



# MODULE FOR CNC PROFESSIONAL COURSE

Day	Module	Job Focused Module
1	1	OHS & PPE Safety of CNC Machine & Workshop
2	2	Introduce of CNC Lathe Machine
3,4	2	<b>Description of CNC Lathe Machine</b>
5	3	Perform X & Z axis offset
6	4	Measuring Instrument & Hand tools
7	4	Measuring by Vanier calipers & Micrometer
8	5	Use of cutting tools
9	6	Coolant and Lubricant
10	7	G code Introducing
11	7	M code Introducing
12	8	Program & Perform Facing Operation (by G & M code)
13	8	Program & Perform Turning Operation (by G & M code)
14	8	Program & Perform Threading Operation (by G & M code)
15	8	Program & Perform Parting & Grooving Operation (by G & M code)
16	9	Perform & Practice <b>MASTERCAM</b> <i>program</i> (Facing, Turning, Threading, Grooving & Parting) in CNC Lathe machine
17	9	Perform & Practice <b>MASTERCAM</b> <i>program</i> (Drilling, Boring, ID Threading) in CNC Lathe machine
18	9	Perform & Practice <b>MASTERCAM</b> <i>program</i> in CNC Lathe machine
19	10	Description of CNC EDM Machine
20	10	Perform a simple job CNC EDM Machine
21	10	Perform a simple mold by EDM Machine

Module no	Module name	Description
1	OHS	<ul style="list-style-type: none"> <li>➤ Describe Health &amp; Hygiene</li> <li>➤ Describe Occupational Diseases</li> <li>➤ Describe the Causes of Occupational Diseases</li> <li>➤ Describe First Aid</li> <li>➤ Perform First aid action</li> </ul>
	PPE	<ul style="list-style-type: none"> <li>❖ Describe personal protective Equipment</li> <li>❖ Identify different types of PPE</li> <li>❖ Perform the uses of PPE</li> </ul>
	Safety of CNC Machine & Workshop	<ul style="list-style-type: none"> <li>➤ Describe Machine safety</li> <li>➤ Describe workshop safety</li> <li>➤ Describe workshop safety rules and precaution</li> <li>➤ Describe accident and identify main reasons</li> <li>➤ Describe fire &amp; classification of fire</li> <li>➤ Describe fire fighting equipments</li> <li>➤ Identify the location of fire-fighting equipment</li> <li>➤ Perform to operate fire-fighting equipment</li> <li>➤ Perform good house keeping</li> </ul>
2	Introduce of CNC Lathe Machine	<ul style="list-style-type: none"> <li>✓ Advantage and Disadvantage of CNC machine</li> <li>✓ Identify different types of CNC machine</li> <li>✓ Identify different parts of CNC lathe machine</li> <li>✓ Prepare a list of main components, accessories &amp; attachments of CNC lathe machine</li> <li>✓ Procedure to ON/OFF of CNC lathe machine</li> <li>✓ Machine Ready for work</li> <li>✓ Introduce with different key of controller</li> </ul>
	<b>Description of CNC Lathe Machine</b>	<ul style="list-style-type: none"> <li>✓ Describe principle of operation of CNC lathe machine</li> <li>✓ Describe spindle speed, cutting speed, feed and depth of cut</li> <li>✓ Describe &amp; perform of Emergency stop, Power ON, Power OFF, Cycle start, Feed hold, Mode select, Single block, dry run, Zero return</li> <li>✓</li> </ul>
3	Perform X & Z axis offset	<ul style="list-style-type: none"> <li>🔲 Identify and use of standard coordinate system for Lathe machine, Z axis –Longitudinal travel, X axis Cross-slide movement</li> <li>🔲 Perform tool offset &amp; work offset</li> </ul>
4	Measuring Instrument & Hand tools	<ul style="list-style-type: none"> <li>➤ Describe measurement</li> <li>➤ Identify different types of measuring tools</li> <li>➤ Identify direct and indirect measuring tools</li> <li>➤ Identify precision &amp; non-precision measuring tools</li> <li>➤ Perform on Conversion of measurement</li> <li>➤ Ensure safe use of different measuring tools and equipment</li> <li>➤ Identify different types of machine tools &amp; hand tools</li> <li>➤ Ensure safe use of different machine tools and hand tools</li> </ul>
	Measuring by Vernier calipers & Micrometer	<ul style="list-style-type: none"> <li>❖ State the specification of vernier calipers</li> <li>❖ Identify the main parts of vernier calipers</li> <li>❖ Perform measurement by Vernier caliper in metric system &amp; british system</li> <li>❖ State the specification of micrometer</li> <li>❖ Identify the main parts of micrometer</li> <li>❖ Perform measurement by micrometer in metric system &amp;</li> </ul>

		british system
5	Use of cutting tools	<ul style="list-style-type: none"> <li>➤ Identify different types of cutting tools</li> <li>➤ Describe cutting tool materials</li> <li>➤ State different types of tool bit with specification</li> <li>➤ Identify cutting angles of tool bit</li> </ul>
6	Coolant and Lubricant	<ul style="list-style-type: none"> <li>❖ Describe coolant &amp; Lubricant</li> <li>❖ Prepare a list of lubricants &amp; coolants</li> <li>❖ State different grades of lubricants</li> <li>❖ Perform Lubricating</li> <li>❖ Perform coolant making process</li> </ul>
7	G code Introducing	<ul style="list-style-type: none"> <li>➤ Introduce with different types of G code</li> <li>➤ Identify the different function of G code</li> <li>➤ Use of G code</li> </ul>
	M code Introducing	<ul style="list-style-type: none"> <li>➤ Introduce with different types of M code</li> <li>➤ Identify the different function of M code</li> <li>➤ Use of M code</li> </ul>
8	Program & Perform Facing Operation (by G & M code)	<ul style="list-style-type: none"> <li>❖ Describe facing operation</li> <li>❖ Prepare a facing program by G &amp; M code</li> <li>❖ Perform facing operation</li> </ul>
	Program & Perform Turning Operation (by G & M code)	<ul style="list-style-type: none"> <li>➤ Describe turning operation</li> <li>➤ Prepare a turning program by G &amp; M code</li> <li>➤ Perform turning operation</li> </ul>
	Program & Perform Threading Operation (by G & M code)	<ul style="list-style-type: none"> <li>❖ Describe threading operation</li> <li>❖ Prepare a threading program by G &amp; M code</li> <li>❖ Perform threading operation</li> </ul>
	Program & Perform Parting & Grooving Operation (by G & M code)	<ul style="list-style-type: none"> <li>➤ Describe parting operation</li> <li>➤ Prepare a parting program by G &amp; M code</li> <li>➤ Perform parting operation</li> <li>➤ Describe grooving operation</li> <li>➤ Prepare a grooving program by G &amp; M code</li> <li>➤ Perform grooving operation</li> </ul>
9	Perform & Practice <b>MASTERCAM</b> program (Facing, Turning, Threading, Grooving & Parting) in CNC Lathe machine	<ul style="list-style-type: none"> <li>❖ Prepare a program (Facing, Turning, Threading, Grooving &amp; Parting) in MASTERCAM</li> <li>❖ Perform the MASTERCAM program in CNC lathe machine</li> </ul>
	Perform & Practice <b>MASTERCAM</b> program (Drilling, Boring, ID Threading) in CNC Lathe machine	<ul style="list-style-type: none"> <li>➤ Prepare a program (Drilling, Boring, ID Threading) in MASTERCAM</li> <li>➤ Perform the MASTERCAM program in CNC lathe machine</li> </ul>
	Perform & Practice <b>MASTERCAM</b> program in CNC Lathe machine	<ul style="list-style-type: none"> <li>❖ Perform a job in CNC Lathe machine by MASTERCAM program</li> <li>❖</li> </ul>
10	Description of CNC EDM Machine	<ul style="list-style-type: none"> <li>✓ Identify different parts of CNC EDM machine</li> <li>✓ Prepare a list of main components, accessories &amp; attachments of CNC EDM machine</li> <li>✓ Procedure to ON/OFF of CNC EDM machine</li> <li>✓ Machine Ready for work</li> <li>✓ Introduce with different key of controller</li> <li>✓ Describe principle of operation of CNC EDM machine</li> <li>✓ Describe &amp; perform of Emergency stop, Power ON, Power OFF, Cycle start, Feed hold, Zero return</li> </ul>
	Perform a simple job CNC	<ul style="list-style-type: none"> <li>🔧 Identify and use of standard coordinate system for EDM</li> </ul>

	EDM Machine	machine, Z axis –Vertical travel, X & Y axis Cross movement of table  Perform tool offset & work offset  Cycle start & perform a job
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