Model Curriculum

QP Name: Machine Operator –Plastics Extrusion

NQR Code: QG-03.5-CP-04119-2025-V2-CIPET

QP Version:.2.0

NSQFLevel:3.5

ModelCurriculumVersion:1.0

Sector: Chemicals & Petrochemicals (CPC)

Central Institute of Petrochemicals Engineering & Technology (CIPET)
Department of Chemicals & Petrochemicals, Ministry of Chemicals & Fertilizers, Govt. of India
CIPET Head office, T.V.K Industrial Estate, Guindy, Chennai – 600 032.

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Training Parameters

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<tr><td>Country</td><td>India</td></tr>
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<tr><td>Minimum Educational Qualification and Experience</td><td>
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<tr><th>S. No.</th><th>Academic/Skill Qualification (with Specialization – if applicable)</th><th>Required Experience (with Specialization – if applicable)</th></tr>
<tr><td>1.</td><td>11th Grade pass</td><td>No Experience required</td></tr>
<tr><td>2.</td><td>10th Grade pass</td><td>1.5 year relevant experience</td></tr>
<tr><td>3.</td><td>Previous relevant Qualification of NSQF Level 3</td><td>1.5 years relevant experience</td></tr>
<tr><td>4.</td><td>8th Grade pass</td><td>4.5 years relevant experience</td></tr>
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<tr><td>Pre-Requisite License or Training</td><td>Not applicable</td></tr>
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Program Overview

This section summarizes the end objectives of the program long with its duration.

Training Outcomes

At the end of the program, the learner should have acquired the listed knowledge and skills.

- Interact with the supervisor in order to understand the production schedule
- Help in planning the day's production activities based on the supervisor's instructions
- Familiarize & understand about the basics process of Plastics Extrusion process, Classification of Extrusion process.
- Follow the molding procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document/ SOP manual.
- Mould required for executing the required operation and ensures that the same is available for operation.
- Plan & Identify tools, instruments and equipment required for manufacturing and make available for use in a timely manner.
- Identification to safety equipment & their use, General safety precautions while working in Processing Shop floor.
- Collect the Mould from tool room If Mould is not available.
- Understand the raw material like plastics granules, fillers, additives etc. required for executing the activity

Compulsory Modules

The table lists the modules and their duration corresponding to the Compulsory NOS of the QP.

NOS and Module Details	Theory Duration	Practical Duration	On-the-Job Training Duration (Mandatory)	On-the-Job Training Duration (Recommended)	Total Duration
Module 1: CPC/N0319 Understand the Basics of Plastics Raw Material & concept of Extrusion Techniques	20:00	40:00	00:00	00:00	60:00
Module 2:CPC/N0411 - Maintain basic Health & Safety Practices at the workplace.	10:00	20:00	00:00	00:00	30:00
Module 3: CPC/N0321Understand the basics & importance of Plastics Compounding /Mixing	30:00	60:00	00:00	00:00	90:00
Module 4:CPC/N0322- Perform HDPE /PVC Pipe Extruder Machine Operation	40:00	80:00	00:00	00:00	120:00
Module 5:CPC/N0323-Perform the Plastic Film Extruder Machine Operation	40:00	80:00	00:00	00:00	120:00
Module 6: CPC/N0324 To Carryout House Keeping.	10:00	20:00	00:00	00:00	30:00
Module 7:CPC/ N0315- Reporting & Documentation	10:00	20:00	00:00	00:00	30:00
Module 8:CPC/N0316- To carryout basic quality check of finished products with reference to approved product	20:00	40:00	00:00	00:00	60:00
Module 9:DGT/VSQ/N0101 Employability Skills	30:00	00:00	00:00	00:00	30:00
Module 10: On the Job Training (OJT)	00:00	00:00	30:00	00:00	30:00
Total Duration	210:00	360:00	30:00	00:00	600:00

Module Details

Module 1: CPC/N0319 Understand the Basics of Plastics Raw Material & concept of Extrusion Techniques N0319 Understand the Basics of Plastics Raw Material & concept of Extrusion Techniques

Mapped to:

Terminal Outcomes:

- Understanding the work order and the process requirement from the supervisor.
- Understanding the selection of Plastics Raw Materials & Moulds based on the Items Produced.
- Cleaning the equipment and the Moulds.

Duration:*20:00 Hours*	**Duration**:*40:00 Hours*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Understanding the work order and the process requirement from the supervisor. • Arranging the required raw material and Dies for the process. • Understanding Plastics Materials & its Applications • Interact with the supervisor in order to understand the production schedule. • Plan the day's production activities based on the supervisor's instructions. • Collect material data sheet, machine instructions and work manuals. • Collect the mould from tool room If mould is not available. • Understand the raw material like plastics granules, fillers, bonding additives etc. required for executing the activity. • Operation on Extrusion moulding Techniques & Trouble shooting of process, monitor/setting process parameters. • Study the basics operation of Extrusion Plant & exposure on Maintenance. • Study Post operation techniques of plastics products. • Study of Electrical safety Measures & use of protective devices. • Interact with the supervisor in order to understand the production schedule. • Help in planning the day's production activities based on the supervisor's instructions. • Follow the molding procedure and process to be adopted for completing the work order from the supervisor by referring the Work Instruction document/ SOP manual.	• Understanding Types of Plastics used in Extrusion and Its Properties. • Selection Plastics Raw Materials based on the Items Produced/application • Storing and Handling of Raw Materials and House Keeping • Types of Extruders Used in the Extrusion Process and their Parts. • Identify different Types of Dies Used for different Extruded Products. • Haul Off Units. • Storing and Handling of Finished Products and House Keeping. • Measurement of Additives and Materials and Maintaining Formulations. • Understanding Safety Equipments and Its Use. • Do Safety Precaution Measures before Operations. • Understand Post operation techniques of plastics products: Joining, welding, sealing, decorative coating and printing on extruded products. • Understanding the does and don'ts of the manufacturing process as defined in SOPs/ Work Instructions or defined by supervisors. • Do daily start-up and shut down maintenance checks, preventive maintenance check-points for the extrusion plant/extrude • Availability of consumables and plastics materials for production in sufficient quantity as per production plan/supervisor instructions.
Classroom Aids:	
Charts,Models,Videopresentation,FlipChart,White-Board/SmartBoard,Marker,Duster	
Tools, Equipment and Other Requirements	
Steel rule 15 cm with metric Graduations, Measure Tape, Outside, inside spring caliper, Screwdriver 15 cm, Screwdriver set, D/E spanner set inch & mm, Allen key set inch & mm, Hand Hacksaw frame adjustable, Flat file second cut & smooth, Half round file second cut &smooth, Needle file rough & smooth, Micrometer 0-25 mm, Vernier caliper, Thickness gauge, Safety PPE's like apron, gloves etc.	

Module2: CPC/N0411 - Maintain basic Health & Safety Practices at the workplace.

Mapped to:

Terminal Outcomes:

- Health and safety procedure
- Fire safety procedure
- Emergencies, rescue and first aid procedures
- Ensure sorting, stream lining, storage and documentation, cleaning, standardization and sustenance across the plant premises of the organization.

Duration:*10:00 Hours*	**Duration:***20:00 Hours*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Safety, Health and Environment (SHE) aspects. • Environment Management System. (EMS) • Personal protection equipment. (PPE) • Awareness on Fire Fighting Equipment System • Safety of equipment's, Safety of Operators. • Emergency route and emergency preparedness. • Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise etc. • Identify areas in the work places which are potentially hazardous/ unhygienic in nature. • Conduct regular checks with support of the maintenance team on machine health to identify potential hazards due to wear and tear of machine. • Support the Safety team and the supervisor in creating the risk mitigation plan. • Follow the instructions given on the equipment manual describing the operating process of the equipment. • Follow the Safety, Health and Environment related practices developed by the organization. • Ensure relevant safety boards/ signs are placed on the shop floor. • Operate the machine using the recommended Personal Protective Equipment (PPE) and ensure team members also use the related PPEs at the workplace. • Maintaining clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc. • Safety and fire drills for self-aware of safety hazards and preventive techniques. • Maintain high standards of personal hygiene at the work place. • Ensure that the waste disposal is done in the designated area and manner as per organization SOP. • First Aid action in case of any fatal accident due to Fire, Electricity, Gas, Chemicals etc. • Immediate Action in case Fire, Gas, Chemicals etc. • Carry out safe working practices while dealing	• Identify activities which can cause potential injury through sharp objects, burns, fall, electricity, gas leakages, radiation, poisonous fumes, chemicals, loud noise etc. • Identify areas in the work places which are potentially hazardous/ unhygienic in nature. • Conduct regular checks with support of the maintenance team on machine health to identify potential hazards due to wear and tear of machine • Inform the concerned authorities about the potential risks identified in the processes, workplace area/ layout, materials used etc. • Inform the concerned authorities about machine breakdowns, damages which can potentially harm man/ machine during operations. • Create awareness amongst other by sharing information on the identified risks. • Support the Safety team and the supervisor in creating the risk mitigation plan. • Follow the instructions given on the equipment manual describing the operating process of the equipment. • Follow the Safety, Health and Environment related practices developed by the organization. • Ensure relevant safety boards/ signs are placed on the shop floor. • Operate the machine using the recommended Personal Protective • Equipment (PPE) and ensure team members also use the related PPEs at the workplace. • Maintain a clean and safe working environment near the work place and ensure there is no spillage of chemicals, production waste, oil, solvents etc. • Attend all safety and fire drills to be self-aware of safety hazards and preventive techniques • Maintain high standards of personal hygiene at the work place. • Ensure that the waste disposal is done in

with hazards to ensure the safety of self and others	the designated area and manner as per organization SOP. • Inform appropriately the medical officer/ HR in case of self or an employee's illness of contagious nature so that preventive actions can be planned for others. • Immediate First Aid action to be taken in case of any fatal accident due to Fire, Electricity, Gas, Chemicals etc. • Immediate Action to be taken in case Fire, Gas, Chemicals etc.
Classroom Aids:	
Charts,Models,Videopresentation,FlipChart,White-Board/SmartBoard,Marker,Duster	
Tools, Equipment and Other Requirements	
Safety PPE's like apron, gloves etc.	

Module3: CPC/N0321 - Understand the basics & importance of Plastics Compounding /Mixing

Mapped to:

Terminal Outcomes:

- Types of Chemicals, Additives and Colorants used.
- Types of Blenders, Mixers and their Parts.
- Preparation Batches as per the formulations
- Importance of each and every Parameters.
- Understand the precaution to be taken care during the batch preparation.

Duration: *30:00 Hours*	**Duration:** *60:00 Hours*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Types of Chemicals, Additives and Colorants used. • Properties and Importance of Chemicals, Additives and Colorants and Pigments. • Properties changes by adding Chemicals, additives and pigments in Plastics. • Formulation laid down for different Products. • Types of Blenders, Mixers and their Parts. • Preparation Batches as per the formulations. • Loading and unloading of Batches. • Temperature, Pressure and Speed involved in Blenders and Mixers. • Importance of each and every Parameters. • Precaution to be taken care during the batch preparation. • Storing of batches after preparation. • Understanding Safety Equipments and Its Use. • Do's and Don't in Area of Operation. • Safety Precaution Majors before Operations.	• Understanding Types of Chemicals, Additives and Colorants. • . Properties and Importance of Chemicals, Additives and Colorants and Pigments • Properties changes by adding Chemicals, additives and pigments in Plastics. • Formulation laid down for different Products. • Types of Blenders , Mixers and their Parts • Preparation Batches as per the formulations. • Loading and unloading of Batches • Temperature, Pressure and Speed involved in Blenders and Mixers. • . Importance of each and every Parameters • Precaution to be taken care during the batch preparation. • Storing of batches after preparation. • Understanding Safety Equipments and Its Use. • Do's and Don't in Area of Operations. • Safety Precaution Majors before Operations
Classroom Aids:	
Charts,Models,Videopresentation,FlipChart,White-Board/SmartBoard,Marker,Duster	
Tools, Equipment and Other Requirements	
PVC compound Mixer	

Module 4:CPC/N0322 Module4: Perform the HDPE /PVC Pipe Extruder Machine Operation

Mapped to:

Terminal Outcomes:

- Study & understand HDPE /PVC Pipe Extruder Machine Operationin Idle Run Operation (IRO).
- Study the machine parts & its functions
- Types of HDPE / PVC pipe Extruders.
- Types of Dies Used for different Extruded Pipes.
- Understand the effect of process parameters on Product Properties.
- Importance of each and every Parameters and troubleshooting.
- Carryout Quality Checks and Continuous Production.
- Understand the Safety Precaution needs to taken before& during Operations.
-

Duration:40:*00 Hours*	**Duration**:80:00 *Hours*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Study of extruders in Idle Run Operation (IRO), free sketch of machines, their parts and parts-function. • Study of the machine parts & functions from screw drive to the cater pillar. Practice of die setting on the machine, sizing techniques. Procedure for setting up of parameters & operation practice in running the machine to produce pipe & tube. • Types of HDPE / PVC Extruders. • Extruder Parts and Their Functions. • Pressure and Vacuum Sizing Units. • Types of Dies Used for different Extruded Pipes. • Operations of Haul off Units. • Dismantling and assembling Extruder Parts. • Safety Precaution taken during assembling and disassembling. • Common Process Parameter like Temperature, Pressure and Speed and its controls. • Effect of process parameters on Product Properties. • Trial Production and checking product stabilization. • Actual Production and Parameter / Process Control. • Quality Check and Continuous Production. • Post production and storing. • Common faults found and trouble shooting. • Segregation of faulty product and action taken. • Disposal of faulty products as per laid down procedure. • Understanding Safety Equipments and Its Use. • Do's and Don't in Area of Operation. • Safety Precaution Majors before Operations	• Types of HDPE / PVC Extruders. • Extruder Parts and Their Functions • Pressure and Vacuum Sizing Units • Types of Dies Used for different Extruded Pipes • Operations of Haul Off Units. • Dismantling and assembling Extruder Parts. • Safety Precaution taken during assembling and disassembling. • Common Process Parameter like Temperature, Pressure and Speed and its controls. • Effect of process parameters on Product Properties. • Trial Production and checking product stabilization. • Actual Production and Parameter / Process Control. • Quality Check and Continuous Production. • Post production and storing. • Common faults found and trouble shooting. • Segregation of faulty product and action taken. • Disposal of faulty products as per laid down procedure. • Understanding Safety Equipments and Its Use. • Do's and Don't in Area of Operations • Safety Precaution Measures before and during Operations.
Classroom Aids:	

Charts,Models,Videopresentation,FlipChart,White-Board/SmartBoard,Marker,Duster
Tools, Equipment and Other Requirements
Single Screw pipe Extrusion plant (HDPE) with accessories, Twine screw pipe Extrusion plant (PVC) with accessories, Automatic Hopper Loader, Hot air oven and Dryer, Dehumidifier, Mould Temperature Controller, Scrap Grinder, Crane, Air Compressor, Hot air blow Gun, Water cooling Tower, , Mould & Die: Die head for HDPE Pipe 25mm,PVC pipe 40mm,30mm, Personal Protective equipments: Safety Goggles, Rubber Gloves, Asbestos gloves, Fire Extinguisher, Apron, Helmet, First Aid Box with Medicines, Hand Tools: Hammer, screw driver set with Multiple heads, Allen key hexagonal , File triangular, Hacksaw, adjustable, Spanner set double side, Adjustable spanner

Module5:CPC/N0323 Perform the Plastic Film Extruder Machine Operation

Mapped to:

Terminal Outcomes:

- Understand Plastic Film Extrusion Machine Operation processes and the downstream equipment.
- Study the machine parts & its functions
- Types of HDPE / PVC pipe Extruders.
- Types of Dies Used for different Extruded Pipes.
- Understand the Procedure for setting up of process-parametersand troubleshooting.
- Study Types of Film Extruders.
- Effect of process parameters on Product Properties.
- Carryout Quality Checks and Continuous Production.
- Understand the Safety Precaution needs to taken before& during Operations.
-

Duration:40:00 *Hours*	**Duration**:80:00 *Hours*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Extrusion processes and the downstream equipments viz dies, take off equipment for the production of sheets, films, blown film, cast film/slit film, BO film, co extruded film & sheet. Twin screw extruder, parts and their functions and applications. • Procedure for setting up of process-parameters eg. Temperature on different zones, screw-speed, nip-roller speed, winder speed, blow-ratio, control of cooling – air on bubble, methodology & practice by trainees to fix the blown film die on the machine , familiarization of die parts & their functions, technical specification of machines, defects, causes & remedies, practice of operating machine to produce different sizes of blown film. • Operation-practice by the trainee on setting up of process parameter to produce blown-film on film plant, observations on extruder output, size of film produced and technical specifications of machines to be recorded. • Types of Film Extruders. • Extruder Parts and Their Functions. • Sizing Units. • Types of Dies Used for different Films. • Operations of Haul off Units. • Dismantling and assembling Extruder Parts. • Safety Precaution taken during assembling and disassembling. • Common Process Parameter like Temperature, Pressure and Speed and its controls. • Effect of process parameters on Product Properties. • Trial Production and checking product stabilization.	• Types of Film Extruders • Extruder Parts and Their Functions. • Air Compressor Pressure Sizing Units. • Types of Dies Used for different Extruded Films. • Operations of Haul Off Units. • Dismantling and assembling Extruder Parts. • Safety Precaution taken during assembling and disassembling. • Common Process Parameter like Temperature, Pressure and Speed and its controls. • Effect of process parameters on Product Properties. • Trial Production and checking product stabilization. • Actual Production and Parameter / Process Control. • Quality Check and Continuous Production, Post production and storing. • Common faults found and trouble shooting. • Segregation of faulty product and action taken. • Disposal of faulty products as per laid down procedure. • Understanding Safety Equipments and Its Use • Do's and Don't in Area of Operations. • Safety Precaution Majors before Operations

• Actual Production and Parameter / Process Control. • Quality Check and Continuous Production. • Post production and storing. • Common faults found and trouble shooting. • Segregation of faulty product and action taken. • Disposal of faulty products as per laid down procedure. • Understanding Safety Equipments and Its Use. • Do's and Don't in Area of Operation. • Safety Precaution Majors before Operations.	
Classroom Aids:	
Charts,Models,Videopresentation,FlipChart,White-Board/SmartBoard,Marker,Duster	
Tools, Equipment and Other Requirements	
Blown Film Extruder Single Layer, Blown Film Extruder Multi Layer, Single Screw pipe Extrusion plant (HDPE) with accessories, Twine screw pipe Extrusion plant (PVC) with accessories, Automatic Hopper Loader, Hot air oven and Dryer, Dehumidifier, Mould Temperature Controller, Scrap Grinder, Crane, Air Compressor, Hot air blow Gun, Water cooling Tower, , Mould & Die: Die head for HDPE Pipe 25mm,PVC pipe 40mm,30mm, Personal Protective equipment: Safety Goggles, Rubber Gloves, Asbestos gloves, Fire Extinguisher, Apron, Helmet, First Aid Box with Medicines, Hand Tools: Hammer, screw driver set with Multiple heads, Allen key hexagonal , File triangular, Hacksaw, adjustable, Spanner set double side, Adjustable spanner	

Module 6:CPC/N0324 -To Carryout House Keeping.

Mapped to:

Terminal Outcomes:

- Take an overlook of the Area under House Keeping
- Plan the sequence for cleaning the area
- Ensure use of personal protective equipment required, cleaning method and materials being used.
- Maintain schedules and records for housekeeping duty

Duration:10:00 *Hours*	**Duration**:20:00 *Hours*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Take an overlook of the Area under House Keeping. • Put appropriate Signage immediately if oily substance / Water spills on the floor to avoid accident. • If certain housekeeping activities require to be performed by housekeeping staffs, the Inform them. • If it has to be carried out by self then, Identify the material / equipment required for cleaning the areas. • Plan the sequence for cleaning the area to avoid re-soiling the cleaned areas and surfaces. • Display the appropriate signage for the work being conducted. • Ensure that there is adequate ventilation for the work being carried out. • Wear the personal protective equipment required for the cleaning method and materials being used.	• Put appropriate Signage immediately if oily substance / Water spills on the floor to avoid accident. • If certain housekeeping activities require to be performed by housekeeping staffs, the Inform them. • If it has to be carried out by self then, Identify the material / equipment required for cleaning the areas. • Plan the sequence for cleaning the area to avoid re-soiling the cleaned areas and surfaces. • Display the appropriate signage for the work being conducted • Ensure that there is adequate ventilation for the work being carried out. • Wear the personal protective equipment required for the cleaning method and materials being used. • With right cleaning process carry out cleaning activities without disturbing others. • Report to the appropriate person if any difficulties in carrying out your work. • Ensure that there is no oily substance / Water spill on the floor, If found the put the Signage immediately to avoid accident. • Follow workplace procedures to deal with any accidental damage caused during the cleaning process. • Ensure that, on completion of the work, the area is left clean and dry and free from any leftover or scrap. • Return the equipment, materials and personal protective equipment that were used to the right places and check the inventory for the next cycle. • Dispose the waste garnered from the activity in an appropriate manner. • Maintain schedules and records for housekeeping duty
Classroom Aids:	
Charts,Models,Videopresentation,FlipChart,White-Board/SmartBoard,Marker,Duster	
Tools, Equipment and Other Requirements	

Computer with MS-Office, Opensource software, UPS, Table Chair etc.

Module 7:CPC/N0315 -Reporting & Documentation

Mapped to:

Terminal Outcomes:

- Enter, update and maintain data in MS Office system.

Duration:*10:00 Hours*	**Duration:***20:00 Hours*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Basic Computer Operation on MS Office like MS Word, Excel and Power Point. • Page set up and Printing. • Making of Posters and Banners. • Writing Applications and Notes. • Study about the forms and formats. • Filling forms and formats. • National & International Standards and specifications as per BIS, ISO, ASTM, etc. for raw materials and finished products. • Standard operating procedures (SOP), Knowledge about QMS (Quality management system) and related documents. • Reports required to be made. • Filling up of technical forms, process charts, activity logs etc. • Fill and process mandated forms for receiving, processing, or tracking data, enter data from source documents (such as trial report, process sheet etc.) in to Computer application having MS OFFICE software. • Scan source documents in accordance with specific instructions. • Maintain files of source documents or other information related to data entered. • Update database information to reflect most current source information	• Report data/problems/incidents as per the laid down procedure in the prescribed format and registers. • Report to the appropriate authority as laid down by the company procedure. • Identify documentation to be completed relating to the job profile. • Record details accurately in an appropriate format. • Complete all documentation within stipulated time according to company procedure. • Make sure documents are available to all appropriate authorities to inspect. • Respond to requests for information in an appropriate manner whilst following organizational procedures. • Inform the appropriate authority of requests for information received. • Make sure that all material and tools are stored in the designated places and in the manner indicated in the 5S instructions. • Filling and processing mandated forms for receiving, processing, or tracking data enter data from source documents (such as trial report, process sheet etc.) into Computer application having MS OFFICE software. • Scanning source documents in accordance with specific instructions. • verify data entered with source documents, checks for compliance and corrects all typographical errors and missing or repeated data. • Maintain files of source documents or other information related to data entered. • update database information to reflect most current source information • Assist in the filing and storage of security and back up data files
Classroom Aids:	
Charts,Models,Videopresentation,FlipChart,White-Board/SmartBoard,Marker,Duster	
Tools, Equipment and Other Requirements	
Computer with MS-Office, Opensourse software, UPS, Table Chair etc.	

Module 8: CPC/N0316 - To carryout basic quality check of finished products with reference to approved product

Mapped to:

Terminal Outcomes:

- Ensure total range of quality checks as per the prescribed standards.
- Ensure the use of appropriate measuring instruments, equipment, tools, accessories etc., as prescribed / required
- Inspecting the finished components
- keeping records of production and defects
- conducting minor repair/deflashing if any on output parts which can bere worked
- Ensure effectiveness corrective action to address the problem.

Duration:*20:00 Hours*	**Duration**:*40:00 Hours*
Theory–Key Learning Outcomes	**Practical–Key Learning Outcomes**
• Ensure that total range of checks as per the prescribed national and International standards on regular intervals throughout the shifts. • Use appropriate measuring instruments, equipment, tools, accessories etc., as prescribed / required. • Calibration of Measuring equipment and devices and its importance. • Identify non-conformities to quality assurance standards. • Identify potential causes of non-conformities to quality assurance standards. • Identify impact on final product due to non-conformance to prescribed Standards. • Evaluating the need for action to ensure that problems do not reoccur. • Suggest corrective action to address problem. • Review effectiveness of corrective action.	• Ensure that total range of checks as per the prescribed national and International standards on regular intervals throughout the shifts. • Use appropriate measuring instruments, equipment, tools, accessories etc., as prescribed / required. • Identify non-conformities to quality assurance standards. • Identify potential causes of non-conformities to quality assurance standards. • Identify impact on final product due to non-conformance to prescribed Standards. • Evaluating the need for action to ensure that problems do not reoccur. • Suggest corrective action to address problem. • Review effectiveness of corrective action. • Interpret the results of the quality check correctly. • Take up results of the findings with QC in charge/appropriate authority. • Record the results of the findings within stipulated time. • Record adjustments not covered by established procedures for future reference. • Review effectiveness of action taken. • Follow reporting procedures where the cause of defect cannot be identified. • Rectify minor defects like dimensional variations by control process parameters etc and informing operator. • Obtain clearance for the entire batch from the lab and submit the operator. • Compare texture, colour, surface properties, hardness and strength etc. with the given approved product.
-Classroom Aids:	

Charts,Models,Videopresentation,FlipChart,White-Board/SmartBoard,Marker,Duster
Tools, Equipment and OtherRequirements
Blown Film Extruder Single Layer, Blown Film Extruder Multi Layer, Single Screw pipe Extrusion plant (HDPE) with accessories, Twine screw pipe Extrusion plant (PVC) with accessories, Automatic Hopper Loader, Hot air oven and Dryer, Dehumidifier, Mould Temperature Controller, Scrap Grinder, Crane, Air Compressor, Hot air blow Gun, Water cooling Tower, , Mould & Die: Die head for HDPE Pipe 25mm,PVC pipe 40mm,30mm, Personal Protective equipments: Safety Goggles, Rubber Gloves, Asbestos gloves, Fire Extinguisher, Apron, Helmet, First Aid Box with Medicines, Hand Tools: Hammer, screw driver set with Multiple heads, Allen key hexagonal , File triangular, Hacksaw, adjustable, Spanner set double side, Adjustable spanner, Measuring equipments: Steel Ruler, Micrometer, Vernier Caliper, Radius gauge, Feeler gage, Steel measuring tape, Weighing Balance (1 No.)

Module 9: Employability Skills

Mapped to: DGT/VSQ/N0101: Employability Skills

Mandatory Duration: *30:00 Hours*			
Location: Training Centre			
S. No.	**Module Name**	**Key Learning Outcomes**	**Duration (hours)**
1.	Introduction to Employability Skills	• Discuss the importance of Employability Skills in meeting the job requirements.	1
2.	Constitutional values - Citizenship	• Explain constitutional values, civic rights, duties, citizenship, responsibility towards society etc. that are required to be followed to become a responsible citizen. • Show how to practice different environmentally sustainable practices.	1
3.	Becoming a Professional in the 21st Century	• Discuss 21st century skills. • Display positive attitude, self -motivation, problem solving, time management skills and continuous learning mindset in different situations.	1
4.	Basic English Skills	• Use appropriate basic English sentences/phrases while speaking.	2
5.	Communication Skills	• Demonstrate how to communicate in a well -mannered way with others. • Demonstrate working with others in a team.	4
6.	Diversity & Inclusion	• Show how to conduct oneself appropriately with all genders and PwD. • Discuss the significance of reporting sexual harassment issues in time.	1
7.	Financial and Legal Literacy	• Discuss the significance of using financial products and services safely and securely. • Explain the importance of managing expenses, income, and savings. • Explain the significance of approaching the concerned authorities in time for any exploitation as per legal rights and laws.	4
8.	Essential Digital Skills	• Show how to operate digital devices and use the associated applications and features, safely and securely. • Discuss the significance of using the internet for browsing, accessing social media platforms, safely and securely.	3
9.	Entrepreneurship	• Discuss the need for identifying opportunities for potential business, sources for arranging money and potential legal and financial challenges.	7
10.	Customer Service	• Differentiate between types of customers. • Explain the significance of identifying customer needs and addressing them. • Discuss the significance of maintaining hygiene and dressing appropriately.	4

11	Getting ready for apprenticeship & Jobs	• Create biodata. • Use various sources to search and apply for jobs. • Discuss the significance of dressing up neatly and maintaining hygiene for an interview. • Discuss how to search and register for apprenticeship opportunities.	2

LIST OF TOOLS & EQUIPMENT FOR EMPLOYABILITY SKILLS		
S.No.	**Name of the Equipment**	**Quantity**
1.	Computer (PC) with latest configurations – and Internet connection with standard operating system and standard word processor and worksheet software (Licensed) (all software should either be latest version or one/two version below)	As required
2.	UPS	As required
3.	Scanner cum Printer	As required
4.	Computer Tables	As required
5.	Computer Chairs	As required
6.	LCD Projector	As required
7.	Whiteboard	As required
Note: Above Tools & Equipment not required, if Computer LAB is available in the institute.		

Module 10: On-the-Job Training

Mandatory Duration: *30:00 Hours*
Module Name: On-the-Job Training
Location: On Site
Terminal Outcomes ● On-the-Job Training (OJT) is a hands-on learning method where participants acquire skills and knowledge while performing their job tasks. ● Participants learn specific job-related skills that are directly applicable to their roles. ● Industrial training often leads to participants becoming more effective and efficient in their learning. ● Industrial training experience builds the confidence level of participants. ● Training occurs in the actual work environment, reducing the need for induction training programs while joining in industry. ● Interaction with industry captains or mentors during training strengthens learning teamwork and workplace relationships. ● Trainees become familiar with the industrial tools, systems, and workflows quickly. ● Participants encounter and address challenges in industry, developing critical thinking and adaptability.

Annexure

Trainer Requirements

Trainer Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Diploma	Plastics / Polymer Engineering / Technology	2	Plastics Processing Industry	-	-	-
B.E. / B.Tech. / M.Sc.	Plastics / Polymer Engineering / Science	-	-	-	-	-

Trainer Certification	
Domain Certification	**Platform Certification**
Minimum Educational Qualification as above, additionally he/ she should have done job role relevant skill training course from CIPET.	Recommended that the Trainer Should have done job role relevant upskilling course from CIPET.

Assessor Requirements

Assessor Prerequisites						
Minimum Educational Qualification	**Specialization**	**Relevant Industry Experience**		**Training/Assessment Experience**		**Remarks**
		Years	***Specialization***	***Years***	***Specialization***	
Diploma	Plastics / Polymer Engineering / Technology	2	Plastics Processing Industry	3	Plastics / Polymer Engineering / Technology	-
B.E. / B.Tech.	Plastics / Polymer Engineering	1	Plastics Processing Industry	1	Plastics / Polymer Engineering	-

Assessor Certification	
Domain Certification	**Platform Certification**
Minimum Educational Qualification as above, additionally he/ she should have done a job role relevant skill training course from CIPET.	Recommended that the Trainer Should have done a job role relevant upskilling course from CIPET.

Assessment Strategy

This section includes the processes involved in identifying, gathering, and interpreting information to evaluate the Candidate on the required competencies of the program.

Mention the detailed assessment strategy in the provided template.

1. Assessment System Overview:
    - Batches are assigned to Training Assessment Wing (TAW), CIPET HO for planning of assessment
    - Training Centers request TAW for Assessment and Certification of Trainees
    - TAW identifies suitable assessor and nominates the assessor to the respective Training Centre
    - TAW monitors the assessment process
    - Training Centers maintain necessary records

2. Testing Environment:
    - Check the Assessment location, date and time
    - If the batch size is more than 30, then there should be 02 Assessors in a day (or) 01 assessor in 2 days
    - Check that the allotted time to the candidates to complete the Theory & Practical Assessment

3. Assessment Quality Assurance levels/Framework:
    - Question bank / Question Paper is prepared by the Subject Matter Experts (SME) / Assessor
    - Questions are mapped to the specified assessment criteria
    - Certified Assessor & Trainer will be engaged in the process

4. Types of evidence or evidence-gathering protocol:
    - Date / Time recorded for the reporting of the assessor from assessment location
    - Assessment batch - Group Photo of Trainees along with Assessor

5. Method of verification or validation:
    - Surprise visit to the assessment location
    - Virtual meet with the Assessor / Trainees

6. Method for assessment documentation, archiving, and access
    - Hard copies of the documents are stored, soft copies of assessment evidences are stored in Email for future correspondence

Glossary

Sector	Sector is a conglomeration of different business operations having similar business and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.
Sub-sector	Sub-sector is derived from a further breakdown based on the characteristics and interests of its components.
Occupation	Occupation is a set of job roles, which perform a similar/ related set of functions in an industry.
National Occupational Standards (NOS)	NOS are occupational standards which apply uniquely in the Indian context.
Qualifications Pack (QP)	QP comprises the set of OS, together with the educational, training and other criteria required to perform a job role. A QP is assigned a unique qualification pack code.

Acronyms and Abbreviations

NOS	National Occupational Standard(s)
NSQF	National Skills Qualifications Framework
QP	Qualifications Pack
OJT	On-the-job Training
PwD	People with Disability PPE Personal Protective Equipment ES Employability Skills
PPE	Personal Protective Equipment
ES	Employability Skills