



I	SECTION CODE	MTM
II	SECTION NAME	MACHINE TOOL MAINTENANCE
III	COURSE CODE	MTM-01
IV	COURSE TITLE	MACHINE TOOL MAINTENANCE
V	DURATION	02 Weeks
IV	OBJECTIVES	
On completion of the course, the learner will be able to understand various test & wears in machine tool and demonstrate the practical competencies as stated in below contents.		

VI Course Content :

Theory topics	Practical Topics
Industrial safety in maintenance department. Geometrical test of Machine tools. Limits and fits. Wear in various components & methods of minimizing it. Lubricants recommended for machine tools. Machine tool mechanism. Scraping of machine tools slides. Plain “S” anti-frictional bearing. Trouble shooting & their rectification in oil seals and packing	Leveling of surface by sensitive engineering spirit level. Bearing sound testing. Measurement of speed by electronic tachometer. Vibration analysis of machine tools. Perform geometrical test as per IS chart. Scraping practice on flat surfaces. Dismantling , overhauling practice of machine tools

I	SECTION CODE	MTM
II	SECTION NAME	MACHINE TOOL MAINTENANCE
III	COURSE CODE	MTM-02
IV	COURSE TITLE	PREVENTIVE MAINTENANCE OF MACHINE TOOLS
V	DURATION	01 Week
IV	OBJECTIVES	



On completion of the course, the learner will be able to understand all about maintenance and demonstrate the practical competencies as stated in below content.

VI Course Content :

Theory topics	Practical Topics
Methods of preventive maintenance. Rules of maintenance. Aims of maintenance. Need of maintenance. Functions of maintenance. Types of maintenance programme. Maintenance procedures and principles. Poor maintenance and it's causes.	Performing preventive maintenance of lathe. Performing preventive maintenance of milling machine. Checking the condition of the machines using standard check list



I	SECTION CODE	MTM
II	SECTION NAME	MACHINE TOOL MAINTENANCE
III	COURSE CODE	MTM-03
IV	COURSE TITLE	BEARING AND LUBRICATION
V	DURATION	01 Week
IV	OBJECTIVES	
On completion of the course, the learner will be able to understand various bearing, lubricants and its application and to demonstrate the practical competencies as stated in below contents.		

VI Course Content :

Theory topics	Practical Topics
Types of bearing. Bearing specification. Bearing lubrication. Type of bearing noise. Bearing failures patterns. Principles of lubrication. Lubricant characteristics test and significance. Lubricant application methods. Storage and handling of lubricants.	Checking of condition of bearing by sound testing using Engg. Stethoscope. Journal bearing demonstration apparatus. Replacing the bearing. Preloading of bearing using special tools ,



I	SECTION CODE	MTM
II	SECTION NAME	MACHINE TOOL MAINTENANCE
III	COURSE CODE	MTM-04
IV	COURSE TITLE	MECHANICAL MAINTENANCE OF PLANT & MACHINERY (IMPROVED METHODS)
V	DURATION	01 Week
IV	OBJECTIVES	
On completion of the course, the learner will be able to understand basic elements machine tool and demonstrate the practical competencies as stated in below contents.		

VI Course Content :

Theory topics	Practical Topics
Concept of mechanical maintenance. Basic mechanical elements. Mechanical maintenance aspects. Belt drives, coupling, chain drives, clutches. Knowledge of latest trends in mechanical maintenance. Safety practice in maintenance.	Procedure alignment of belt drive, adjusting belt tension with special tool. Aligning properly the coupling, chain drives, clutches, gear boxes. Use of industrial adhesives of sealants.



I	SECTION CODE	MTM
II	SECTION NAME	MACHINE TOOL MAINTENANCE
III	COURSE CODE	MTM-05
IV	COURSE TITLE	REPAIR AND MAINTENANCE OF COMPRESSOR
V	DURATION	01 Week

IV	OBJECTIVES	
<p>On completion of the course, the learner will be able to understand Safety regulation of receiver, Calibration of Pressure Gauge, Working principle of compressor, Constructions and operation of different types of compressors, Primary Air treatment, Layout of pipe fitting losses in pipe fitting, Preventive maintenance of compressors, Repair & Trouble shooting of compressors</p>		

VI Course Content :

Theory topics	Practical Topics
<p>Working principle, Construction Overhauling and application of various Compressors. Such as Reciprocating compressor, Screw compressor, Vane compressor, Axial flow compressor, Diaphragm compressor, Centrifugal compressor. Selection criteria of compressors, Primary Air treatment. Pipe fitting losses & tubing's, air solution for clean and dry air. Preventive maintenance of compressors, Repair & Trouble shooting of compressors. Safety precautions while operating the Compressors.</p>	<p>a) Assembling and disassembling of various compressors. b) Overhauling of various types of compressors. c) Adjusting pressure switches. Repairing of pressure switches. d) Testing the efficiency of a compressor. Making a effective point. e) Equipment maintenance for clean & Dry Air. f) Preventive maintenance of compressors. g) Repair & trouble shooting of the compressors. h) Pipe & tube fitting practice.</p>



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I	SECTION CODE	MTM
II	SECTION NAME	MACHINE TOOL MAINTENANCE
III	COURSE CODE	MTM-06
IV	COURSE TITLE	MODERN MAINTENANCE TECHNIQUES [MECH./ELECT.]
V	DURATION	01 Week
IV	OBJECTIVES	
<p>On completion of the course, the learner will be able to understand</p> <ul style="list-style-type: none"> ▪ Importance of maintenance. ▪ The concept of mechanical maintenance. ▪ Various mechanical power transmitting devices. ▪ Latest methods for proper maintenance. ▪ Introduction of TQM. ▪ Introduction of TPM. ▪ Introduction of 5s system. 		

VI Course Content :


Theory topics	Practical Topics
Industrial safety in mechanical & electrical maintenance activities. Belt drives, chain drives gear train calculation, bearing specification and their maintenance. Modern techniques in mechanical maintenance. Introduction of Total Productive Maintenance (TPM) and Total Quality Management (TQM). Concept of 5s system.	a) Adjusting belt tension with special tool “Belt tension Indicator.” b) Checking the vibration with special tool “Vibration pen”. c) Checking the viscosity with the viscometer. d) Checking the speed by using laser tachometer. e) Placing the anti-pads for minimizing the vibration.



I	SECTION CODE	MTM
II	SECTION NAME	MACHINE TOOL MAINTENANCE
III	COURSE CODE	MTM-07
IV	COURSE TITLE	REPAIR & MAINTENANCE OF LATHE MACHINE
V	DURATION	01 Week
IV	OBJECTIVES	
On completion of the course, the learner will be able to understand		
<ul style="list-style-type: none">▪ Introduction to safety of machine tool maintenance.▪ Introduction to machine tool maintenance of lathe.▪ Identify the lathe machine parts, features and types of lathe machine.▪ Introduce to power transmission of lathe machine.▪ Calculation of gear train.▪ Preventive maintenance as per check list.		

VI Course Content :

Theory topics	Practical Topics
Industrial safety in mechanical maintenance. Introduction to machine tool maintenance of lathe. Parts of lathe machine, features and types of lathe. Introduction to power transmission, belt, gears, bearing, pulleys and calculation of gear train. Preventive maintenance as per check list.	a) Identify the parts of lathe. b) Check the lubricant in head stock (gear box). c) Check the sound in bearings and gears. d) Maintenance of tail stock. e) Maintenance of carriage. f) Maintenance of head stock. g) Overhaul preventive maintenance as per check list.

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I	SECTION CODE	MTM
II	SECTION NAME	MACHINE TOOL MAINTENANCE
III	COURSE CODE	MTM-08
IV	COURSE TITLE	CONCEPT OF CNC MAINTENANCE (Mech.)
V	DURATION	01 Week
IV	OBJECTIVES	
<p>On completion of the course, the learner will be able to understand</p> <ul style="list-style-type: none"> ▪ Introduction to general maintenance aspects. ▪ Introduction to CNC machine maintenance. ▪ CNC features, mechanical elements. ▪ Closed loop control & feedback device used in CNC machines and their maintenance. ▪ Drives used in CNC machine. ▪ Normal overhaul check list for Hydraulic system. ▪ Preventive maintenance check list. 		

VI Course Content :

Theory topics	Practical Topics
<p>Industrial safety in mechanical & electrical maintenance. Introduction to CNC machine maintenance, CNC features, mechanical elements. Closed looped control & feedback device used in CNC machine, drives in CNC machines. Overhaul check list for hydraulic system and their maintenance. Preventive maintenance as per check list.</p>	<p>a) Safety check on the machine before start. b) Check the lubricant tank oil level and hydraulic tank oil level. c) Check the main pressure of the hydraulic/pneumatic system. d) Lubricant the clamping device if any manual. e) Keeping the machine clean is an important part of preventive maintenance. f) Preventive maintenance as per check list. g) Normal overhaul check list for hydraulic system.</p>