



# MACHINE OPERATOR ASSISTANT– INJECTION MOLDING

## CURRICULUM/SYLLABUS

This program is aimed at training candidates for the job of a “**Machine Operator Assistant- Injection Moulding**” in the “**Petrochemical**” Sector/Industry and aims at building the following key competencies amongst the learner.

<b>Program Name</b>	MACHINE OPERATOR ASSISTANT - INJECTION MOLDING		
<b>Qualification Document Name &amp; Reference ID</b>	MACHINE OPERATOR ASSISTANT - INJECTION MOLDING CPC/Q 0203		
<b>Version No.</b>	1.0	<b>Version Update Date</b>	
<b>Pre-requisites to Training</b>	Minimum qualification –VIII <sup>th</sup> Standard Pass		
<b>Training Outcomes</b>	<p><b>After completing this programme, participants will be able to:</b></p> <ul style="list-style-type: none"> <li>• Understand and apply Safety measures and familiarize with work environment while working in Plastics Injection Moulding Industries</li> <li>• Understand the job requirement while moulding various products in plastics Injection Moulding industries.</li> <li>• understand the customer work order requirements from Operator.</li> <li>• Assist Operator in operation of various types of Injection Moulding Machines</li> <li>• Injection Moulding Machine Controlling and Handling under guidance of Operator.</li> <li>• Understand and convey the problem in Injection Moulding Process to operator.</li> <li>• Perform basic troubleshooting on Injection moulding machine and auxiliary equipment.</li> <li>• Appreciate the organisational structure and management of manufacturing industries.</li> <li>• Assist in Post Processing activities.</li> <li>• Understand Quality management system(QMS)</li> </ul>		

This course encompasses 06 out of 06 Learning Outcomes(LO) of “**Machine Operator – Injection Moulding**” Qualification 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 in Injection Moulding	12	28	1. Trainee knows to operate different PPE's. 2. Understands Safety and General precautions observed in Workshop and its procedures 3. Knows Risks and Hazards 4. Study importance of personal hygiene, Clean working Environment	CPC/N 0217	1. projector for Power point Presentation, Computers, Charts, case studies etc  2. Hand operated Injection Moulding



2	Fitter Tools & Fitting Equipments	12	28	<ol style="list-style-type: none"> <li>1. Trainee Knows to use measuring instruments, its proper handling and storage</li> <li>2. Knows to use common hand tools like file, chisel etc</li> <li>3. Trainee Knows fitting operations hack sawing, punching, filling, their types etc.</li> </ol>	CPC/N 0214	<ol style="list-style-type: none"> <li>3. Semi Auto Vertical Injection Moulding Machine</li> <li>4. Semi Auto Horizontal Injection Moulding machine</li> </ol>
3	Introduction to Polymers, Plastics Material selection for particular application and Plastics Raw Material- Thermoplastics, Thermosets, Engineering Plastics etc	36	84	<ol style="list-style-type: none"> <li>1. Trainee Knows to classify different plastics.</li> <li>2. Identify its types, grades etc.</li> <li>3. Study properties of different plastics.</li> <li>4. Knows to select proper Plastics material for proper application.</li> <li>5. Knows about types of raw material like Thermoplastics and Thermosets etc.</li> <li>6. Plastics raw material properties and its applications</li> </ol>	CPC/N 0215	<ol style="list-style-type: none"> <li>5. Fully Auto Injection Moulding Machine</li> <li>6. Microprocessor based Injection Moulding Machine</li> <li>7. Automatic Hopper Loader</li> <li>8. Oven / Drier</li> <li>9. Dehumidifier</li> <li>10. Colour Blender</li> <li>10 Mould Temperature Controller</li> </ol>
4	Injection Moulding process for Plastics- Machine Types, Process, Moulds etc.	48	112	<ol style="list-style-type: none"> <li>1. Knows to Start-up and shutdown procedure</li> <li>2. Machine types, process cycle etc</li> <li>3. To operate the machine, set parameters with or without supervisor/ trainer guidance</li> </ol>	CPC/N 0215	<ol style="list-style-type: none"> <li>11 Scrap Grinder</li> <li>12 Hydraulic Trainer</li> <li>13 Pneumatic Trainer</li> <li>14 Hot air gun</li> </ol>
5	Faults and Remedies in Injection Moulding	6	14	<ol style="list-style-type: none"> <li>1. Knows to identify and troubleshoot the faults like Shot shots, flash and take corrective action.</li> </ol>	CPC/N 0216	<ol style="list-style-type: none"> <li>15 Blow lamp</li> <li>16 Weighing balance</li> <li>17 Moulds – two plate, three plate, split mould etc.</li> </ol>
6	Post Moulding Operations	5	11	<ol style="list-style-type: none"> <li>1. Knows to perform post-moulding operations injection moulded product</li> <li>2. Check quality of the product as per the standard product supplied/ made ok by Supervisor.</li> </ol>	CPC/N 0216	<ol style="list-style-type: none"> <li>for automatic injection moulding &amp; hand moulds.</li> </ol>



						18 Mould polishing kit 19 Cooling tower 20 Hydraulic Trolley 21 Crane 22 Chilling Unit
7	Communication skills	12	28	<p>1. Knows to communicate, examples of good communication and case studies.</p> <p>2. Principles of effective communication, Process of communication, examples of effective communication and case studies.</p> <p>3. Verbal, non-verbal, written, e-mail, talking on phone, non-verbal communication, barriers to communication and dealing with barriers, etc.</p> <p>4. Types of questions, answering questions, examples of same with practice in class.</p> <p>5. Handling nervousness/ discomfort, quality of communication, demo interview arrangement and discussion.</p> <p>6. Listening skills, motivational training, facing interviews, time management skills etc., demo interview arrangement and discussion.</p>	CPC/N 0214 CPC/N 0218 CPC/N 0219	23 Utility equipment (Cooling Circuit) 24 Steel rule 15 cm with metric Graduations 25 Measure Tape 26 Outside, inside spring calliper 27 Screwdriver 15 cm 28 Screwdriver set 29 D/E spanner set inch & mm 30 Allen key set inch & mm 31 Hand Hacksaw frame adjustable 32 Flat file second cut & smooth 33 Half round file second cut & smooth 34 Needle file



8	Basic Computer concepts	6	14	1. Introduction to computer, software & hardware. 2. Working on computers for knowing about starting & stopping of the computer by using the mouse, word, excel, power point, internet etc.	CPC/N 0219	rough & smooth 35 Micrometre 0-25 mm 36 Vernier calliper 37 Thickness gauge 38 Safety PPE's like apron, gloves etc
9	5S and TQM Concepts, Industrial Visits	7	17	1. 5S and TQM Concepts 2. Industrial Visits	CPC/N 0216 CPC/N 0219	
<b>Total Hours</b>		<b>144</b>	<b>336</b>			

Total Programme Duration: **480 Hours**