MACHINE OPERATOR ASSISTANT – PLASTICS PROCESSING

CURRICULUM/SYLLABUS

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

Program Name	Machine Operator Assistant – Plastics Processing		
Qualification Document Name & Reference ID. ID	Machine Operator Assistant – Plastics Processing CPC/Q 0103		
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:** 1. Familiarisation with basic concepts, job requirements & basic related process 2. Understand Plastic material , its basic characteristics & application 3. To Assist Operator to produce quality product 4. Operate and Troubleshoot Injection, Blow and Extrusion Moulding machine 5. . Understand and apply various rules and Safety measures while working in Plastics Industry 6. Communication / Soft Skill,		

This course encompasses 10 out of 10 Learning Outcomes (LO) of "**Machine Operator Assistant – Plastics Processing**" Qualification document.

S. No	Module	Theory Duration (hh:mm)	Practical Duration (hh:mm)	Key Learning Outcomes	Corresponding LO Code	Equipment Required
1	Safety Concepts and Practice	18	42	1. To study & understanding of Safety and General precautions observed in plastic processing work shop 2. To study basic knowledge of Safety procedures (firefighting, first aid) within the organization 3. To study various types of PPEs and their usage in Plastic industry. 4. To understand risks/hazards associated with each occupation in the organization 5. To study personal hygiene and importance of safe and clean working environment	CPC/N0112	Lecture in class along with projector and Power point Presentation. Practical on basics safety aids like Fire extinguishers etc. Practical on Semi-automatic and Automatic machines available in

				6. To understand and obey the rules and guidelines appropriate to the general populace or specific jobs 7.Develop and implement safe work procedures and rules		shop floor.
2	Measuring Equipments, Hand Tools and Practice	9	21	1.To study the importance of various measuring instruments as accuracy of a component produced depends largely on the degree of precision of the measuring instruments 2.To understand the various methods of measurement including Direct measuring instrument ,indirect measuring instruments, absolute measurements & comparative measurements 3. Demonstration and theory of use of measuring instruments like Vernier calliper, micrometer etc. 3. Study Common hand tools, names, types etc. 4. Description and explanation of simple fittings, hack sawing, punching, filling, their types etc. Use of hand tools 5. Demonstration and theory method of using drills, tapes and dies etc.	CPC/N0109	Common hand tools like Vernier calliper, micrometer, drills, tapes and dies etc.
3	Introduction to Polymers / Plastic Materials	18	42	1. Introduction to polymers 2. Study of fundamental terminology of polymers 3. Classification of polymers, polymer structure and morphology, etc.	CPC/N0110	Maintaining theory and practical exercise book. Conduct of theory and practical exercise at mid and end of the course duration.

5	Basics of Plastics Processing methods	27	63	1.Introduction to Plastics processing 2. Types of conversion techniques, injection moulding, extrusion & blow moulding. 3. Other Processing techniques viz. compression & transfer moulding, rotational moulding, vacuum/ thermorming etc.	CPC/N0110	Demonstration on machines
6	Auxiliary equipments in Plastics processing	9	21	1. Oven / Pre Drier- Mould Temp Controller, Chiller/ Cooling Tower, Hopper Loader Its Uses and Advantages 2. Study Process of operation and its maintenance.	CPC/N0110	Practicals on Oven / Pre Drier- Mould Temp Controller, Chiller/ Cooling Tower, Hopper Loader
7	Injection, Extrusion, Blow Moulding Techniques for Plastics	54	126	1.Understand the principles and physical operations of the Plastic injection molding process. 2.Study Effect of polymer property on process techniques-process variables& its effects 2. Basic parts and function, clamping mechanism, ejector mechanism, Injection mechanism, 3. Study of process parameters, plastics material for injection moulding 4. Study of mould and product design, Product defects and trouble shooting 5. Machine start up and shut down procedure, process documentation 6. Fundamental of Extrusio 7. Classification of Extruders, nomenclature of screws 8. Study of different types of screws, drive mechanism, die design, etc. 9. Study of Principle of blow moulding, types of blow moulding, machines parts and construction	CPC/N0111	Basics machines for training like hand injection moulding, semiautomatic injection moulding, Automatic injection moulding, Extrusion machine like Blow film, Pipe extruder etc. Hand blow, semi auto and auto blow moulding machines

				10. Study of Plastics materials used, construction of dies assembly 11. Moulds used in blow moulding		
08	Communication /soft skills / Basic knowledge of computers	9	21	1. Study of Need for communicate, communication and its importance 2. Types of communication, verbal, non-verbal, written, e-mail, talking on phone, non-verbal communication, barriers to communication and dealing with barriers, communication content development, speaking, asking questions etc. 3.Handling nervousness/discomfort, quality of communication 4. Listening skills, motivational training, facing interviews, time management skills etc. 5.Behavioural Science and Entrepreneurship development 6. Basic knowledge of computer & its operation	CPC/N0111 CPC/N0112	Audio Video apparatus
Total Hours		**144**	**336**			

Total Programme Duration: 48**0 Hours**