



## CNC PROGRAMMING & MACHINING - INTERMEDIATE

DAY	TOPICS	DESCRIPTION	OUT COME	DAY DURATION
Day 1	SAFETY AND MACHINE MAINTENANCE & INTRODUCTION TO MILLING	Types of Safety Precautions	After completing the session, trainees will able to understand the Industrial machinery safety and maintenance procedures & Machine specifications knowledge	8 Hrs
		Equipment of Safety procedures		
		Types of CNC Daily, Weekly , Monthly periodical maintenance prcedures		
		Industrial safety and cleanliness and 5s procedures		
		Introduction to Milling Machine		
		Milling machine specifications		
		Work flow of the CNC Machines		
Day 2	INTRODUCTION TO SIEMENS 828D CONTROL PANEL & INTRODUCTION TO CNC PROGRAMMING & FUNDAMENTALS	Absolute Dimensioning & Incremental Dimensionig	After completing this session trainees will able to understand briefly what is G codes & M codes. Difference of Absolute and Incremental programs, new program creating and individually given comands in MDI mode, Work and Tool offset taking procedure knowledge	8 Hrs
		Preparatory (G-Codes) , Miscellaneous (M-Codes) Explanation		
		Introduction Control Panel Functions		
		Operator panel Functional keys explanation		
		using M codes commands in MDI mode for changing tool, spidle speeds (CW or CCW) and coolant on , create new programs.		
		Work co-ordinate system work offset (X , Y Axis) measurement taking		
	Work co-ordinate system Tool offset (Z, Axis) measurement taking procedure			
Exercise	Hands on Practice of CNC Milling m/c Power ON & OFF Procedure and how to take Machine Reference and X,Y,Z Offset taking procedure for each and every trainee			
Day 3	CUTTING TOOLS AND PARAMETER SELECTION FOR MILLING & TYPES OF WORK AND TOOL HOLD DEVICES	Calculations of Cutting Speed, Spindle speed and Feeds	After completing this session trainees will able to understnd how to give the Axis movment of 4th & 5th Axis. Simultaneously Grab the knowledge of Tooling and workholding devices.	8 Hrs
		Different types of CNC Tooling Systems		
		Tool Clamping Fixtures and Accessories		
		Various Types of Work Holding Devices, Tool Holders and inserts Nomenclature		
	MTAB Milling Machine Working holding procedure 4th Axis (A) and 5th Axis(C)Tilting and rotating processing procedures			
Exercise	Hands on Practice with 4th Axis and 5th Axis movments.			
Day 4	CNC_PROGRAMMING_OPERATING	Facing Operation Manual / Facing operation using cycle program	After completing this session trainees will able to write any milling manual programs and cycle programs and see the Tool path simulations Individually	8 Hrs
		Different types of profile programs apply (G40 , G41 & G42) commands		
		Chamfer & Radius Operations ( G02 & G03)		
		Contour Cycles Programming & Simulations		
		Circular & Rectangular Pocket Milling Operations		
		Drilling Cycles		
		Spigot Milling Cycles		
	Threading Cycles & High speed milling cycles			
Exercise	Hands on Practice Milling Programming manual & cycles all these Operaions and Simulations			
DAY 5	CNC_PROGRAMMING_OPERATING_MACHINING_PRACTICAL	Facing Operation Manual / Facing operation using cycle program	After completing this Practical session trainees will able to take X,Y,Z measuring offset , programming simulations & Operating Machining individually	8 Hrs
		Different types of profile programs apply (G40 , G41 & G42) commands		
		Chamfer & Radius Operations ( G02 & G03)		
		Contour Cycles Programming & Simulations		
		Circular & Rectangular Pocket Milling Operations		
		Drilling Cycles		
	Spigot Milling Cycles			
	Threading Cycles & High speed milling cycles			
	Exercise	Practical Assignment		
<b>Total = 40 Hrs</b>				