



MACHINE OPERATOR – CNC MILLING

CURRICULUM/SYLLABUS

This program is aimed at training candidates for the job of a **“Machine Operator – CNC Milling”**, in the **“Petrochemical”** Sector and by the end of the program aims at building the following key competencies amongst the learner.

Program Name	Machine Operator - CNC Milling
Qualifications Document Name & Reference ID.	Machine Operator - CNC Milling CPC/Q 7103
Version No.	1.0
Pre-requisites to Training	Minimum qualification – X th Standard
Training Outcomes	<p>After completing this programme, participants will be able to:</p> <ul style="list-style-type: none"> • Health & safety Practices at workplace • Basic Fitting, filing and measuring tools & instruments • Basic Arithmetic and Work shop Calculations • Understanding of Engineering Drawings/ sketches and Geometric tolerances • Knowledge of metal cutting, cutting tools and tool material • Perform Milling machine operations • Knowledge of Work and tool holding devices on Milling/ CNC Milling machine • Job setting and simple programming on CNC Milling machine • Perform machining operations on CNC Milling machine • Checking the quality of machined components • Daily Maintenance of Milling / CNC Milling machine

This course encompasses **06** out of **06** Learning Outcomes (LO) of **“Machine Operator – CNC Milling”** Qualifications Document.

S. No.	Topic/ Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding LO Code	Equipment Required
1.	Industrial Safety & Practices	8	16	<ul style="list-style-type: none"> • Comply with Environmental & Safety Policies of Organization, Identify personal safety , Job Safety & Machine Safety, Coordinate with other resources at the workplace to achieve the healthy, safe and secure environment for all 	CPC/ N 7113	Hand Gloves, Safety Goggles, First Aid Kit, Fire Extinguisher



				incorporating all government norms esp. for emergency situations like fires, earthquakes etc. identify and correct any hazards like illness, accidents, fires or any other natural calamity safely and within the limits of individual's authority.		
2.	Basic Engineering	22	50	<ul style="list-style-type: none"> • Can able to understand and use basic fitting & filing tools. • Able to use measuring instruments to measure OD, ID, thread, tape etc. • Able to do the basic arithmetic calculations, tapes, r.p.m., weight etc. • Can able to read & interpret and draw simple engineering drawings in orthographic isometric projection. • Can able to understand the Geometrical Tolerances and Precision of Job. 	CPC/ N 7111	Hand tools, Vernier Calliper, micrometer, height gauge, thread gauge etc., Calculator, Log Table, Drawing board, drafter drawing sheet, Drawing , Blue Print
3.	Metal Cutting & Cutting Tools	8	16	<ul style="list-style-type: none"> • Knowledge about basic Metal properties, cutting mechanism, types of cutting tools, application & selection, cutting fluid, machining parameters 	CPC/ N 7111	Tools
4.	Conventional Milling Machines	44	100	<ul style="list-style-type: none"> • Can understand the different parts of Milling Machine, Can operate & Control the 	CPC/ N 7111	Milling Machine, Machine vice, Cutting Tools (Single Point)



				<p>Different types of Milling Machine; understand work & tool holding devices, can know how to operate and control machining operations related to milling machine such as facing, slotting, pocket milling, circular pocket, drilling, reaming, boring, counter boring, profile milling keyways, grooves, slots, gear cutting, helical milling or special profiles etc. Measuring and checking the Quality of work.</p>		Both HSS & Carbide Inserts types,
5.	CNC Milling Machine	44	100	<ul style="list-style-type: none"> • Working Principle, G & M Codes, Machine Axes, Absolute & incremental system • Can operate & Programme a CNC Milling Machine Tools. Can perform Job on CNC Milling Machines. Can programme & operate on different types of CNC Milling Controller like Fanuc, HASS etc. 	CPC/ N 7112	CNC Milling machine, Milling, Different Type CNC Controller Like HASS, FANUC, Heidenhain, CNC HASS Simulators etc
6.	Work effectively with Others	8	16	<ul style="list-style-type: none"> • Can report & Read the Problem & Can communicate to other team members. • Can Interact & communicate effectively with colleagues including member in the own group as well as other groups 	CPC/ N 7114	
7.	Basics of computer and data entry	4	20	<ul style="list-style-type: none"> • Basics of computers, Computer terminology, Office 	CPC/ N 7115	Computer, Software, Internet, Training



				Software for report preparation and excel data sheet.		Manual
8.	Soft Skills	6	18	• Effective Verbal Communication, understanding the verbal instructions, reading of instructions/ procedures and writing of reports. General behavioral etiquettes	CPC/ N 7116	
Total Hours		144	336			

Total Programme Duration: **480 Hours**