Lesson Plan

Name of the faculty: Sh. Parveen Malik, Lecturer in Mechanical Engg.

Discipline: Mechanical

Semester: 5th Mechanical A & B

Subject: Plant Maintenance and Material Handling

Lesson Plan Duration: 15 weeks

Work Load (Lecture/ Practical) per week (in hours): Theory – 03

Week	Theory		Practicals	
	Lecture day	**Topic (including assignment / test)**		
1st	1st	Necessity and advantages of testing, repair and maintenance, common instruments required for testing		
	2nd	significance of B-T curve in life span of machine tool, Acceptance test for machine tools		
	3rd	Revision		
2nd	1st	Economic aspects, manpower planning and materials management		
	2nd	Fits and tolerances – common fits and tolerances used for various machine parts		
	3rd	Revision		
3rd	1st	Location, layout of machines in Plant Layout, Principles of Plant layout		
	2nd	types of plant layout and positioning of machines, grouping of machines.		
	3rd	Foundation – types of foundation, various considerations for machine foundations, foundation plan, types of foundation bolts		
4th	1st	erection and leveling, grouting Vibration, damping, vibration isolation – methods of isolation, anti vibration mounts		
	2nd	Testing equipment – dial gauge, mandrel, spirit level, straight edge, auto collimator Recalibration of measuring instruments like vernier calliper		
	3rd	Testing methods – geometrical/alignment test, performance test, testing under load, run test, vibrations, noise		
5th	1st	Definition, advantages, limitations, functions and types of maintenance organisation. Types of maintenance viz. emergency, preventive, breakdown/corrective, predictive		
	2nd	Introduction to computerized maintenance record like facility register, maintenance request		
	3rd	ISO standards for maintenance documentation Introduction to machine history card – purpose and advantages		
6th	1st	Preparation of scheduled yearly plan for preventive maintenance,		

		difference of work content of servicing, repairs and overhauling. MTBF and MTTR. Maintainability		
	2nd	Spare parts- Need of frequently needed spare parts inventory, Make provision of spares for parts not available in market		
	3rd	Common parts which are prone to failure, reasons of failure		
7th	1st	Repair schedule Parts that commonly need repair such as belts		
	2nd	couplings, nuts, and bolts repairing the engines, compressors and boilers.		
	3rd	couplings, nuts, and bolts repairing the engines, compressors and boilers.		
8th	1st	couplings, nuts, and bolts repairing the engines, compressors and boilers.		
	2nd	Revision		
	3rd	Lubrication methods and periodical lubrication chart for various machines (daily, weekly, monthly)		
9th	1st	Handling and storage of lubricants		
	2nd	Lubricants conditioning and disposal		
	3rd	Lubricant and their grades needed gears and bearings		
10th	1st	Lubricant and their grades needed for chains		
	2nd	Purpose and procedure of changing oil periodically (like gear box oil)		
	3rd	Purpose and procedure of changing oil periodically (like gear box oil)		
11th	1st	Revision		
	2nd	Basic principles of material handling,		
	3rd	Basic types of material handling equipments and its characteristic		
12th	1st	Uses and limitations, forklift trucks		
	2nd	Selection of material handling equipment		
	3rd	Unit load: pallet sizing and loading		
13th	1st	Conveyor models		
	2nd	Revision		
	3rd	AGV Systems		
14th	1st	Automated Storage		
	2nd	Retrieval System (ASRS)		
	3rd	Carousels		
15th	1st	Revision		
	2nd	Revision		
	3rd	Revision		