MACHINE OPERATOR ASSISTANT – BLOW MOLDING

(MO-BM)

CURRICULUM/SYLLABUS

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

Program Name	MACHINE OPERATOR ASSISTANT - BLOW MOLDING		
Qualification Document Name & Reference ID	MACHINE OPERATOR ASSISTANT - BLOW MOLDING CPC/Q 0403		
Version No.	1.0	**Version Update Date**	
Pre-requisites to Training	Minimum qualification – VIIIth Standard		
Training Outcomes	**After completing this programme, participants will be able to:** • Understand and apply Safety measures while working in packaging and Automotive Industries and familiarize work environment in the precision machining and plastic processing industries • Understand the job requirement while moulding the hollow products and tools in processing industries. • Handling of Precision Blow Moulding Machine under close Supervision of Operator. • Monitoring during cleaning the work site after completion of the job. • Read and understand the customer work order requirements. • Handling Operation of Conventional machines of Blow Mouldings- EBM, IBM, SBM and ISBM under close Supervision of Operator. • Precision Blow Moulding Machine Controlling and Handling. • Understand and overcome the problem of Blow Moulding Process. • Perform basic troubleshooting and routine maintenance on blow moulding and auxiliary equipment. • Basic Knowledge of Quality management system(QMS) • Basic Knowledge of Blow Mould Polishing, Maintenance & Cooling System.		

This course encompasses **8** out of **8** Learning Outcomes(LO) of "**Machine Operator - Blow Moulding**" Qualification Document .

S. No	Topic/ Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding LO Code	Equipment Required
1	**Maintain basic health and safety practices at the workplace and keep up 5S,**	12	28	1. Knowledge of interpreting and applying the Occupational Health and Safety 2. Demonstrate of recognizing situations requiring emergency action 3. Demonstrate of making appropriate. 4. decisions concerning first aid 5. Demonstrate knowledge of safe work practices. 6. Demonstration of personnel protective equipment (PPE), their applications, maintenance and procedures for use. 7. Ensure sorting, streamlining & organizing, storage and documentation, cleaning, standardization across the plant and office premises of the organization	CPC/N 0411	LCD Projector, White Board with marker and duster, charts etc Pen drives, computers etc for conduct of class. Safety Devices :- Surgical Gloves ;heat resistance goggles; safety jacket full size safety caps; leather shoes with high neck. Common hand tools like Vernier calliper, micrometer, drills, tapes and dies etc Basics machines for training like hand blow moulding, semiautomatic blow moulding, Automatic blow moulding, etc Pre drying system like Oven Drier etc. Plastics raw material like PP, PPCP, HDPE, etc for training on machines of injection, Blow and Extrusion grade from good/reputed supplier. Special and Engineering materials, PET
2	**Fitting Tools & Measuring Equipments and Practice**	12	28	1. Basic knowledge about Hand tools, marking tools, & measuring instruments and its use. 2. Basic knowledge of files, fittings and fitting tools. 3. Basic Knowledge about Safety of Fitting Tools & Machineries. 4. General study about Bench Vice, hammers, hacksaw, power hacksaw, chisels, scribers, punches etc. 5. Demonstrate knowledge of basic precision measuring instruments, their applications. 6. Basic knowledge of cleaning, storage & maintaining of tools and instruments after use. 7. Study on Bench Vice, hammers, hacksaw, power hacksaw, chisels, scribers, punches	CPC/N 0412	

3	**Introduction to Polymers and Thermoplastics Materials**	12	28	1. Introduction to polymers 2. Study of fundamental terminology of polymers 3. Basic Study of polymers, polymer structure, density, Melt index, melting temperature, glass transition temperature and morphology, etc. 4. Basic Study of Commodity plastics, engineering plastics, specialty plastics, 5. Basic knowledge about applications of plastics-commodity sector, telecommunications, automobiles, packaging medical, Electrical and Electronics & aerospace etc with examples. 6. Basic Knowledge about Identification of Plastics-By conventional methods. 7. Basic blow grade materials such as Polyolefin's- LDPE-HDPE –LLDPE- Polypropylene-copolymer PPCP- copolymer-Polyvinylchloride – Polyamides- Nylon 6 Nylon 66. And PET 8. Plastics material requirements for formation of parison and blowing. 9. Common acronyms in the plastics and commercial trade names.	CPC/N 0413	material blow molding.
4	**Fundamentals of Plastics Processing methods**	24	56	1. Basic Study about Plastics processing & its machineries and Products.	CPC/N 0414	
5	**Blow Moulding Techniques for Plastics and inspection of the finished products**	48	112	1. Study of basics Principle of blow moulding, classification of blow moulding techniques, machines parts, functions and construction. 2. Understanding of Plastics materials used, construction of dies, cop and mandrel assembly, type of dies used in	CPC/N 0415	

				blow moulding. 3. Basic Study and types of Blow Moulding machines and operations. Understanding of process for a. Extrusion Blow Moulding b. Injection blow Moulding c. Extrusion Stretch Blow Moulding d. Injection Stretch Blow Moulding 4. Basic Knowledge of different types of Moulds used in blow moulding. 5. Understanding of Process parameters Temperature settings, Screw speed, melt pressure etc. 6. Study of basics parison programming, parison cutting system and pinch off. 7. Basic Study of process parameters, melt behaviour, mould venting, part trimming etc. 8. Basic Study of Clamping force Die swell, Types of parison blowing systems, Blow ratio, Air Pressure venting, cooling, deflashing and ejection system. 9. Understanding handles in hollow and odd shape container mouldings. 10. Understanding of problems, causes and remedies in each blow moulding techniques. 11. Familiarisation of control switches and valves in hydraulics and Pneumatics system. 12. Basic Knowledge about Inspection of finished goods to detect any deviations from the product design. 13. Maintain Record log of defective products and discard defective batch process.		

6	**Understanding Types of Auxiliary equipments used in Plastics processing**	12	28	1. Basic Knowledge about Oven / Pre Drier - Different types of pre drying methods, Its Uses and Advantages 2. Understand & operate of Chillers, MTC, Scrap Grinder, Compressor. Dehumidifier etc.	CPC/N 0416	
7	**Mould Fabrication for Plastics blow moulding**	12	28	1. Basic knowledge of types of blow mould used in industries. 2. knowledge of Moulds for- EBM, SBM, IBM 3. Understanding polishing requirements. 4. Basic knowledge about Mould cooling systems & its connections. 5. Basic knowledge about blow mould maintenance. 6. Understand how to Dismantling & assembling of blow mould. 7. Basic knowledge of mould Lifting. 8. Basic Knowledge of Mould Parts & its Accessories.	CPC/N 0417	
8	**Basic Knowledge of Communication/soft skills**	12	28	1. Basic knowledge about communication and its importance. 2. Understanding Types of communication, verbal, non-verbal, written, talking on phone, non-verbal communication, speaking, asking questions etc. 3. Listening skills, motivational training, time management skills etc. 4. Basic knowledge about computer, software & hardware.	CPC/N 0418	
Total Hours		**144**	**336**			

Total Programme Duration: **480 Hours**