

## LESSON PLAN

Name of Faculty : Vishal Gupta  
 Discipline : ME  
 Semester : 4<sup>th</sup>  
 Subject : Fluid Mechanics  
 Lesson Plan Duration : 15 weeks (From Jan 2018 to Apr 2018)

\*\*Workload (lecture/ practical) per week (in hours): lectures (3), Practical's (2).

Weeks	Theory		Practical's	
	Lecture day	Topic ( including assignment/test)	Practical day	Topic
1 <sup>st</sup>	1 <sup>st</sup>	Fluid Properties and Fluid Statics: Concept of fluid and flow, ideal and real fluids, continuum concept, and properties of fluids, Newtonian and non-Newtonian fluids	1 <sup>st</sup>	To determine the coefficient of impact for vanes.
	2 <sup>nd</sup>	Pascal's law, hydrostatic equation, hydrostatic forces on plane and curved surfaces,	2 <sup>nd</sup>	
	3 <sup>rd</sup>	stability of floating and submerged bodies, relative equilibrium, Problems	3 <sup>rd</sup>	
2 <sup>nd</sup>	1 <sup>st</sup>	Eulerian and Lagrangian description of fluid flow;	1 <sup>st</sup>	To determine coefficient of discharge of an orificemeter.
	2 <sup>nd</sup>	stream, streak and path lines; types of flows, flow rate and continuity equation,	2 <sup>nd</sup>	
	3 <sup>rd</sup>	differential equation of continuity in cylindrical and polar coordinates, rotation	3 <sup>rd</sup>	
3 <sup>rd</sup>	1 <sup>st</sup>	vorticity and circulation, stream and potential functions, flow net, Problems elastic constants & their relationships Compound Stresses & Strains	1 <sup>st</sup>	To determine the coefficient of discharge of Notch (V and Rectangular types).

	2 <sup>nd</sup>	Numerical	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Numericals	3 <sup>rd</sup>	
4 <sup>th</sup>	1 <sup>st</sup>	Concept of system and control volume, Euler's equation,	1 <sup>st</sup>	To determine the friction factor for the pipes.
	2 <sup>nd</sup>	Bernoulli's equation, venturimeter, orifices,	2 <sup>nd</sup>	
	3 <sup>rd</sup>	orificemeter, mouthpieces, kinetic and momentum correction factors	3 <sup>rd</sup>	
5 <sup>th</sup>	1 <sup>st</sup>	Impulse momentum relationship and its applications, Problems	1 <sup>st</sup>	To determine the coefficient of discharge of venturimeter.
	2 <sup>nd</sup>	Class Test	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Introduction, continuity momentum and energy equation, sonic velocity,	3 <sup>rd</sup>	
6 <sup>th</sup>	1 <sup>st</sup>	propagation of elastic waves due to compression of fluid, propagation of elastic waves due to disturbance in fluid	1 <sup>st</sup>	To determine the coefficient of discharge, contraction & velocity of an orifice.
	2 <sup>nd</sup>	stagnation properties, isentropic flow, effect of area variation on flow properties	2 <sup>nd</sup>	
	3 <sup>rd</sup>	isentropic flow through nozzles,diffusers,injectors,Problems	3 <sup>rd</sup>	
7 <sup>th</sup>	1 <sup>st</sup>	Numerical Problems	1 <sup>st</sup>	To verify the Bernoullis Theorem.
	2 <sup>nd</sup>	Numerical problems	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Surprise class test	3 <sup>rd</sup>	
8 <sup>th</sup>	1 <sup>st</sup>	1 <sup>st</sup> Sessional Exam	1 <sup>st</sup>	
	2 <sup>nd</sup>	1 <sup>st</sup> Sessional Exam	2 <sup>nd</sup>	
	3 <sup>rd</sup>	1 <sup>st</sup> Sessional Exam	3 <sup>rd</sup>	
9 <sup>th</sup>	1 <sup>st</sup>	Flow regimes and Reynolds's number	1 <sup>st</sup>	To find critical Reynolds number for a pipe flow.
	2 <sup>nd</sup>	Relationship between shear stress and pressure gradient	2 <sup>nd</sup>	

	3 <sup>rd</sup>	uni-directional flow between stationary and moving parallel plates	3 <sup>rd</sup>	
10 <sup>th</sup>	1 <sup>st</sup>	movement of piston in a dashpot, power absorbed in bearings	1 <sup>st</sup>	To determine the meta-centric height of a floating body.
	2 <sup>nd</sup>	Numericals	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Assignment	3 <sup>rd</sup>	
11 <sup>th</sup>	1 <sup>st</sup>	Major and minor losses in pipes, Hagen-Poiseuille law	1 <sup>st</sup>	To determine the minor losses due to sudden enlargement, sudden contraction and bends.
	2 <sup>nd</sup>	hydraulic gradient and total energy lines, series and parallel connection of pipes	2 <sup>nd</sup>	
	3 <sup>rd</sup>	branched pipes; equivalent pipe, power transmission through pipes, Problems	3 <sup>rd</sup>	
12 <sup>th</sup>	1 <sup>st</sup>	Boundary layer concept, displacement, momentum and energy thickness	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	von-karman momentum integral equation, laminar and turbulent boundary layer flows	2 <sup>nd</sup>	
	3 <sup>rd</sup>	drag on a flat plate, boundary layer separation and control	3 <sup>rd</sup>	
13 <sup>th</sup>	1 <sup>st</sup>	Streamlined and bluff bodies lift and drag on a cylinder and an airfoil, Problems	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	Shear stress in turbulent flow	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Prandtl mixing length hypothesis, hydraulically smooth and rough pipes	3 <sup>rd</sup>	
14 <sup>th</sup>	1 <sup>st</sup>	velocity distribution in pipes, friction coefficients for smooth and rough pipes	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	Problems	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Problems	3 <sup>rd</sup>	
15 <sup>th</sup>	1 <sup>st</sup>	Problems	1 <sup>st</sup>	Internal Viva Voce
	2 <sup>nd</sup>	Problems	2 <sup>nd</sup>	
	3 <sup>rd</sup>	CLASS TEST	3 <sup>rd</sup>	

## LESSON PLAN

Name of Faculty : VINEET GUPTA  
 Discipline : ME  
 Semester : 4<sup>th</sup>  
 Subject : Manufacturing Technology -1(ME-202 F)  
 Lesson Plan Duration : 15 weeks (From Jan 2018 to Apr 2018)

\*\*Workload (Lecture)per week (in hours): Lectures (3)

Weeks	Theory	
	Lecture day	Topic ( including assignment/test)
1 <sup>st</sup>	1 <sup>st</sup>	Introduction, Basic Tool Geometry, Single Point tool nomenclature, Chips types and their characteristics, Mechanics of chip formation
	2 <sup>nd</sup>	Theoretical and experimental determination of shear angle, Oblique and Orthogonal metal cutting, Metal cutting theories,
	3 <sup>rd</sup>	Relationship of velocity forces, power consumption, cutting speed, feed and depth of cut, coolant, temp. profile in cutting,
2 <sup>nd</sup>	1 <sup>st</sup>	Tool life relationship, Taylor equation of tool life, Tool material and mechanism
	2 <sup>nd</sup>	Measurement, Linear and angular, Simple measuring instrument
	3 <sup>rd</sup>	Various clampers and screw gauge
3 <sup>rd</sup>	1 <sup>st</sup>	Sine Bar, Auto collimator,
	2 <sup>nd</sup>	Comparator Mechanical, Electrical and Optical
	3 <sup>rd</sup>	Surface finish and its measurement, micro and macro deviation, Factors influencing surface finish and its evaluation.
4 <sup>th</sup>	1 <sup>st</sup>	Foundry, Introduction to casting process, Basic steps in casting process,
	2 <sup>nd</sup>	Pattern, types of pattern and allowance,s and casing and properties, constituents and preparation, Mould and core making with its assembly and its types.

	3 <sup>rd</sup>	Gating System, Melting of Metal
5 <sup>th</sup>	1 <sup>st</sup>	Furnace and cupola, Metal pouring, Fettling
	2 <sup>nd</sup>	Casting treatment, Inspection and Quality control
	3 <sup>rd</sup>	Sand casting defects and remedies
6 <sup>th</sup>	1 <sup>st</sup>	Introduction to welding and classification, Gas welding:-Oxy acetylene welding
	2 <sup>nd</sup>	Resistance welding:-spot and seam weldinga, electrode type and selection
	3 <sup>rd</sup>	Arc welding:-TIG,MIG, Metal arc, SAW
7 <sup>th</sup>	1 <sup>st</sup>	Thermit welding, Electroslag welding, Electron beam and Laser beam welding
	2 <sup>nd</sup>	Forge welding, Friction welding, Brazing and soldering
	3 <sup>rd</sup>	Welding defects and remedies
8 <sup>th</sup>	1 <sup>st</sup>	1 <sup>st</sup> Sessional Exam
	2 <sup>nd</sup>	1 <sup>st</sup> Sessional Exam
	3 <sup>rd</sup>	1 <sup>st</sup> Sessional Exam
9 <sup>th</sup>	1 <sup>st</sup>	Economics of metal machining, Introduction,
	2 <sup>nd</sup>	Elements of machining cost, Tooling Economics and machining
	3 <sup>rd</sup>	Economics and optimization
10 <sup>th</sup>	1 <sup>st</sup>	Geometry of twist drill and power calculation in drill
	2 <sup>nd</sup>	Numerical Practice
	3 <sup>rd</sup>	Introduction, Metal blow condition, Theory of plasticity
11 <sup>th</sup>	1 <sup>st</sup>	Condition of plain strain, friction, Condition in metal working
	2 <sup>nd</sup>	Wire Drawing, Theory of forging, Rolling thory, No slip angle
	3 <sup>rd</sup>	Forward slip, Types of tools, Principle of location, locating and clamping device
12 <sup>th</sup>	1 <sup>st</sup>	Jig bushes, Drillin v jigs, Milling, Turning, Boring and Broaching fixtures
	2 <sup>nd</sup>	Welding fixture, Diffetent material for jigs and fixture, Economics of Jigs and fixture

	3 <sup>rd</sup>	Introduction, construction features, specification, operation of basic machine tool e.g Lathe
13 <sup>th</sup>	1 <sup>st</sup>	Shaper, Drilling and planer machine
	2 <sup>nd</sup>	Milling machine and their indexing Working principle of Capstan and Turret Lathe
	3 <sup>rd</sup>	Basic principle of hot and cold working process
14 <sup>th</sup>	1 <sup>st</sup>	Hot working process:-Rolling, Extrusion, Forging
	2 <sup>nd</sup>	Drawing, Wire drawing and spinning Introduction to sheet metal operation
	3 <sup>rd</sup>	Measuring, Layout marking, Shearing, Punching, Blanking, Piercing, Forming, Bending and Joining
15 <sup>th</sup>	1 <sup>st</sup>	2nd Sessional Exam
	2 <sup>nd</sup>	2nd Sessional Exam
	3 <sup>rd</sup>	2nd Sessional Exam

## LESSON PLAN

Name of Faculty : MOHIT KUMAR AGRAWAL  
 Discipline : ME  
 Semester : 4<sup>th</sup>  
 Subject : **Strength of materials-I**  
 Lesson Plan Duration : 15 weeks (From Jan 2018 to Apr 2018)

\*\*Workload (lecture/ practical) per week (in hours): lectures (3), Practical's (2).

Weeks	Theory		Practical's	
	Lecture day	Topic ( including assignment/test)	Practical day	Topic
1 <sup>st</sup>	1 <sup>st</sup>	Simple Stresses & Strains: Concept & types of Stresses and strains,	1 <sup>st</sup>	Introduction of lab equipments and discussion about safety measures
	2 <sup>nd</sup>	Poisson's ratio, stresses and strain in simple and compound bars under axial loading	2 <sup>nd</sup>	
	3 <sup>rd</sup>	stress strain diagrams, Hooks law	3 <sup>rd</sup>	
2 <sup>nd</sup>	1 <sup>st</sup>	elastic constants & their relationships	1 <sup>st</sup>	To study the Brinell hardness testing machine & perform the Brinell hardness test.
	2 <sup>nd</sup>	temperature stress & strain in simple & compound bars under axial loading	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Numerical	3 <sup>rd</sup>	
3 <sup>rd</sup>	1 <sup>st</sup>	Compound Stresses & Strains	1 <sup>st</sup>	To study the Rockwell hardness testing machine & perform the Rockwell hardness test
	2 <sup>nd</sup>	Concept of surface and volumetric strains, two dimensional stress system	2 <sup>nd</sup>	
	3 <sup>rd</sup>	conjugate shear stress at a point on a plane	3 <sup>rd</sup>	

4 <sup>th</sup>	1 <sup>st</sup>	principle stresses & strains and principal- planes	1 <sup>st</sup>	To study the Erichsen sheet metal testing machine & perform the Erichsen sheet metal test
	2 <sup>nd</sup>	Mohr's circle of stresses, Numerical	2 <sup>nd</sup>	
	3 <sup>rd</sup>	CLASS TEST	3 <sup>rd</sup>	
5 <sup>th</sup>	1 <sup>st</sup>	Definitions, SF & BM diagrams for cantilevers, simply supported beams with or without overhang and calculation of maximum BM & SF and the point of contra-flexure	1 <sup>st</sup>	To study the Impact testing machine and perform the Impact tests (Izod & Charpy).
	2 <sup>nd</sup>	(i) concentrated loads, (ii) uniformly distributed loads over whole span or a part of it	2 <sup>nd</sup>	
	3 <sup>rd</sup>	(iii) combination of concentrated loads and uniformly distributed loads	3 <sup>rd</sup>	
6 <sup>th</sup>	1 <sup>st</sup>	(iv) uniformly varying loads and (v) application of moments	1 <sup>st</sup>	To study the Universal testing machine and perform the tensile test.
	2 <sup>nd</sup>	relation between the rate of loading, the shear force and the bending moments	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Numerical/Assignment	3 <sup>rd</sup>	
7 <sup>th</sup>	1 <sup>st</sup>	Torsion Of Circular Members: Torsion of thin circular tube	1 <sup>st</sup>	To draw shear Force, Bending Moment Diagrams for a simply Supported Beam under Point and Distributed Loads.
	2 <sup>nd</sup>	Solid and hollow circular shafts, tapered shaft, stepped shaft & composite circular shafts	2 <sup>nd</sup>	
	3 <sup>rd</sup>	combined bending and torsion, equivalent torque, effect of end thrust. Numericals	3 <sup>rd</sup>	
8 <sup>th</sup>	1 <sup>st</sup>	1 <sup>st</sup> Sessional Exam	1 <sup>st</sup>	

	2 <sup>nd</sup>	1 <sup>st</sup> Sessional Exam	2 <sup>nd</sup>	To determine Mechanical Advantage and Efficiency of Single and Double
	3 <sup>rd</sup>	1 <sup>st</sup> Sessional Exam	3 <sup>rd</sup>	Purchase Winch Crab
9 <sup>th</sup>	1 <sup>st</sup>	Bending & Shear Stresses in Beams: Bending stresses in beams with derivation	1 <sup>st</sup>	To determine Mechanical Advantage and Efficiency of Worm and Worm Gear of Single, Double and Triple start
	2 <sup>nd</sup>	application to beams of circular, rectangular, I,T and channel sections	2 <sup>nd</sup>	
	3 <sup>rd</sup>	composite beams, shear stresses in beams with combined bending stress	3 <sup>rd</sup>	
10 <sup>th</sup>	1 <sup>st</sup>	torsion & axial loading of beams	1 <sup>st</sup>	To determine Mechanical Advantage, Efficiency of Simple and Compound
	2 <sup>nd</sup>	Numericals	2 <sup>nd</sup>	Screw Jack
	3 <sup>rd</sup>	Assignment	3 <sup>rd</sup>	
11 <sup>th</sup>	1 <sup>st</sup>	Columns & Struts: Column under axial load, concept of instability and buckling	1 <sup>st</sup>	To find Moment of Inertia of a Fly Wheel
	2 <sup>nd</sup>	slenderness ratio, derivation of Euler's formulae for the elastic buckling load,	2 <sup>nd</sup>	
	3 <sup>rd</sup>	CLASS TEST	3 <sup>rd</sup>	
12 <sup>th</sup>	1 <sup>st</sup>	Eulers, Rankine, Gordon's formulae Johnson's empirical formula for axial loading	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	columns and their applications, eccentric compression of a short strut of rectangular & circular sections	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Numerical/Assignments	3 <sup>rd</sup>	
13 <sup>th</sup>	1 <sup>st</sup>	Slope & Deflection: Relationship between bending moment, slope & deflection, Mohr's theorem	1 <sup>st</sup>	Practical revision and Problems

	2 <sup>nd</sup>	moment area method, method of integration, Macaulay's method, calculations for slope and deflection of (i) cantilevers	2 <sup>nd</sup>	
	3 <sup>rd</sup>	(ii) simply supported beams with or without overhang under concentrated load	3 <sup>rd</sup>	
14 <sup>th</sup>	1 <sup>st</sup>	Uniformly distributed loads or combination of concentrated and uniformly distributed loads	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	Numerical/Assignment	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Fixed Beams: Deflections, reactions and fixing moments with SF & BM calculations & diagrams for fixed beams	3 <sup>rd</sup>	
15 <sup>th</sup>	1 <sup>st</sup>	(i) concentrated loads, (ii) uniformly distributed load MOS differential pair, small signal operation of the MOS differential pair,	1 <sup>st</sup>	Internal Viva Voce
	2 <sup>nd</sup>	(iii) a combination of concentrated loads & uniformly distributed load.	2 <sup>nd</sup>	
	3 <sup>rd</sup>	CLASS TEST	3 <sup>rd</sup>	

	*Name of Faculty: Mr. Chirag			
	Discipline:	Mechanical Engineering		
	Semester:	4th		
	Subject:	Steam & Power Generation		
	Lesson Plan Duration:	15 weeks (from 29 January, 2018 to 30 April, 2018)		
	Work Load (Lecture/Practical) per week in hours: Lecture 03, Practical 02			
Week	Theory		Practical	
	Lecture Day	Topic (including assignment/test)	Practical Day	Topic
1st	1st	Introduction: Components of Steam Power System, Carnot Cycle	1st	To study low pressure boilers and their accessories and mountings.
	2nd	Rankine Cycle, Modified Rankine Cycle		
	3rd	P-V , H-S and T-S diagram for Rankine and Modified Rankine Cycle		
2nd	4th	Mollier's diagram, use of steam table	2nd	To study high pressure boilers and their accessories and mountings.
	5th	Steam Generators: Purpose, Classification of boilers		
	6th	Fire tube and water tube boilers		
3rd	7th	Mountings and accessories	3rd	To prepare heat balance sheet for given boiler.
	8th	Description of Lancashire boiler , Locomotive boiler		
	9th	Babcock Wilcox boilers, draught		
4th	10th	Design of natural draught chimney, artificial draught	4th	Viva Voce

	11th	Mechanical draught, efficiency of boiler and heat balance		
	12th	Steam Nozzles: Function of steam nozzles		
5th	13th	Shape of nozzles for subsonic and supersonic flow of steam	5th	To study the working of impulse and reaction steam turbines.
	14th	Steady state energy equation, continuity equation		
	15th	Nozzle efficiency, critical pressure ratio for max. Discharge, Design of steam nozzle		
6th	16th	Class Test	6th	To find dryness fraction of steam by separating and throttling calorimeter.
	17th	Steam Engine: Working of steam engine		
	18th	Single acting and double acting steam engine		
7th	19th	Compounding of steam engine, ideal and actual indicator diagram	7th	To find power output & efficiency of a steam turbine.
	20th	Mean effective pressure, diagram factor		
	21st	Revision		
8th	22nd	Mechanical efficiency, thermal efficiency of steam engine	8th	To find the condenser efficiencies.
	23rd	Steam Turbine: Classification of steam turbine, Impulse turbine, working principle		
	24th	Compounding of impulse turbine, velocity diagram		
9th	25th	Power output and efficiency of a single stage impulse turbine	9th	Viva Voce
	26th	Reaction turbine, working principle		

	27th	Degree of reaction, velocity diagram		
10th	28th	Power output, efficiency, condition for max. Efficiency	10th	To study and find volumetric efficiency of a reciprocating air compressor.
	29th	Governing of steam turbines		
	30th	Improved Turbines: Back pressure and pass out turbines		
11th	31st	Class Test	11th	To study cooling tower and find its efficiency.
	32nd	Regenerative feed heating cycle		
	33rd	Binary vapour cycle		
12th	34th	Steam Condensers: Classification of condensers	12th	To find calorific value of a sample of fuel using Bomb calorimeter.
	35th	Sources of air leakage in condensers		
	36th	Effect of air leakage in condenser, vacuum efficiency		
13th	37th	Condenser efficiency, air pumps	13th	Calibration of Thermometers and pressure gauges.
	38th	Cooling water calculation		
	39th	Fuel and Combustion: Classification of fuels – solid, liquid and gaseous fuels		
14th	40th	Calorific values of fuels	14th	Viva Voce
	41st	Stoichiometric air fuel ratio		
	42nd	Excess air requirement		
15th	43rd	Analysis of exhaust gases	15th	
	44th	Revision		
	45th	Class Test		

## LESSON PLAN

Name of Faculty : RAJESH BANSAL  
 Discipline : ME  
 Semester : 4<sup>th</sup>  
 Subject : Kinematics of Machines  
 Lesson Plan Duration : 15 weeks (From Jan 2018 to Apr 2018)

\*\*Workload (lecture/ practical) per week (in hours): lectures (3), Practical's (2).

Weeks	Theory		Practical's	
	Lecture day	Topic ( including assignment/test)	Practical day	Topic
1 <sup>st</sup>	1 <sup>st</sup>	mechanism and machines, kinematics links, kinematics pairs, kinematics chains, degree of freedom,	1 <sup>st</sup>	To study various types of Kinematic links, pairs, chains and Mechanisms
	2 <sup>nd</sup>	Grubler's rule, kinematics inversion,	2 <sup>nd</sup>	
	3 <sup>rd</sup>	equivalent linkages, four link planar mechanisms,	3 <sup>rd</sup>	
2 <sup>nd</sup>	1 <sup>st</sup>	straight line mechanisms	1 <sup>st</sup>	To study inversions of 4 Bar Mechanisms, Single and double slider crank mechanisms.
	2 <sup>nd</sup>	steering mechanisms, pantograph,	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Numerical	3 <sup>rd</sup>	
3 <sup>rd</sup>	1 <sup>st</sup>	displacement analysis, velocity diagram	1 <sup>st</sup>	To find coefficient of friction between belt and pulley.
	2 <sup>nd</sup>	velocity determination, relative velocity method	2 <sup>nd</sup>	
	3 <sup>rd</sup>	instantaneous center of velocity	3 <sup>rd</sup>	
4 <sup>th</sup>	1 <sup>st</sup>	Kennedy's theorem	1 <sup>st</sup>	To study various type of cam and follower arrangements.
	2 <sup>nd</sup>	graphical and analytical methods of velocity and acceleration analysis	2 <sup>nd</sup>	

	3 <sup>rd</sup>	CLASS TEST	3 <sup>rd</sup>	
5 <sup>th</sup>	1 <sup>st</sup>	Classification of cams and followers, disc cam nomenclature	1 <sup>st</sup>	To study various types of gears – Helical, cross helical worm, bevel gear.
	2 <sup>nd</sup>	construction of displacement, velocity and acceleration diagrams for different types of follower motions	2 <sup>nd</sup>	
	3 <sup>rd</sup>	analysis of follower motions, determination of basic dimension	3 <sup>rd</sup>	
6 <sup>th</sup>	1 <sup>st</sup>	synthesis of cam profile by graphical methods	1 <sup>st</sup>	To study various types of gear trains – simple, compound, reverted, epicyclic and differential.
	2 <sup>nd</sup>	cams with specified contours	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Numerical/Assignment	3 <sup>rd</sup>	
7 <sup>th</sup>	1 <sup>st</sup>	fundamental law of gearing, involute spur gears, characteristics of involute and cycloidal action	1 <sup>st</sup>	To study the working of Screw Jack and determine its efficiency.
	2 <sup>nd</sup>	Interference and undercutting, center distance variation, path of contact, arc of contact	2 <sup>nd</sup>	
	3 <sup>rd</sup>	non-standard gear teeth, helical, spiral bevel and worm gears, Numericals	3 <sup>rd</sup>	
8 <sup>th</sup>	1 <sup>st</sup>	1 <sup>st</sup> Sessional Exam	1 <sup>st</sup>	To study various types of gears – Helical, cross helical worm, bevel gear.
	2 <sup>nd</sup>	1 <sup>st</sup> Sessional Exam	2 <sup>nd</sup>	
	3 <sup>rd</sup>	1 <sup>st</sup> Sessional Exam	3 <sup>rd</sup>	
9 <sup>th</sup>	1 <sup>st</sup>	synthesis of simple, compound and reverted gear trains	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	analysis of epicyclic gear trains	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Numericals	3 <sup>rd</sup>	
10 <sup>th</sup>	1 <sup>st</sup>	Assignment	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	function generation, path generation,	2 <sup>nd</sup>	

		Freudenstein's equation		
	3 <sup>rd</sup>	two and three position synthesis of four bar and slider crank mechanisms by graphical and analytical methods	3 <sup>rd</sup>	
11 <sup>th</sup>	1 <sup>st</sup>	precision positions, structural error	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	Chebychev spacing, transmission angle	2 <sup>nd</sup>	
	3 <sup>rd</sup>	CLASS TEST	3 <sup>rd</sup>	
12 <sup>th</sup>	1 <sup>st</sup>	Types of friction, laws of friction	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	motion along inclined plane, screw threads	2 <sup>nd</sup>	
	3 <sup>rd</sup>	efficiency on inclined plane, friction in journal bearing	3 <sup>rd</sup>	
13 <sup>th</sup>	1 <sup>st</sup>	friction circle and friction axis	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	pivots and collar friction, uniform pressure and uniform wear	2 <sup>nd</sup>	
	3 <sup>rd</sup>	Open and cross belt drive, velocity ratio, slip, material for belts	3 <sup>rd</sup>	
14 <sup>th</sup>	1 <sup>st</sup>	crowning of pulleys, law of belting, types of pulleys	1 <sup>st</sup>	Practical revision and Problems
	2 <sup>nd</sup>	Numerical/Assignment	2 <sup>nd</sup>	
	3 <sup>rd</sup>	length of belts, ratio of tension, centrifugal tension	3 <sup>rd</sup>	
15 <sup>th</sup>	1 <sup>st</sup>	power transmitted by belts and ropes, initial tension, creep	1 <sup>st</sup>	Internal Viva Voce
	2 <sup>nd</sup>	Chain drives, chain length, classification of chains	2 <sup>nd</sup>	
	3 <sup>rd</sup>	CLASS TEST	3 <sup>rd</sup>	