizational theory
	6.	Management and organizational behavior
	7.	Management information
	8.	**Test 1:** management information
3rd	9.	The system approach
	10.	Evolution of an information systems
	11.	Basic information systems
	12.	**Assignment No 2:** Decision making
4th	13.	MIS
	14.	MIS as a technique for making programmed decision assisting information systems
	15.	Project planning for MIS : General business planning
	16.	**Test 2:** MIS
5th	17.	Appropriate MIS
	18.	Planning-general
	19.	MIS planning –details
	20.	**Assignment 3:** MIS Planning
6th	21.	**Unit 2:** Define the problems
	22.	Set system objectives

	23.	Establish system constraints
	24.	**Test 3:**establish system constraints
7th	25.	Determine information needs
	26.	Determine information sources
	27.	Develop alternative conceptual
	28.	**Assignment 4:**Designs
8th	29.	Select one document the system concept
	30.	Prepare the conceptual
	31.	Design report
	32.	**Test 4:** design report
9th	33.	**Unit 3:** Inform and involve the organization
	34.	Aim of detailed design
	35.	Project management of MIS detailed design
	36.	**Assignment 5:**identify dominant and trade off criteria
10th	37.	Define the subsystems
	38.	Sketch the detailed operating subsystems and information flow
	39.	Determine the degree of automation of each operation
	40.	**Test 5:** Sketch the detailed operating subsystems and information flow
11th	41.	Inform and involve the organization again
	42.	Inputs, and processing, early system testing
	43.	Software, hardware and tools
	44.	**Assignment 6:**propose an organization to operate the system, document the detailed design
12th	45.	Revisit the manager –user
	46.	**UNIT IV** Plan the Implementation , acquire floor space and plan space layouts
	47.	Organize for implementation, develop,
	48.	**Test 6:**organize for implementation
13th	49.	Procedures for implementation
	50.	How to train operating personnel,computer related acquisitions
	51.	Develop forms for data collection and information dissemination
	52.	**Assignment 7:**develop the files, test the system
14th	53.	Cutover, document the system
	54.	Evaluate the MIS control and maintain the system
	55.	Pitfalls in MIS development : Fundamental Weakness
	56.	**Test 7:** MIS control and maintain the system
15th	57.	Soft spots in planning
	58.	Design problems
	59.	Implementation: The TARPIT
	60.	**Assignment 8:** TARPIT

Text Books:

1.. Management Information system by W.S. JawadeKar - Tata McGraw Hill.

LESSON PLAN

Name : Er. Ashwani Kaushik

Discipline: MECHANICAL ENGG.PEPARTMENT

Semester: 8TH

Subject: N.C.M. (ME-420 E)

Lesson Plan Duration: 15 weeks (from January, 2018 to April, 2018)

Work Load: Lectures-04

Week	Theory	
	Lecture Day	**Topic**
1st	1st	**Unit – I:** Introduction to Non conventional machining process Unconventional machining processes.
	2nd	Rapid prototyping processes, their classification
	3rd	Ultrasonic Machining
	4th	Elements of process, design of cutting tool. metal removal mechanism, effect of parameters
2nd	5th	limitations and applications, surface finish
	6th	Mild Steel, Medium Carbon Steel.
	7th	economic considerations.
	8th	Applications.
3rd	9th	**Unit – II: Electrochemical Machining**
	10th	Elements of process, process chemistry,
	11th	metal removal mechanism, tool design, accuracy, surface finish.
	12th	work material characteristics, economics advantages, limitations and applications.
4th	13th	Electrochemical grinding, debarring and honing, Chemical machining.
	14th	**Electric Discharge Machining**
	15th	Principle and mechanism of metal removal, generators,
	16th	Electrode feed control, electrode material.
5th	17th	tool electrode design, EDM wire cutting,
	18th	surface finish
	19th	accuracy and applications.
	20th	Revision
6th	21st	**Unit – III :Jet Machining**
	22nd	Principal and metal removal mechanism of abrasive and water jet machining,
	23rd	process variables, design of nozzle,
	24th	advantages, limitations and applications.
7th	25th	Plasma arc machining, Electron beam machining, laser beam machining
	26th	principles and metal removal mechanism, process parameters
	27th	advantages and limitations, applications. U

	28th	Problems
8th	29th	**Unit –IV: Rapid Prototyping**
	30th	Fundamentals, process chain, physics of processes, principles
	31st	process mechanism of SLA, SGC, LOM, FDM and SLS processes
	32nd	advantages and limitations, a
9th	33rd	applications of RP processes, RP data formats,
	34th	STL file format, STL file problems, STL file repair,
	35th	translators and formats.
	36th	problems
10th	37th	**Rapid Tooling Process**
	38th	Introduction
	39th	fundamentals, classification, indirect RT processes
	40th	Assignment.
11th	41st	Principles of Silicone
	42nd	Rubber Molding, Epoxy Tooling,
	43rd	Spray Metal Tooling,
	44th	Test.
12th	45th	Revision
	46th	Pattern for Investment Casting
	47th	Vacuum Casting
	48th	Vacuum forming processes,
13th	49th	Assignment.
	50th	Problems
	51st	direct RT processes,
	52nd	Shape Deposition manufacturing
14th	53rd	limitations and applications.
	54th	advantages
	55th	test
	56th	assignment
15th	57th	problems
	58th	Non conventional machining process
	59th	revision
	60th	test