


Discipline Mechanical Engineering	6th Semester (SUMMER 2020)	Name Of The Faculty: Sri Sagar Kumar Behera (Lect. In Mechanical Engg.)
Subject : Industrial Engineering & Quality Control	No of Days per week class alloted (4 nos)	Semester from 09/12/2019.
Week	Class days	Theory Topic
1st	1st	Introduction to plant location, need for selecting a suitable location
	2nd	Importance of plant location, dynamic nature of plant location
	3rd	Features governing plant location
	4th	Plant layout, objective of a good plant layout
2nd	1st	Principle of plant layout
	2nd	Types of layout
	3rd	Techniques to improve layout
	4th	Definition, concept & application of operation research
3rd	1st	Definition & salient features of linear programming problem
	2nd	Formulation of L.P.P
	3rd	Solution of L.P.P by graphical method
	4th	Solution of L.P.P by graphical method
4th	1st	Network techniques, terms related to C.P.M & P.E.R.T
	2nd	Rules for network construction & drawing the network diagram
	3rd	Evaluation of project completion time by P.E.R.T
	4th	Solving of simple numericals for calculation of project completion time by P.E.R.T
5th	1st	Evaluation of project completion time by C.P.M
	2nd	Solving of simple numericals for calculation of project completion time by C.P.M
	3rd	Solving of simple numericals for calculation of project completion time by C.P.M
	4th	Distinct features of P.E.R.T with respect to C.P.M
6th	1st	Introduction & classification of inventory control
	2nd	Objective of inventory control
	3rd	Functions of inventory, benefits of inventory control
	4th	Cost associated with inventory terminology in inventory control
7th	1st	Explanation & derivation of EOQ for basic model
	2nd	Numerical related to E.O.Q
	3rd	Definition & explanation of ABC analysis
	4th	Necessity of maintenance management, objective of plant maintenance
8th	1st	Importance of maintenance, functions of maintenance
	2nd	corrective or breakdown maintenance
	3rd	scheduled maintenance
	4th	preventive maintenance
9th	1st	predictive maintenance
	2nd	Definition & concept of Inspection & quality control, purpose of inspection
	3rd	Planning of inspection
	4th	Types of inspection
10th	1st	Advantages & disadvantages of quality control
	2nd	Factors influencing the quality of manufacture
	3rd	Meaning of quality, quality control, statistical quality control, process control
	4th	Difference between quality control & inspection, concept of control charts & its types


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11th	1st	plotting of control charts (x & R)
	2nd	Numericals on above concept
	3rd	plotting of control charts (P & C)
	4th	Numericals on above concept
12th	1st	Comparison between attribute chart & variable chart
	2nd	Concept of total quality management, meaning of total quality control, Need for management of product quality
	3rd	Elements of T.Q.M, implementation of T.Q.M, Benefits of T.Q.M
	4th	Concepts of ISO-9000/14000, its evolution and implication
13th	1st	Concept of J.I.T, Definition of J.I.T, characteristics of J.I.T management
	2nd	Goals of J.I.T, elements of J.I.T, Benefits & limitation of J.I.T
	3rd	Concept of six sigma
	4th	concept of 7s
14th	1st	concept to lean manufacturing
	2nd	Revision
	3rd	Revision
	4th	Revision
15th	1st	Previous year questions discussion
	2nd	Previous year questions discussion
	3rd	Previous year questions discussion
	4th	Previous year questions discussion


09/12/19
 Sri. S.K. BISHARA
 (Lect. mech)


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DISCIPLINE	SEMESTER	NAME OF THE TEACHING FACULTY	
MECHANICAL ENGG.	6th	SRI. MANOJ KUMAR DAS, PTGF, MECH.	
SUBJECT: AUTOMOBILE ENGG.		NO. OF DAYS PER WEEK CLASS ALLOTTED:	SEMESTER FROM 09/12/2019 NO. OF WEEKS : 16 NOS.
WEEKS	CLASS DAYS	THEORY TOPICS	
1ST WEEK	1ST	Automobiles: Definition, need and classification	
	2ND	Layout of automobile chassis with major components (Line diagram)	
	3RD	Clutch System: Need, Types (Single & Multiple)	
	4TH	Working principle Of Clutch with sketch	
2ND WEEK	1ST	3 Gear Box: Purpose of gear box	
	2ND	Construction and working of a 4 speed gear box	
	3RD	Concept of automatic gear changing mechanisms	
	4TH	Propeller shaft: Constructional features	
3RD WEEK	1ST	DO	
	2ND	Need of Differential	
	3RD	Types of Differential	
	4TH	Working Principle of Differential	
4TH WEEK	1ST	Braking systems in automobiles: Need and types	
	2ND	Mechanical Brake	
	3RD	Air assisted Hydraulic Brake	
	4TH	Vacuum Brake	
5TH WEEK	1ST	Hydraulic Brake	
	2ND	Describe the Battery ignition	
	3RD	Magnet ignition system	
	4TH	Specifications of Spark plug	
6TH WEEK	1ST	common ignition troubles of spark plug	
	2ND	Remedies of spark plug	
	3RD	Description of the conventional suspension system for Rear and Front axle	
	4TH	Description of independent suspension system used in cars (coil spring and tension bars)	
7TH WEEK	1ST	Constructional features and working of a telescopic shock absorber	
	2ND	DO	
	3RD	DO	
	4TH	Engine cooling: Need and classification	
8TH WEEK	1ST	Describe defects of cooling	
	2ND	Remedial Measures of Defects of cooling	
	3RD	Describe the Function of lubrication	
	4TH	Describe the lubrication System of I.C. engine	
9TH WEEK	1ST	DO	
	2ND	DO	
	3RD	DO	
	4TH	Describe Air fuel ratio	
10TH WEEK	1ST	Describe Carburetion process for Petrol Engine	
	2ND	Describe Multipoint fuel injection system for Petrol Engine	
	3RD	Describe the working principle of fuel injection system for multi cylinder Engine	
	4TH	Filter for Diesel engine	
11TH WEEK	1ST	Describe the working principle of Fuel feed pump	
	2ND	Fuel Injector for Diesel	
	3RD	DO	
	4TH	DO	
12TH WEEK	1ST	DO	
	2ND	Introduction Of Hybrid Vehicle	
	3RD	Social and Environmental importance of Hybrid vehicle	
	4TH	Social and Environmental importance of Electrical vehicle	
13TH WEEK	1ST	Description of Electric Vehicles	
	2ND	operational advantages of Electric Vehicle	
	3RD	present performance of Electric Vehicle	
	4TH	applications of Electric Vehicles	
14TH WEEK	1ST	Battery for Electric Vehicles	
	2ND	Battery types and fuel cells	
	3RD	Hybrid vehicles, Types of Hybrid	
	4TH	Electric Vehicles: Parallel, Series	
15TH WEEK	1ST	Parallel and series Configuration	
	2ND	Drive train	
	3RD	Solar powered vehicles	
	4TH	Revision	


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DISCIPLINE	SEMESTER	NAME OF THE TEACHING FACULTY
MECHANICAL ENGG.	6th	SRI. BIPIN KUMAR DASH
SUBJECT: POWER PLANT ENGG		SEMESTER FROM 09/12/2019
NO. OF DAYS PER WEEK CLASS ALLOTTED : 04		NO. OF WEEKS : 16 NOS.
WEEKS	CLASS DAYS	THEORY TOPICS
1ST WEEK	1ST	INTRODUCTION TO POWER PLANT ENGINEERING
	2ND	DESCRIBE SOURCES OF ENERGY, LOAD CURVE
	3RD	EXPLAIN CONCEPT OF CAPTIVE AND CENTRAL POWER PLANT
	4TH	CLASSIFY POWER PLANT, PERFORMANCE PARAMETERS
2ND WEEK	1ST	IMPORTANCE OF ELECTRICAL POWER IN DAY TODAY LIFE, OVERVIEW METHOD OF
	2ND	LAYOUT OF STEAM POWER PLANT, BASIC CONCEPT
	3RD	STEAM POWER CYCLE, CARNOT VAPOUR POWER CYCLE (P-V, T-S, H-S DIAGRAM), THERMAL
3RD WEEK	4TH	RANKINE CYCLE (P-V, T-S, H-S DIAGRAM), THERMAL EFFICIENCY
	1ST	WORK DONE, WORK RATIO, SPECIFIC STEAM CONSUMPTION
	2ND	NUMERICAL PROBLEMS BASED ON RANKINE CYCLE
	3RD	REHEAT CYCLE AND RELATED NUMERICAL PROBLEMS
4TH WEEK	4TH	REGENERATIVE CYCLE AND RELATED NUMERICAL PROBLEM
	1ST	COMBINATION OF REHAET AND REGENERATIVE CYCLE
	2ND	LIST OF THERMAL POWER STATIONS IN THE STATE WITH THEIR CAPACITIES, BOILER
	3RD	AIR PREHEATER, ECONOMISER, ESP, SUPERHEATER.
5TH WEEK	4TH	DRAUGHT SYSTEM, ADVANTAGES AND DISADVANTAGES
	1ST	PERFORMANCE OF STEAM TURBINE AND EFFICIENCY
	2ND	NUMERICAL PROBLEMS ON STEAM TURBINE
	3RD	STEAM CONDENSER, CLASSIFICATION ON STEAM TURBINE
6TH WEEK	4TH	JET AND SURFACE CONDENSER AND AUXILIARIES
	1ST	FUNCTION AND TYPES OF COOLING TOWER (CT)
	2ND	NATURAL DRAFT COOLING TOWER AND MECHANICAL DRAFT CT
	3RD	CONCEPT OF NUCLEAR FUSION AND FISSION REACTION
7TH WEEK	4TH	CLASSIFICATION OF NUCLEAR FUEL, NUCLEAR REACTOR
	1ST	NUCLEAR REACTOR, MODERATOR, REFLECTOR, SHIELDING
	2ND	REACTORY VESSEL, COOLANT, CONTROL ROD, LINE DIAGRAM
	3RD	WORKING PRINCIPLE OF PWR
8TH WEEK	4TH	WORKING PRINCIPLE OF BWR
	1ST	WORKING PRINCIPLE OF BWR
	2ND	DIFFERENCE BETWEEN PWR AND BWR
	3RD	COMPARISON BETWEEN NUCLEAR AND THERMAL POWER PLANT
9TH WEEK	4TH	NUCLEAR WASTE DISPOSAL
	1ST	REVISION OF THERMAL POWER PLANT
	2ND	REVISION OF NUCLEAR POWER PLANT
	3RD	INTRODUCTION OF DIESEL ENGINE POWER PLANT (DEPP)
10TH WEEK	4TH	CONSTRUCTION AND WORKING PRINCIPLE OF DEPP
	1ST	ADVANTAGE AND DISADVANTAGE OF DEPP
	2ND	DIFFERENT SYSTEM OF DIESEL POWER PLANT
	3RD	DIFFERENT SYSTEM OF DIESEL POWER PLANT
11TH WEEK	4TH	FUEL STORAGE AND FUEL SUPPLY SYSTEM
	1ST	LUBRICATION SYSTEM, STARTING SYSTEM
	2ND	STARTING SYSTEM
	3RD	GOVERNING SYSTEM
12TH WEEK	4TH	REVISION OF DIESEL ENGINE POWER PLANT
	1ST	INTRODUCTION TO HYDROELECTRIC POWER PLANT
	2ND	DIFFERENT COMPONENT OF HYDROELECTRIC POWER PLANT
	3RD	DIFFERENT COMPONENT OF HYDROELECTRIC POWER PLANT
13TH WEEK	4TH	ADVANTAGE AND DISADVANTAGE OF HYDROELECTRIC POWER PLANT
	1ST	WORKING PRINCIPLE OF HYDROELECTRIC POWER PLANT
	2ND	REVISION OF HYDROELECTRIC POWER PLANT
	3RD	REVISION OF CHAPTER-1
14TH WEEK	4TH	RANKINE, REHEAT, REGENERATIVE CYCLE
	1ST	NUMERICAL PROBLEM SOLVE
	2ND	NUMERICAL PROBLEM SOLVE
	3RD	NUMERICAL PROBLEM PRACTICE
15TH WEEK	4TH	NUMERICALS ON STEAM TURBINE
	1ST	NUMERICALS ON STEAM TURBINE
	2ND	NUMERICALS ON STEAM TURBINE
	3RD	PREVIOUS YEAR QUESTION PAPER PRACTICE
16TH WEEK	4TH	PREVIOUS YEAR QUESTION PAPER PRACTICE
	1ST	SAMPLE SET PRACTICE AND DOUBT CLEAR CLASS
	2ND	SAMPLE SET PRACTICE AND DOUBT CLEAR CLASS
	3RD	SAMPLE SET PRACTICE AND DOUBT CLEAR CLASS


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DISCIPLINE		SEMESTER	NAME OF THE TEACHING FACULTY	
MECHANICAL ENGG.		6th	SRI. SOMANATH MOHAPATRA,PTGF	
SUBJECT-ADVANCED MANUFACTURING AND CAD/CAM		NO. DAYS PER WEEK CLASS ALLOTTED-04	SEMESTER FROM 09/12/2019	
			NO.OF WEEKS :16 NOS.	
WEEKS	CLASS DAYS	THEORY TOPICS		
1ST WEEK	1ST	INTRODUCTION TO CAD-CAM LAB		
	2ND	DESCRIBE VARIOUS NON TRADITIONAL MANUFACTURING PROCESS		
	3RD	ELECTRO CHEMICAL MACHINING PROCESS		
	4TH	ELECTRO CHEMICAL MACHINING PROCESS		
2ND WEEK	1ST	ELECTRO CHEMICAL MACHINING PROCESS		
	2ND	ELECTRO DISCHARGE MACHINING PROCESS		
	3RD	-DO-		
	4TH	-DO-		
3RD WEEK	1ST	PLASMA ARC MACHINING PROCESS		
	2ND	-DO-		
	3RD	-DO-		
	4TH	LASER BEAM MACHINING PROCESS		
4TH WEEK	1ST	-DO-		
	2ND	-DO-		
	3RD	ABRASIVE JET MACHINING PROCESS		
	4TH	-DO-		
5TH WEEK	1ST	-DO-		
	2ND	ELECTRON BEAM MACHINING PROCESS		
	3RD	-DO-		
	4TH	-DO-		
6TH WEEK	1ST	REVISION OF CHAPTER-1		
	2ND	REVISION OF CHAPTER-1		
	3RD	REVISION OF CHAPTER-1		
	4TH	CONCEPT OF AUTOMATION		
7TH WEEK	1ST	TYPES OF AUTOMATION AND EXPLANATION		
	2ND	DESCRIPTION OF VARIOUS TYPES OF AUTOMATION		
	3RD	NEED OF AUTOMATION		
	4TH	CONCEPT OF NUMERICAL CONTROL (NC)		
8TH WEEK	1ST	NC SYSTEM WITH BLOCK DIAGRAM		
	2ND	EXPLANATION OF NC SYSTEM WITH BLOCK DIAGRAM		
	3RD	DESCRIPTION OF TYPES OF NC CO-ORDINATE		
	4TH	EXPLANATION OF POINT-TO-POINT NC CO-ORDINATE		
9TH WEEK	1ST	EXPLANATION OF STRAIGHT CUT NC CO-ORDINATE		
	2ND	EXPLANATION OF CONTOURING		
	3RD	CONCEPT OF NC PART PROGRAMMING		
	4TH	G-CODE		
10TH WEEK	1ST	M-CODE		
	2ND	DIFFERENCE BETWEEN G-CODE AND M-CODE		
	3RD	REFERENCE POINT (MACHINE ZERO, WORK ZERO)		
	4TH	REFERENCE POINT (TOOL ZERO, TOOL OFFICE)		
11TH WEEK	1ST	SIMPLE PART PROGRAM FOR LATHE		
	2ND	EXPLAIN THE EXTENSION OF NC WITH BLOCK DIAGRAM		
	3RD	DNC		
	4TH	CNC, DIFFERENCE BETWEEN DNC AND CNC		
12TH WEEK	1ST	ADAPTIVE CONTROL		
	2ND	APPLICATION OF ROBOTS		
	3RD	EXPLAIN ROBOT ANATOMY		
	4TH	DESCRIBE ROBOT CONFIGURATION		
13TH WEEK	1ST	DESCRIPTION OF VARIOUS TYPES OF AUTOMATION		
	2ND	EXPLANATION OF NC SYSTEM WITH BLOCK DIAGRAM		
	3RD	INTRODUCTION TO FLEXIBLE MANUFACTURING SYSTEM		
	4TH	NEED FOR FMS		
14TH WEEK	1ST	EXPLAIN THE COMPONENTS OF FMS, PROCESSING STATION		
	2ND	MATERIAL HANDLING AND STORAGE AND COMPUTER CONTROL SYSTEM		
	3RD	REVISION OF FMS		
	4TH	DEFINE CAD, CAM SOFTWARE AND HARDWARE		
15TH WEEK	1ST	EXPLAIN BENEFITS OF CAD, CAM SOFTWARE AND HARDWARE		
	2ND	BENEFITS OF CAM		
	3RD	DIFFERENTIATION BETWEEN CAD AND CAM		
	4TH	EXPLAIN THE CONCEPT		
16TH WEEK	1ST	SOFTWARE AND HARDWARE OF CIM		
	2ND	REVISION CLASS		
	3RD	REVISION CLASS		
	4TH	REVISION CLASS		


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LESSON PLAN FOR ENVIRONMENTAL STUDIES(BST-501)(2019-20), 6th Semester, Mechanical Engg.
COURSE DURATION : 09/12/2019 TO 31/03/2020, (Duration of Each Period : 55 minutes)

Period	Unit	Subject	Topics to be Covered		
Period-1	I	The Multidisciplinary nature of environmental studies	Introduction		
Period-2			Definition of Environment		
Period-3			Scope and importance of the Environment		
Period-4			Need for public awareness		
Period-5					
Period-6	II	Natural Resources	Renewable and non renewable resources a) Natural resources and associated		
Period-7			Forest resources Use and over-exploitation, Deforestation, case studies		
Period-8			Timber extraction, mining, dams and their effects on forests and tribal people		
Period-9			Water resources Use and over-utilization of surface and ground water, floods, drought conflicts over water, dam's benefits and problems		
Period-10			Mineral Resources Use and exploitation, environmental effects of extracting and using		
Period-11			Food Resources World food problems, changes caused by agriculture and over		
Period-12			Effects of modern agriculture, fertilizers- pesticides problems, water logging, salinity		
Period-13			Energy Resources. Growing energy need, renewable and nonrenewable energy use of alternate energy sources, case studies		
Period-14			Land Resources: Land as a resource, land degradation, man induces, landslides		
Period-15			Soil erosion, and desertification		
Period-16			Role of individual in conservation of natural resources		
Period-17			Equitable use of resources for sustainable life styles		
Period-18					
Period-19			III	Ecosystems	Concept of an eco system
Period-20					Structure and function of an eco system
Period-21	Producers, consumers, decomposers				
Period-22	Energy flow in the eco systems				
Period-23	Food chains, food webs				
Period-24	Ecological pyramids				
Period-25	Introduction, types, characteristic features, structure and function of the eco system				
Period-26	Structure and function of the following eco system: Forest ecosystem				
Period-27	Aquatic eco systems (ponds, streams, lakes)				
Period-28	Aquatic eco systems (rivers, oceans, estuaries)				
Period-29	IV	Biodiversity and it's Conservation	Introduction-Definition		
Period-30			genetics, species and ecosystem diversity		
Period-31			Biogeographically classification of India		
Period-32			Value of biodiversity: consumptive use, productive use		
Period-33			Value of biodiversity: social ethical, aesthetic and optin values		
Period-34			Biodiversity at global, national and local level		
Period-35			Threats to biodiversity: Habitats loss, poaching of wild life, man wildlife conflicts		
Period-36	V	Environmental Pollution	Definition Causes, effects		
Period-37			control measures of: a) Air pollution		
Period-38			b) Water pollution		
Period-39			c) Soil pollution		
Period-40			d) Marine pollution		
Period-41			e) Noise pollution		
Period-42			f) Thermal pollution		
Period-43			g) Nuclear hazards		
Period-44			Solid waste Management: Causes, effects		
Period-45			Control measures of urban and industrial wastes		
Period-46	Role of an individual in prevention of pollution				
Period-47	Disaster management: Floods, earth quake, cyclone and landslides				
Period-48	Disaster management: Cyclone and landslides				
Period-49	VI	Social issues and the Environment	Form unsustainable to sustainable development		
Period-50			Urban problems related to energy		
Period-51			Water conservation, rain water harvesting		
Period-52			Water shed management		
Period-53			Resettlement and rehabilitation of people; its problems and concern		
Period-54			Environmental ethics: issue and possible solutions		
Period-55			Climatechange, globalwarming		
Period-56	Acid rain, ozone layer depletion				
Period-57	VII	Human population and the environment	Nuclear accidents and holocaust, case studies		
Period-58			Air (prevention and control of pollution) Act		
Period-59			Water (prevention and control of pollution) Act		
Period-60			Public awareness		
Period-61			Population growth and variation among nations		
Period-62			Population explosion- family welfare program		
Period-63			Environment and humanhealth		
Period-64			Human rights		
Period-65			Value education		
Period-66			Role of information technology in environment and human health		
Period-67			Revision Class of Unit- I		
Period-68			Revision Class of Unit- II		
Period-69			Revision Class of Unit- III		
Period-70			Revision Class of Unit- IV		
Period-71			Revision Class of Unit- V		
Period-72			Revision Class of Unit- VI		
Period-73			Revision Class of Unit- VII		
Period-74			Mock Test		

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