

## Lesson Plan

Name of faculty:- Mr.Bharat Bhusan ( Theory & Practical )

Discipline: Mechanical Engineering

Semester: 6<sup>th</sup>

Subject: Automobile Engineering

Lesson Plan Duration: 15 weeks (from Jan-2018 to Apr-2018)

Work Load:Lectures-3 Practicals-2

WEEK	THEORY		PRACTICAL	
	LECTURE DAY	TOPIC	PRACTICAL DAY	TOPIC
1	1	Automobile and its development	1 <sup>st</sup>  2 <sup>nd</sup>	Fault and their remedies in (i) Battery Ignition system
	2	Various types of automobiles manufactured in India.		
	3	Layout of chassis		
2	1	Fuel systems for petrol and diesel engines including multi point fuel injection (MPFI),	1 <sup>st</sup>  2 <sup>nd</sup>	Fault and their remedies in (ii) magnetic Ignition system
	2	common rail direct injection (CRDI), Fuel injectors and nozzles.		
	3	Comparison of MPFI with carburetor system.		
3	1	Concept of double overhead cam, single overhead cam, Twin cam 16 valve technology in 4 cylinder engine.	1 <sup>st</sup>  2 <sup>nd</sup>	Demonstration of (i) Head Light Model (ii) Wiper and Indicators.
	2	Clutch - Function, Constructional details of single plate and multiplate friction clutches,		
	3	Centrifugal and semi centrifugal clutch, Hydraulic clutch		
4	1	Gear Box - Function, Concept of sliding mesh, constant mesh and synchromesh gear box,	1 <sup>st</sup>	Demonstration of (i) AC Pump (ii) SU Pump (iii) Master Cylinders.
	2	Torque converter and overdrive		

	3	Types of drives – Front wheel, Rear wheel, Four Wheel.	2 <sup>nd</sup>	Demonstration of (i) AC Pump (ii) SU Pump (iii) Master Cylinders.
5	1	Sessional 1 <sup>st</sup>		
	2			
	3			
6	1	Function of Propeller shaft, Universal joint, Differential and Different types of Rear axles and Front Axles.	1 <sup>st</sup>	Demonstration of (i) rear axle (ii) differential (iii) steering system.
	2	Wheels and Tyres - Types of wheels,		
	3	Types and specifications of tyres used in Indian vehicles, Wheel balancing	2 <sup>nd</sup>	Demonstration of (i) rear axle (ii) differential (iii) steering system.
7	1	Function and principle of Ackerman and Davis steering mechanism,	1 <sup>st</sup>	Fault finding practices on an automobile - four wheelers (petrol/ diesel vehicles).
	2	types of steering gear boxes – Worm and nut, worm and wheel,		
	3	worm and roller, rack and opinion, Power steering system	2 <sup>nd</sup>	Fault finding practices on an automobile - four wheelers (petrol/ diesel vehicles).
8	1	and alignment of wheels – Toe in, toe out, camber, caster, kingpin inclination.	1 <sup>st</sup>	Tuning of an automobile engine.
	2	Problems on chapter 3 and 4		
	3	Test of chapter 3 and 4	2 <sup>nd</sup>	Tuning of an automobile engine.
9	1	Constructional details and working of mechanical, hydraulic brake	1 <sup>st</sup>	Driving practice on a 4-wheeler.
	2	Concept of air and vacuum brake,		
	3	brake adjustment, Introduction to Anti lock brake system and its working.	2 <sup>nd</sup>	Driving practice on a 4-wheeler.

10	1	Sessional 2 <sup>nd</sup>		
	2			
	3			
11	1	Function, Types, Working of coil spring,	1 <sup>st</sup>	Charging of an automobile battery and measuring cell voltage and specific gravity of electrolyte.
	2	leaf spring. Concept of Air suspension		
	3	Shock absorber.	2 <sup>nd</sup>	Charging of an automobile battery and measuring cell voltage and specific gravity of electrolyte.
12	1	Test of chapter 5 and 6	1 <sup>st</sup>	Changing of wheels and inflation of tyres, balancing of wheels.
	2	Constructional details of lead acid cell battery		
	3	Maintenance of batteries,	2 <sup>nd</sup>	Changing of wheels and inflation of tyres, balancing of wheels.
13	1	checking of batteries for voltage and specific gravity,	1 <sup>st</sup>	Checking spark gap and valve clearance
	2	Magnato and Battery coil ignition system.		
	3	Concept of Dynamo	2 <sup>nd</sup>	Checking spark gap and valve clearance
14	1	Alternator - Construction and working	1 <sup>st</sup>	Cleaning and adjusting a carburetor.
	2	Charging of battery by Alternator and Regulator.		
	3	Revision for sessional test	2 <sup>nd</sup>	Cleaning and adjusting a carburetor.
15	1	Sessional 3 <sup>rd</sup>		
	2			

## Lesson Plan

Name of faculty:- Mr. Bharat Bhusan ( Theory)

Discipline:-Mechanical Engineering

Semester:- 6th

Subject:- Entrepreneurship

Lesson Plan Duration:- 15 weeks (from Jan-2018 to Apr-2018)

Work Load:-Lectures-3

WEEK	THEORY	
	LECTURE DAY	TOPIC
1st	1	Unit I- Concept /Meaning and its need Qualities
	2	Functions of entrepreneur and barriers in entrepreneurship Schemes of assistance by entrepreneurial support agencies at National level
	3	Sole proprietorship and partnership forms of business organisations
2nd	1	State, District –level, organisation: NSIC, NRDC, DC,
	2	Msme, sidbi, nabard,
	3	Commercial Banks, SFC's TCO, KVIB,
3rd	1	DIC, Technology Business Incubators (TBI) and Science and Technology Entrepreneur Parks
	2	Unit II- Salient features of National and State industrial policies and resultant
	3	Scanning of the business environment Types
4th	1	And conduct of market survey ,
	2	Business opportunities Assessment of demand and supply in potential areas of growth,
	3	Identifying business opportunity, Considerations in product selection
5th	1	Sessional 1st
	2	
	3	
6th	1	Unit-III -Detailed project report including technical, economic and market feasibility
	2	Preliminary project report Exercises on preparation of project report
	3	Common errors in project report preparations

7th	1	Unit IV- Functions of management: Importance and process of planning, organising
	2	Definitions and importance of management staffing, directing and controlling Concept and structure of an organisation
	3	Principles of management (Henri Fayol, F.W. Taylor)
8th	1	Types of industrial organisations: a) Line organisation b) Line and staff organisation c) Functional Organisation
	2	Unit V- Leadership Definition and Need,types of leadership
	3	Manager Vs leader ,Qualities and functions of a leader
9th	1	Motivation - Factors affecting motivation, Definitions and characteristics ,
	2	Theories of motivation (Maslow, Herzberg)
	3	Theories of motivation (Douglas, mcgregor)
10th	1	Sessional 2nd
	2	
	3	
11th	1	Unit VI- Introduction to Man power planning, recruitment and selection, Introduction and objective
	2	Human Resource Management Introduction to performance appraisal methods
	3	ABC Analysis and EOQ, Introduction functions, and objectives ,Material and Store Management
12th	1	Physical distribution, Introduction, importance, and its functions ,
	2	Marketing and sales ,Introduction to promotion mix,Sales promotion
	3	Elementary knowledge of income tax, sales tax, excise duty, custom duty,Introductions, importance and its functions
13th	1	Financial Management and VAT
	2	Unit VII-Definition and need,Customer Relation Management (CRM) Types of CRM
	3	Just in time (JIT),Total employees Involvement ,Statistical process contro
14th	1	Total quality management (tqm)
	2	Infringement related to patents, copy right, trade mark,
	3	Introductions, definition and its importance , Intellectual Property Right (IPR)
15th	1	Sessional 3rd
	2	
	3	

## Lesson Plan

Name of faculty:- Mr. Deepak ( Theory )

Discipline:- Mechanical Engineering

Semester:- 6<sup>th</sup>

Subject:- Industrial Engineering

Lesson Plan Duration:- 15 weeks (from Jan-2018 to Apr-2018)

WorkLoad:- Lectures-4

WEEK	THEORY	
	Lecture	TOPIC
1st	1	Introduction to productivity, factors affecting productivity
	2	Measurement of productivity, causes of low productivity
	3	Methods to improve productivity
	4	Comparison between product and productivity
2nd	1	Introduction, definition and scope of work study.
	2	Inter-relation between method study and work measurement
	3	Advantages, disadvantages and applications of work study.
	4	Human aspects of work study
3rd	1	Role of work study in improving productivity.
	2	Work study and Productivity
	3	Method Study- objectives, applications and advantages.
	4	Procedure for Method analysis
4th	1	Recordings Techniques used in method study- Process analysis
	2	Recordings Techniques used in method study- Process chart
	3	Recordings Techniques used in method study- Flow diagram and sting diagram
	4	Revision
5th	1	Sessional 1 <sup>st</sup>
	2	
	3	
	4	
6th	1	Introduction to motion study, objectives of motion study.
	2	Principles of Motion analysis
	3	Therbligs and SIMO charts
	4	Micromotion study, Normal work area and design of work places.
7th	1	Ergonomics
	2	Work Measurement- Introduction, Objectives, Common terms used in work measurement, Techniques.
	3	Stop watch time study; principle, equipment used and procedure

	4	Systems of performance rating; calculation of basic times
8th	1	Various allowances; calculation of standard time
	2	Work sampling, standard data and its usage.
	3	Introduction to wages, Terminology and types of wages.
	4	Factors affecting wages and wage rates.
9th	1	Wage payment for direct and indirect labour
	2	Wage payment plans and incentives,
	3	Various incentive plans, incentives for indirect labour
	4	Revision.
10th	1	Sessional 2 <sup>nd</sup>
	2	
	3	
	4	
11th	1	Introduction, objectives and components (functions) of Production Planning and Control
	2	Advantages of production planning and Production Control, stages of P.P.C
	3	Process planning, routing
	4	Scheduling, dispatching and follow up, routing purpose, route sheets
12th	1	Scheduling – purpose, machine loading chart, Gantt chart
	2	Dispatching – purpose, and procedure
	3	Follow up – purpose and procedure
	4	CPM technique, drawing of simple networks and critical time calculation
13th	1	PERT technique, drawing of simple networks and critical time calculation
	2	Production Control in job order, batch type and continuous type of productions. Difference between these controls.
	3	Estimating and Costing- Introduction, purpose/functions of estimating
	4	Costing concept, ladder and elements of cost, difference between estimation and costing
14th	1	Overheads and their types
	2	Estimation of material cost, numerical problems.
	3	Estimation of cost for machining processes, numerical problems
	4	Numerical problems
15th	1	Sessional 3 <sup>rd</sup>
	2	
	3	
	4	

### Lesson Plan

**Name of the Faculty** : Deepak  
**Discipline** : MECHANICALENGG.  
**Semester** : 6TH  
**Subject** : INSPECTION AND QUALITY CONTROL  
**Paper Code** :

Lesson Plan Duration :

Week	Theory	
	Lecture Day	Topic (including assignment/ test)
1 <sup>st</sup>	1 <sup>st</sup>	Inspection:- Introduction, units of measurement
	2 <sup>nd</sup>	Standards for measurement and interchangeability
	3 <sup>rd</sup>	International, national and company standard
	4 <sup>th</sup>	
	5 <sup>th</sup>	Line and wavelength standards
2 <sup>nd</sup>	1 <sup>st</sup>	Planning of inspection: what to inspect?
	2 <sup>nd</sup>	When to inspect? Who should inspect? Where to inspect?
	3 <sup>rd</sup>	Types of inspection: remedial, preventive and operative inspection
	4 <sup>th</sup>	
	5 <sup>th</sup>	incoming, in-process and final inspection
3 <sup>rd</sup>	1 <sup>st</sup>	Study of factors influencing the quality of manufacture.
	2 <sup>nd</sup>	Measurement and Gauging:-
	3 <sup>rd</sup>	Basic principles used in measurement and gauging
	4 <sup>th</sup>	
	5 <sup>th</sup>	Basic principles used in mechanical,
4 <sup>th</sup>	1 <sup>st</sup>	Basic principles used in optical
	2 <sup>nd</sup>	Basic principles used in electrical and electronic
	3 <sup>rd</sup>	Study of various measuring instruments like: calipers
	4 <sup>th</sup>	
	5 <sup>th</sup>	Study of various measuring instruments like:- micrometers
5 <sup>th</sup>	1 <sup>st</sup>	Study of various measuring instruments like:-dial indicators,
	2 <sup>nd</sup>	Study of various measuring instruments like:- surface plate
	3 <sup>rd</sup>	Study of various measuring instruments like:- straight edge, try square,
	4 <sup>th</sup>	
	5 <sup>th</sup>	Study of various measuring instruments like:- Protectors, Sine bar
6 <sup>th</sup>	1 <sup>st</sup>	Study of various measuring instruments like:- clinometer, comparators – mechanical, electrical and pneumatic
	2 <sup>nd</sup>	Study of various measuring instruments like:- Slip gauges, tool, Room microscope, profile projector
	3 <sup>rd</sup>	Limit gauges: plug, ring, snap, taper, thread, height, depth, form, feeler,
	4 <sup>th</sup>	
	5 <sup>th</sup>	Wire and their applications for linear, angular, surface, thread and gear measurements, gauge tolerances.
7 <sup>th</sup>	1 <sup>st</sup>	Geometrical parameters and errors:- Errors & their effect on quality
	2 <sup>nd</sup>	Concept of errors, measurement of geometrical parameter such as straightness
	3 <sup>rd</sup>	Flatness and parallelism.
	4 <sup>th</sup>	
	5 <sup>th</sup>	Study of procedure for alignment tests on lathes
8 <sup>th</sup>	1 <sup>st</sup>	Drilling and milling machines.



	2 <sup>nd</sup>	Testing and maintenance of measuring instruments
	3 <sup>rd</sup>	Statistical Quality Control :-
	4 <sup>th</sup>	
	5 <sup>th</sup>	Basic statistical concepts
	9 <sup>th</sup>	1 <sup>st</sup>
	2 <sup>nd</sup>	Frequency, mean, mode
	3 <sup>rd</sup>	Standard deviation
	4 <sup>th</sup>	
	5 <sup>th</sup>	Normal distribution
	10 <sup>th</sup>	1 <sup>st</sup>
	2 <sup>nd</sup>	Simple- examples
	3 <sup>rd</sup>	Introduction to control charts,
	4 <sup>th</sup>	
	5 <sup>th</sup>	Namely X, R, P and C charts
	11 <sup>th</sup>	1 <sup>st</sup>
	2 <sup>nd</sup>	Sampling plans,
	3 <sup>rd</sup>	Selection of sample size
	4 <sup>th</sup>	
	5 <sup>th</sup>	Method of taking samples
	12 <sup>th</sup>	1 <sup>st</sup>
	2 <sup>nd</sup>	Inspection plan format and test reports
	3 <sup>rd</sup>	Modern Quality Concepts :-
	4 <sup>th</sup>	
	5 <sup>th</sup>	Concept of total quality management (TQM)
	13 <sup>th</sup>	1 <sup>st</sup>
	2 <sup>nd</sup>	National and International Codes
	3 <sup>rd</sup>	National and International Codes
	4 <sup>th</sup>	
	5 <sup>th</sup>	ISO-9000, Concept
	14 <sup>th</sup>	1 <sup>st</sup>
	2 <sup>nd</sup>	QC tools
	3 <sup>rd</sup>	Introduction to Kaizen, 5S
	4 <sup>th</sup>	
	5 <sup>th</sup>	Instrumentation ;
	15 <sup>th</sup>	1 <sup>st</sup>
	2 <sup>nd</sup>	Instrumentation :- Vibration, frequency,
	3 <sup>rd</sup>	Pressure temperature by electro mechanical transducers of resistance
	4 <sup>th</sup>	
	5 <sup>th</sup>	Capacitance & inductance type