COMPETENCY STANDARD

Plastics Injection Molding Machine Operation

Level: 03

(Plastics Sector)

Competency Standard Code: CS-PS-PIMMO-L3-EN-V1

National Skills Development Authority
Chief Adviser's Office
Government of the People's Republic of Bangladesh

Copyright

National Skills Development Authority
Chief Adviser's Office
Level: 10-11, Biniyog Bhaban,
E-6 / B, Agargaon, Sher-E-Bangla Nagar Dhaka-1207, Bangladesh.
Email: ec@nsda.gov.bd
Website: www.nsda.gov.bd.
National Skills Portal: http:\\skillsportal.gov.bd

This Competency Standard for **Plastics Injection Molding Machine Operation** is a document for the development of curricula, teaching and learning materials, and assessment tools. It also serves as the document for providing training consistent with the requirements of industry in order to meet the qualification of individuals who graduated through the established standard via competency-based assessment for a relevant job.

This document has been developed by NSDA in association with Plastics ISC, industry representatives, academia, related specialist, trainer and related employee.

Public and private institutions may use the information contained in this standard for activities benefitting Bangladesh.

Introduction

The NSDA aims to enhance an individual's employability by certifying completeness with skills. NSDA works to expand the skilling capacity of identified public and private training providers qualitatively and quantitatively. It also aims to establish and operationalize a responsive skills ecosystem and delivery mechanism through a combination of well-defined set of mechanisms and necessary technical supports.

Key priority economic growth sectors identified by the government have been targeted by NSDA to improve current job skills along with existing workforce to ensure required skills to industry standards. Training providers are encouraged and supported to work with industry to address identified skills and knowledge to enable industry growth and increased employment through the provision of market responsive inclusive skills training program. "**Plastics Injection Molding Machine Operation"** is selected as one of the priority occupations of Plastics Sector. This standard is developed to adopt a demand driven approach to training with effective inputs from Industry Skills Councils (ISC's), employer associations and employers.

Generally, a competency standard informs curriculum, learning materials, assessment and certification of trainees enrolled in Skills Training. Trainees who successfully pass the assessment will receive a qualification under Bangladesh National Qualification Framework (BNQF) and will be listed on the NSDA's online portal.

This competency standard is developed to improve skills and knowledge in accordance with the job roles, duties and tasks of the occupation and ensure that the required skills and knowledge are aligned to industry requirements. A series of stakeholder consultations, workshops were held to develop this document.

The document also details the format, sequencing, wording and layout of the Competency Standard for an occupation which is comprised of Units of Competence and its corresponding Elements.

Overview

A competency standard is a written specification of the knowledge, skills and attitudes required for the performance of an occupation, trade or job corresponding to the industry standard of performance required in the workplace.

The purpose of a competency standards is to:

- provide a consistent and reliable set of components for training, recognising and assessing people's skills, and may also have optional support materials
- enable industry recognised qualifications to be awarded through direct assessment of workplace competencies
- encourage the development and delivery of flexible training which suits individual and industry requirements
- encourage learning and assessment in a work-related environment which leads to verifiable workplace outcomes

Competency standards are developed by a working group comprised of representative from NSDA, Key Institutions, ISC, and industry experts to identify the competencies required of an occupation in **Plastics Sector**.

Competency standards describe the skills, knowledge and attitude needed to perform effectively in the workplace. CS acknowledge that people can achieve technical and vocational competency in many ways by emphasizing what the learner can do, not how or where they learned to do it.

With competency standards, training and assessment may be conducted at the workplace or at training institute or any combination of these.

Competency standards consist of a number of units of competency. A unit of competency describes a distinct work activity that would normally be undertaken by one person in accordance with industry standards.

Units of competency are documented in a standard format that comprises of:

- unit title
- nominal duration
- unit code
- unit descriptor
- elements and performance criteria
- variables and range statement
- curricular content guide
- assessment evidence guides

Together, all the parts of a unit of competency:

- describe a work activity
- guide the assessor to determine whether the candidate is competent or not yet competent

The ensuing sections of this document comprise of a description of the relevant occupation, trade or job with all the key components of a unit of competency, including:

- a chart with an overview of all Units of Competency for the relevant occupation, trade or job including the Unit Codes and the Unit of Competency titles and corresponding Elements
- the Competency Standard that includes the Unit of Competency, Unit Descriptor, Elements and Performance Criteria, Range of Variables, Curricular Content Guide and Assessment Evidence Guide.

Competency Standards for National Skills Certificate – Level-3, Plastics Injection Molding Machine Operation in Plastics Sector

Level Descriptors of Skills Sector, BNQF Level 1-6

Level & Job Classification	Knowledge Domain	Skills Domain	Responsibility Domain
6-Mid-Level Manager/ Sub Assistant Engineer	Comprehensive actual and theoretical knowledge within a specific work or study area with an awareness of the validity and limits of that knowledge, able to analyse, compare, relate and evaluate.	Specialised and wider range of cognitive and practical skills required to provide leadership in the development of creative solutions to defined problems. Communicate professional issues and solutions to the team and to external partners/users.	Work under broad guidance and self-motivation to execute strategic and operational plan/s. Lead lower-level management. Diagnose and resolve problems within and among work groups.
5-Supervisor	Broad knowledge of the underlying, concepts, principles, and processes in a specific work or study area, able to scrutinize and break information into parts by identifying motives or causes.	Broad range of cognitive and practical skills required to generate solutions to specific problems in one or more work or study areas. Communicate practice-related problems and possible solutions to external partners.	Work under guidance of management and self-direction to resolve specific issues. Lead and take responsibility for the work and actions of group/team members. Bridge between management.
4-Highly Skilled Worker	Broader knowledge of the underlying, concepts, principles, and processes in a specific work or study area, able to solve problems to new situations by comparing and applying acquired knowledge.	A range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying the full range of methods, tools, materials and information. Communicate using technical terminology and IT technology with partners and users as per workplace requirements.	Work under minimal supervision in specific contexts in response to workplace requirements. Resolve technical issues in response to workplace requirements and lead/guide a team/ group.
3-Skilled Worker	Moderately broad knowledge in a specific work or study area, able to perceive ideas and abstract from drawing and design according to workplace requirements.	Basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools. Communicate with his team and limited external partners upholding the values, nature and culture of the workplace	Work or study under supervision with considerable autonomy. Participate in teams and responsible for group coordination.
2-Semi Skilled Worker	Basic understanding of underpinning knowledge in a specific work or study area, able to interpret and apply common occupational terms and instructions.	Skills required to carry out simple tasks, communicate with his team in the workplace presenting and discussing results of his work with required clarity.	Work or study under supervision in a structured context with limited scope of manipulation
1 –Basic Skilled Worker	Elementary understanding of ability to interpret the underpinning knowledge in a specific study area, able to interpret common occupational terms and instructions.	Specific Basic skills required to carry out simple tasks. Interpret occupational terms and present the results of own work within guided work environment/ under supervision.	Work under direct supervision in a structured context with limited range of responsibilities.

List of Abbreviations

CS	-	Competency Standard
ISC	-	Industry Skills Council
LEISC	-	Light Engineering Industry Skills Councils
NSDA	-	National Skills Development Authority
BNQF	-	Bangladesh National Qualification Framework
OSH	-	Occupational Safety and Health
PPE	-	Personal Protective Equipment
SCVC	-	Standards and Curriculum Validation Committee
STP	-	Skills Training Provider
SOP	-	Standard Operating Procedure
UoC	-	Unit of Competency
PIMMO	-	Plastics Injection Molding Machine Operation
4 iR	-	4th Industrial Revolution

Approved by

45th Authority Meeting of NSDA

Held on 23.09.2025

Table of Contents

Competency Standards for National Skill Certificate – 3 in Plastics Injection Molding Machine Operation, Plastics Sector

Course Structure

SL	Unit Code and Title		UoC Level	Nominal Duration (Hours)
Generic Units of Competencies				**35**
1.	GU-L2-02-V1	Carryout Workplace Interaction	2	15
2.	GU-04-L3-V1	Lead Small Team	2	20
Sector Specific Units of Competencies				**30**
3.	SU-PS-L3-01-V1	Interpret the Scenario and Environmental Issues of Plastic Sector	3	30
Occupation Specific Units of Competencies				**275**
4.	OU-PS-PIMMO-01-L3-V1	Interpret the Application Process of Machine, Tools, Equipment and Plastic Raw Material	3	30
5.	OU-PS-PIMMO-02-L3-V1	Perform Mold Settings	3	55
6.	OU-PS-PIMMO-03-L3-V1	Operate Machine	3	140
7.	OU-PS-PIMMO-04-L3-V1	Perform Visual Identification of Product Defects	3	20
8.	OU-PS-PIMMO-05-L3-V1	Perform Minor Machine Servicing and Maintenance	3	30
			Total Learning Hours	**340**
			Workplace Visit	**20**
			Total Nominal Hours	**360**

Units & Elements at Glance

Generic Units of Competencies (35 Hours)

Code	Unit of competency	Elements of competency	Duration (hours)
GU-02-L2-V1	Carryout Workplace Interaction	1. Interpret workplace communication and etiquette 2. Read and understand workplace documents 3. Participate in workplace meetings and discussions 4. Practice professional ethics at workplace	15
GU-04-L3-V1	Lead Small Team	1. Provide team leadership 2. Assign responsibilities 3. Set performance expectations for team members 4. Supervise team performance	20
		Total hours	**35**

Sector Specific Units of Competencies (30 Hours)

Code	Unit of Competency	Elements of Competency	Duration (Hours)
SU-PS-L3-01-V1	Interpret the Scenario and Environmental Issues of Plastic Sector	1. Identify organizational structure within the sector 2. Recognize history of plastic Industries in Bangladesh 3. Identify scenario of Plastic Industries 4. List prime export markets 5. Interpret & mitigate environmental issues 6. Follow green practices	30
		Total Hours	**30**

Occupation Specific Units of Competencies (275 Hours)

Code	Unit of Competency	Elements of Competency	Duration (Hours)
OU-PS-PIMMO-L3-01-V1	Interpret the application process of Machine, Tools, Equipment and Plastic Raw Material.	1. Prepare for work 2. Interpret the functionality of machine, tools and equipment 3. Interpret the application process of raw material	30
OU-PS- PIMMO -L3-02-V1	Perform Mold Settings	1. Prepare for mold setting 2. Load mold 3. Unload mold from machine 4. Maintain workplace, tools, equipment and materials	55
OU-PS- PIMMO -L3-03-V1	Operate Machine	1. Prepare for machine operation 2. Set machine 3. Perform machine operation 4. Check product 5. Maintain workplace, tools, equipment and materials	140
OU-PS-PIMMO - L3-04-V1	Perform Visual Identification of Product Defect	1. Prepare for work 2. Identify and rectify defect 3. Maintain workplace, tools, equipment and materials	20
OU-PS- PIMMO -L3-05-V1	Perform Minor Machine Servicing and Maintenance	1. Perform routine maintenance 2. Identify and rectify minor machine problem 3. Maintain workplace, tools, equipment and materials	30
		Total Hours	**275**

Generic Units of Competencies

Unit Code and Title	GU-03-L2-V1: Carryout Workplace Interaction
Unit Descriptor	This unit covers the knowledge, skills and attitude required to carry out workplace interaction. It specifically includes interpreting workplace communication and etiquette, reading and understanding workplace documents, participating in workplace meetings and discussions and practicing professional ethics at workplace.
Nominal Hours	**15 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Interpret workplace communication and etiquette	1.1 Workplace code of conducts are interpreted as per organizational guidelines; 1.2 Appropriate lines of communication are maintained with supervisors and colleagues; 1.3 Workplace interactions are conducted in a **courteous manner** to gather and convey information; 1.4 Questions about routine **workplace procedures and matters** are asked and responded as required.
2. Read and understand workplace documents	2.1 Workplace documents are interpreted as per standard; 2.2 Assistance is taken to aid comprehension when required from peers / supervisors; 2.3 Visual information / symbols / signage's are understood and followed; *2.4* Specific and relevant information are accessed from **appropriate sources;** 2.5 Appropriate medium is used to transfer information and ideas.
3. Participate in workplace meetings and discussions	3.1 Team meetings are attended on time and meeting procedures and etiquette are followed; 3.2 Own opinions are expressed and others opinions are listened without interruption; 3.3 Inputs are provided consistent with meeting purpose and meeting outcomes are implemented.
4. Practice professional ethics at workplace	4.1 Responsibilities as a team member are demonstrated and kept promises and commitments made to others; 4.2 Tasks are performed in accordance with workplace procedures 4.3 Confidentiality is respected and maintained; 4.4 Situations and actions considered inappropriate or which present a conflict of interest are avoided
.Range of Variables	
Variable	**Range** (may include but not limited to):

1. Courteous manner	1.1 Effective questioning 1.2 Active listening 1.3 Speaking skills
2. Workplace procedures and matters	2.1 Notes 2.2 Agenda 2.3 Simple reports ▪ Progress report ▪ Incident report 2.4 Job sheets 2.5 Operational manuals 2.6 Brochures and promotional material 2.7 Visual and graphic materials 2.8 Standards 2.9 OSH information 2.10 Signs
3. Appropriate sources	3.1 HR Department 3.2 Managers 3.3 Supervisors
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment required evidence that the candidate: 1.1 Maintained workplace communication and etiquette 1.2 Followed workplace instructions and symbols 1.3 Followed team meeting and etiquette.
2. Underpinning knowledge	2.1 Workplace communication and etiquette 2.2 Workplace documents, signs and symbols 2.3 Meeting procedure and etiquette.
3. Underpinning skills	3.1 Maintaining workplace communication and etiquette 3.2 Following workplace instructions and symbols 3.3 Following team meeting and etiquette.
4. Underpinning attitude	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communication with peers and seniors in workplace.
5. Resource implications	The following resources must be provided: 5.1 Work place Procedure 5.2 Materials relevant to the proposed activity 5.3 All tools, equipment, material and documentation required

	5.4 Relevant specifications or work instructions.
6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning 6.4 portfolio
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre; 7.2 Assessment should be done by NSDA certified assessor.
Accreditation Requirements Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.	

Unit Code and Title	GU-04-L3-V1: Lead Small Team
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to lead small team. It specifically includes providing team leadership, assigning responsibilities, setting performance expectations for team members and supervising team performance.
Nominal Hours	**20 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Provide team leadership	1.1 **Work requirements** are identified and presented to team members; 1.2 Reasons for instructions and requirements are communicated to team members; 1.3 **Team members' queries and concerns** are recognized, discussed and dealt with.
2. Assign responsibilities	2.1 Duties, and responsibilities are allocated having regard to the skills, knowledge and attitudes required to properly undertake the assigned task; 2.2 Duties are allocated having regard to individual preference, domestic and personal considerations, whenever possible.
3. Set performance expectations for team members	3.1 Performance expectations are established based on client needs and according to assignment requirements; 3.2 Performance expectations are based on individual team members' duties and area of responsibility; 3.3 Performance expectations are discussed and directed to implement in the workplace.
4. Supervise team performance	4.1 **Monitoring of performance** are taken place against defined performance criteria and / or assignment instructions and corrective action taken if required; 4.2 Team members are provided **feedback**, positive support and advice on strategies to overcome any deficiencies; 4.3 **Performance issues** which cannot be rectified or addressed within the team are referenced to appropriate personnel; 4.4 Team members are kept informed of any changes in the priority allocated to assignments or tasks which might impact on clients' / customers' needs and satisfaction; 4.5 Team operations are monitored to ensure that employer / client needs and requirements are met; 4.6 Follow-up communication is provided on all issues affecting the team; 4.7 All relevant documentation is completed.
Range of Variables	

Variable	**Range** (may include but are not limited to):
1. Work requirements	1.1 Client Profile 1.2 Assignment instructions
2. Team member's queries and concerns	2.1 Roster 2.2 Shift details
3. Monitoring of performance	3.1 Formal process 3.2 Informal process
4. Feedback	4.1 Formal process 4.2 Informal process 4.3 Sandwich process
5. Performance issues	5.1 Work output 5.2 Work quality 5.3 Team participation 5.4 Compliance with workplace protocols 5.5 Safety 5.6 Customer service
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment required evidence that the candidate: 1.1 maintained or improved individuals and / or team performance given a variety of possible scenario 1.2 assessed and monitored team and individual performance against set criteria 1.3 represented concerns of a team and individual to next level of management or appropriate specialist and to negotiate on their behalf 1.4 allocated duties and responsibilities, having regard to individual's knowledge, skills and attitude and the needs of the tasks to be performed 1.5 set and communicated performance expectations for a range of tasks and duties within the team and provided feedback to team members.
2. Underpinning knowledge	2.1 Company policies and procedures 2.2 Relevant legal requirements 2.3 How performance expectations are set 2.4 Methods of Monitoring Performance 2.5 Client expectations 2.6 Team members' duties and responsibilities.
3. Underpinning skills	3.1 Informal performance counselling skills 3.2 Team building skills 3.3 Negotiating skills.

4. Required attitudes	4.1 Commitment to occupational health and safety 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Environmental concerns 4.5 Eagerness to learn 4.6 Tidiness and timeliness 4.7 Respect for rights of peers and seniors in workplace 4.8 Communicate with peers and seniors in workplace.
5. Resource implications	The following resources must be provided: 5.1 Workplace (actual or simulated) 5.2 Tools, equipment and facilities appropriate to processes or activity 5.3 Materials relevant to the proposed activity 5.4 Equipment and outfits appropriate in applying safety measures 5.5 Relevant drawings, manuals, codes, standards and reference material.
6. Assessment methods	Assessment methods may include but not limited to: 6.1 Written test 6.2 Demonstration 6.3 Oral Questioning 6.4 Portfolio
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre; 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Sector Specific Units of Competencies

Unit Code and Title	**SU-PS-L3-01-V1: Interpret the Scenario and Environmental Issues of Plastic Sector**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to interpret the scenario and environmental issues of plastic sector. It includes identifying organizational structure within the sector, recognizing history of plastic industries in Bangladesh, identifying scenario of plastic industries, listing prime export markets and interpreting and mitigate environmental issues.
Nominal Hours	**30 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Identify organizational structure within the sector	1.1 Profile of the plastic sector of Bangladesh is explained; 1.2 Scope, nature and **major fields** of the plastic sector are identified; 1.3 **Occupations** or trade names of the plastic sector are identified; 1.4 Employment conditions are identified in line with the plastic sector of Bangladesh; 1.5 Relevant sectoral chapter of **policies** and guidelines are identified and interpreted.
2. Recognize history of plastic Industries in Bangladesh	2.1 **Background of plastic industries** in Bangladesh is inferred with reference to the past history, present status and expected future trends; 2.2 Importance of the plastic industries in relation to Bangladesh labour market is stated with emphasis on manpower and economic impact; 2.3 Present and projected future trends and technologies relevant to industries are summarized; 2.4 Changes in the trends and technologies relevant to the sector is explained.
3. Identify scenario of Plastic Industries	3.1 Scope and nature of **major departments** of the plastic industries are identified; 3.2 Role and responsibilities of individuals are identified in relation to the department and organization as a whole; 3.3 Machines used in different departments are identified.
4. List prime export markets	4.1 The types of prime export markets are categorized on the basis of their current and future potential; 4.2 Export marketing process is interpreted.

5. Interpret & mitigate environmental issues	5.1 Use of plastic product and material are identified and interpreted; 5.2 Issues related to improper usages and impact of plastic are interpreted; 5.3 Plastic waste management procedures are maintained.
6. Follow green practices	6.1 Waste is Minimized by reducing consumption, reusing items, and recycling materials; 6.2 Energy is Conserved by using **different options;** 6.3 Water is saved by fixing leaks, using water-saving fixtures, and practicing mindful water use; 6.4 **Eco-Friendly Products** are used; 6.5 public transport, carpool, bike, or walk are used whenever possible; 6.6 reusable bags, bottles, and containers are used; 6.7 Follow local waste management policies; 6.8 Trees are planted and Green Spaces are maintained.

Range of Variables

Variable	**Range** (may include but not limited to):
1. Major field	1.1 Toys 1.2 Household item 1.3 Furniture 1.4 Garment accessories and products 1.5 Medical accessories 1.6 Packaging product 1.7 Automobile parts 1.8 Shoe accessories 1.9 Pipe and fitting 1.10 Sanitary fitting 1.11 Agriculture accessories 1.12 Fashion item 1.13 Stationary item 1.14 Water purification
2. Occupations	2.1 Machine operator 2.2 Supervisor 2.3 Mold maker 2.4 Mold designer 2.5 Quality controller 2.6 Laboratory technician 2.7 Color master 2.8 Maintenance engineer 2.9 Process engineer 2.10 Production in charge

3. Background of plastic Industries	3.1 History of Bangladesh plastic Industries 3.2 Economic contribution 3.3 Gender dynamics of plastic industry in Bangladesh. 3.4 Wages & efficiency in the plastic industry 3.5 Compliance
4. Polices	4.1 Industry policy 4.2 Plastic industry development policy 4.3 Export policy
5. Major departments	5.1 Production 5.2 Packaging 5.3 Quality control 5.4 Maintenance 5.5 Store 5.6 Inventory 5.7 Sales and marketing ▪ Distribution ▪ Domestic ▪ Customized ▪ Export 5.8 Human Resources 5.9 Accounting and finance 5.10 Administration & Compliance
6. Machines	6.1 Injection molding machine 6.2 Blow molding machine 6.3 Compression molding machine 6.4 Pet blow machine 6.5 Extruder machine 6.6 Stress Blow molding (SBM) machine 6.7 Injection blow moldin(IBM) machine 6.8 Electric blow molding machine 6.9 Cap Closer machine (CCM) 6.10 Vacuum forming machine 6.11 Rotational molding machine 6.12 Sealing machine 6.13 Printing machine 6.14 Calendaring
7. Prime export markets	7.1 American market 7.2 European market 7.3 Asian market 7.4 Africa market 7.5 Newly explored market
Different options	8.1 Use energy-efficient appliances and lighting. 8.2 Turn off lights and equipment when not in use.

	8.3 Utilize natural light and ventilation where possible. 8.4 Solar-powered lights
Eco-Friendly Products	9.1 Choose biodegradable 9.2 Non-toxic 9.3 Sustainably sourced materials. 9.4 Reusable food wraps 9.5 LED light bulbs 9.6 Reusable shopping bags 9.7 Reusable containers 9.8 Bicycles and electric scooters 9.9 Recycles bin 9.10 Flower base
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspects of competency	Assessment required evidences that the candidate: 1.1 identified employment condition 1.2 summarized present and projected future trends and technologies 1.3 identified prime export markets.
2. Underpinning knowledge	2.1 Related sectoral chapter of policies and guideline 2.2 History of plastic Industries 2.3 Trends in the plastic Industries 2.4 Production process 2.5 Different Department in plastic Industries 2.6 Roles and responsibilities 2.7 List of machine use in plastic industry 2.8 Types of prime export markets 2.9 Eco-Friendly Products.
3. Underpinning skills	3.1 Identifying policies and guidelines in plastic industries 3.2 Interpreting trends of plastic industries 3.3 Identifying departments in plastic industries 3.4 Identifying machines used in different departments 3.5 Issues related to improper usages and impact of plastic 3.6 Plastic waste management procedures.

4. Required attitudes	4.1 Commitment to occupational safety and health 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concern 4.7 Respect for rights of peers and seniors at workplace 4.8 Communication with peers and seniors at workplace.
5. Resource implications	The following resources must be provided: 5.1 workplace (actual or simulated) 5.2 tools, equipment and physical facilities appropriate to perform activities 5.3 materials consumable to perform activities.
6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning 6.4 portfolio.
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre; 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Occupation Specific Units of Competencies

Unit Code and Title	**OU-PS-PIMMO-01-L3-V1: Interpret the application process of Machine, Tools, Equipment and Plastic Raw Material.**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to use machine, tools & equipment and plastic raw material. It includes preparing for work, interpreting the functionality of machine, tools and equipment and interpret the application process of raw material.
Nominal Hours	**30 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Prepare for work	1.1 **Safe work practices** are followed throughout the work process; 1.2 **Personal Protective Equipment (PPE)** is identified and used; 1.3 Safety signs and symbols are identified; 1.4 **Incident** are identified and mitigated as per jurisdiction of employee; 1.5 Personal hygiene is maintained; 1.6 **Machine accessories and supporting machines** are identified; 1.7 **Tools, equipment, measuring instrument and material** are identified.
2. Interpret the functionality of machine, tools and equipment	2.1 **Machine** and **machine unit** are interpreted; 2.2 Usages of machine accessories are interpreted; 2.3 Functionality of tools and equipment are checked; 2.4 Application of tools and equipment are interpreted; 2.5 Machine parameters are read and interpreted.
3. Interpret the application process of raw material	3.1 Plastic and **types of plastics** are interpreted; 3.2 **Plastic raw material** is listed; 3.3 Application of plastic material are interpreted.
Range of Variables	
Variable	**Range** (may include but not limited to):
1. Safe work practice	1.1 Use PPE 1.2 Use fire extinguisher 1.3 Response emergency situation 1.4 Identify hazard 1.5 Control hazards 1.6 Measure risk 1.7 Use first aid 1.8 Report uncontrolled hazards

2. Personal Protective equipment (PPE)	2.1 Heat resistant hand gloves 2.2 Apron 2.3 Safety shoes 2.4 Mask 2.5 Safety googles 2.6 Ear plugs 2.7 Safety helmet
3. Incident	3.1 Electrical 3.2 Accident 3.3 Pathway movement 3.4 Smoke 3.5 Flash cutting 3.6 Burn from heater and purging
4. Machine	4.1 Vertical injection molding 4.2 Horizontal injection molding
5. Machine unit	5.1 Injection ▪ Hopper ▪ Heaters ▪ Nozzle ▪ Hydraulic drive ▪ Screw & barrel ▪ Survo motor 5.2 Clamping ▪ Fixed platen ▪ Moving platen ▪ Adjustable platen/Rear platen
6. Machine accessories	6.1 Hopper loader 6.2 Hopper dryer 6.3 Hot runner controller 6.4 Auto conveyer 6.5 Finishing table 6.6 Robotic arm
7. Supporting machines	7.1 Air compressor 7.2 Cooling tower 7.3 Water chiller 7.4 Robot

8. Tools	8.1 Allen key set 8.2 Open ended wrench 8.3 Adjustable wrench 8.4 Pipe wrench 8.5 Nose pliers 8.6 Diagonal Cutting pliers 8.7 Neon tester 8.8 Torque wrench 8.9 Ring spanner 8.10 Clamp wrench 8.11 Screwdriver set 8.12 Ball peen hammer 8.13 Mallet 8.14 Hand grinder 8.15 Industry knife 8.16 Air nipple 8.17 Water nipple 8.18 Sprue blockage cleaning rod (copper rod)
9. Equipment	9.1 Grinding machine 9.2 Mixer machine 9.3 Crashing machine 9.4 Sealing machine 9.5 Crane 9.6 Chain block 9.7 Hydraulic trolly
10. Measuring instrument	10.1 multimeter 10.2 Vernier caliper 10.3 Micrometer 10.4 Divider 10.5 Inside and outside calipers 10.6 Thickness Gauge 10.7 Balance / weighing scale 10.8 Infrared temperature gun
11. maintenance Material	11.1 Thread tape 11.2 Insulation tape 11.3 Hose clamp 11.4 Cable tie 11.5 Hose pipe 11.6 Grease 11.7 Lubricant 11.8 Cotton waste
12. Types of plastic	12.1 Thermo plastic 12.2 Thermoset plastic

13. Plastic material	**A. Thermo Plastics** 13.1 Polyethylene • Linear low-density polyethylene (LLDPE) • Low density polyethylene (LDPE) • High density polyethylene (HDPE) 13.2 Polypropylene (PP) 13.3 Polystyrene (PS) • General Purpose Polystyrene (GPPS) • High Impact Polystyrene (HIPS) 13.4 Polyvinyl chloride (PVC) 13.5 Polyethylene Tereph Thalate (PET) 13.6 Polycarbonate (PC) 13.7 Acrylonitrile Butadiene Styrene (ABS) 13.8 Random copolymer (RCP) 13.9 Styrene acrylonitrile (SAN) 13.10 Nylon/ Polyamide 13.11 Acrylic (PMMA) 13.12 Polyoxymethylene (POM) 13.13 Polytetrafluoroethylene (Teflon) (PTFE) 13.14 Polyphenyleneoxide (PPO) **B. Thermoset plastic** 13.15 Epoxy resin 13.16 Phenolic resin (Bakelite) 13.17 Urea formaldehyde (UF) 13.18 Melamine formaldehyde (MF) 13.19 Unsaturated polyester resin (UP) 13.20 Silicone resin 13.21 Polyurethane (PU) 13.22 Vinyl ester resin 13.23 Alkyd resin 13.24 Cyanate ester resin 13.25 Amino plastics 13.26 Diallyl phthalate (DAP) 13.27 Furan resin 13.28 Bismaleimide (BMI) 13.29 Polyimide resin 13.30 Phenol formaldehyde (PF)

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.

1. Critical aspects of competency	Assessment required evidences that the candidate: 1.1 identified safety signs and symbols 1.2 identified and mitigated incidents 1.3 interpreted usages of machine accessories 1.4 checked functionality of tools and equipment 1.5 interpreted machine parameters 1.6 interpreted application of plastic material.
2. Underpinning knowledge	2.1 Usages of personal protective equipment 2.2 Relevant safety signs and symbols 2.3 Mitigating procedure of incident is plastic industry 2.4 Types of injection molding machine and machine unit 2.5 Usages of tools, equipment, measuring instrument and material 2.6 Functionality checking process of tools and equipment 2.7 Types of plastic 2.8 Mention the name of plastics raw materials 2.9 Usages of thermo plastic 2.10 Uses of thermoset plastic 2.11 Visual identification of plastic goods 2.12 Usages of color (master batch).
3. Underpinning skills	3.1 Identifying safety sign and symbol 3.2 Maintaining personal hygiene 3.3 Using of machine and machine units 3.4 Identifying machine accessories and supporting machines 3.5 Identifying tools, equipment, measuring instrument and material 3.6 Listing types of plastic raw material.
4. Required attitudes	4.1 Commitment to occupational safety and health 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 Respect for rights of peers and seniors at workplace 4.8 Communication with peers and seniors at workplace.
5. Resources implication	The following resources must be provided: 5.1 workplace (actual or simulated) 5.2 required tools and equipment's, facilities and relevant accessories 5.3 required teaching aids; and 5.4 competency based learning materials

6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning 6.4 portfolio.
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre; 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Unit Code and Title	**OU-PS-PIMMO-02-L3-V1: Perform Mold Settings**
Unit Descriptor	This unit covers the knowledge, skills and altitudes required to perform mold setting. It includes preparing for mold setting, loading mold, unloading mold form machine and restoring work area.
Nominal Hours	**55 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Prepare for mold setting	1.1 **Safe work practices** are followed throughout the work process; 1.2 **Personal Protective Equipment (PPE)** is worn as per job requirement; 1.3 **Tools, equipment and maintenance material** are selected and collected; 1.4 Mold is selected and collected according to the job requirement; 1.5 **Mold dimension** is measured as per job specification; 1.5 Machine is selected according to the **machine specification** requirement.
2. Load mold	2.1 Connecting rod is attached to join the molds parts 2.2 I-lock is attached with mold; 2.3 Crane chain / rope is attached with I-lock as per Standard Operating Procedure (SOP); 2.4 Mold is set into the machine by using clamp as per SOP. 2.5 Water and air line is adjusted; 2.6 Hydraulic pipe is set, if required.
3. Unload mold from machine	3.1 Water pipe is off and removed form mold; 3.2 Dry cycle is checked; 3.3 Hot shot is carried out to remove moisture from mold; 3.4 Greasing is performed to the mold; 3.5 Crane chain/ rope is attached with mold I-lock as per SOP; 3.6 Clamps are detached from machine.; 3.7 Moving platoon is separated form mold and mold is removed by using crane/chain kappa.
4. Maintain workplace, tools, equipment and materials	4.1 Work area is cleaned in accordance with workplace procedures; 4.2 Unused materials are stored for re-use or disposed following workplace procedures; 4.3 Waste and scrap materials are disposed with following workplace procedures; 4.4 Inventory of tools equipment are conducted and recorded as per checklist;

	4.5 Tools and equipment are cleaned and stored as per manufacturer recommendation in appropriate location.
Range of Variables	
Variable	**Range** (may include but not limited to):
1. Safe work practice	1.1 Use PPE 1.2 Use fire extinguisher 1.3 Response emergency situation 1.4 Identify hazard 1.5 Control hazards 1.6 Measure risk 1.7 Use first aid 1.8 Report uncontrolled hazards
2. Personal Protective equipment (PPE)	2.1 Heat resistant hand gloves 2.2 Apron 2.3 Safety shoes 2.4 Mask 2.5 Safety googles 2.6 Ear plugs 2.7 Safety helmet
3. Tools and equipment	3.1 Allen key set 3.2 Open ended wrench 3.3 Adjustable wrench 3.4 Ring spanner 3.5 Screwdriver (star and flat) 3.6 Air nipple 3.7 Water nipple 3.8 Hydraulic trolley
4. Maintenance material	4.1 Thread tape 4.2 Hose clamp 4.3 Cable tie 4.4 Hose pipe 4.5 Hydraulic pipe
5. Mold dimension	5.1 Length 5.2 Width 5.3 Height
6. Machine specification	6.1 Mold size 6.2 Shot weight 6.3 Machine clamping force 6.4 Tie bar distance 6.5 Maximum & minimum opening stroke 6.6 Ejector stroke 6.7 Injection screw type 6.8 Clamping type

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.

1. Critical aspects of competency	Assessment required evidences that the candidate: 1.1 Measured mold dimension 1.2 Selected machine 1.3 Set mold into the machine by using clamp 1.4 Adjusted water and air line 1.5 Performed greasing of mold 1.6 Separated moving platoon from mold 1.7 maintained workplace, tools, equipment and materials.
2. Underpinning knowledge	2.1 Machine wise mold selecting process 2.2 Mold wise machine selection process 2.3 Safety precaution of mold loading and unloading 2.4 Mold loading and unloading process 2.5 Setting process of locating ring 2.6 Procedure of disposing waste material 2.7 Tools and equipment 2.8 Maintenance Material 2.9 Mold dimension 2.10 Machine specification.
3. Underpinning skills	3.1 Selecting and measuring mold 3.2 Selecting proper machine 3.3 Attaching crane chain with I-lock 3.4 Setting mold into the machine 3.5 Adjusting water and air line 3.6 Carrying out hot shot 3.7 Performing mold greasing 3.8 Separating moving platoon from mold 3.9 Cleaning workplace.
4. Required attitudes	4.1 Commitment to occupational safety and health 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 Respect for rights of peers and seniors at workplace 4.8 Communication with peers and seniors at workplace.
5. Resources implication	The following resources must be available: 5.1 workplace (actual or simulated) 5.2 relevant tools, materials, equipment and accessories 5.3 relevant specific actions or work instructions.

6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning 6.4 portfolio.
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre; 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Unit Code and Title	**OU-PS-PIMMO-03-L3-V1: Operate Machine**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to operate machine. It includes preparing for machine operation, setting machine, performing machine operation, checking product and maintaining workplace, tools, equipment and materials.
Nominal Hours	**140 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Prepare for machine operation	1.1 **Safe work practices** are followed throughout the work process; 1.2 **Personal Protective Equipment (PPE)** is worn as per job requirement. 1.3 Shift handover and takeover process is carried out as per company format; 1.4 Work schedule is collected from authority; 1.5 **Tools, equipment and material** are selected and collected as per job requirement; 1.6 Machine and machine surface is cleaned according to the workplace procedure; 1.7 Mold and machine is selected as per job requirement; 1.8 Mold is set as per product specification, if required; 1.9 Nozzle is set with mold for operation.
2. Set machine	2.1 Power supply and machine barrel heat is checked and ensured; 2.2 Mold setting is checked for proper alignment; 2.3 Color is mixed with plastic granule using mixer machine as per color mixing ratio; 2.4 Mixing material are poured into the hopper maintaining safety procedure; 2.5 Hoper dryer temperature is set as per material requirement; 2.6 Functions of mold and machine water cooling system are ensured.
3. Perform machine operation	3.1 Check temperature as per materials processing temperature; 3.2 **Parameters** are set in dashboard as per product specification; 3.3 Pretest is performed and necessary adjustment is made, if required; 3.4 Water and air line is positioned on; 3.5 Machine performance is monitored by collecting and checking product; 3.6 Machine safety is ensured during operation.

4. Check product	4.1 Product are inspected for defect identification; 4.2 De-flashing is carried out as per product specification; 4.3 Product defect causes are identified; 4.4 Measures are taken to mitigate problem within own responsibilities; 4.5 Faulty products are separated and crashed.
5. Maintain workplace, tools, equipment and materials	5.1 Machine is shutdown according to the SOP; 5.2 Mold core and cavity are greased if the machine is shutdown for more than 24 hours; 5.3 Moving components of machine are cleaned and lubricated as per standard procedure; 5.4 Tools and equipment are stored as per workplace procedure; 5.5 Faulty tools and equipment are separated; 5.6 Workplace is cleaned according to the workplace procedure; 5.7 Waste materials are disposed of as per environmental procedure.

Range of Variables

Variable	**Range** (may include but not limited to):
1. Safe work practice	1.1 Use PPE 1.2 Use fire extinguisher 1.3 Response emergency situation 1.4 Identify hazard 1.5 Control hazards 1.6 Measure risk 1.7 Use first aid 1.8 Report uncontrolled hazards
2. Personal Protective equipment (PPE)	2.1 Heat resistant hand gloves 2.2 Apron 2.3 Safety shoes 2.4 Mask 2.5 Safety googles 2.6 Ear plugs 2.7 Safety helmet 2.8 Insulated mat (rubber mat)
3. Tools	3.1 Anti-cutter/ blade 3.2 Nose pliers 3.3 Cutting plier 3.4 Shovel 3.5 Copper rod 3.6 mallet 3.7 Hot gun 3.8 Grease gun

4. Equipment	4.1 Mixing machine 4.2 Crasher machine
5. Raw material	5.1 Plastic granules 5.2 Color batch/color pigment
6. Parameter	5.1 Mold adjust 6.1 Temperature 6.2 Clamping 6.3 Nozzle setting 6.4 Injection 6.5 Holding 6.6 Charging 6.7 Ejector 6.8 Core setting 6.9 Delay time 6.10 Mold controller set

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.

1. Critical aspect of competency	Assessment required evidences that the candidate: 1.1 selected mold and machine 1.2 mixed color with plastic granule 1.3 set hoper dryer temperature and parameter in dashboard 1.4 performed machine operation 1.5 checking material melting consistence 1.6 checked product.
2. Underpinning knowledge	2.1 Temperature setting process in hopper, middle zone and nozzle 2.2 Procedure of setting cycle time parameter ▪ Mold closing ▪ Injection ▪ Holding ▪ Charging ▪ Cooling time ▪ Mold opening ▪ Ejecting 2.3 Parameters and its setting process 2.4 Safety precaution in operating machine 2.5 Color ratio and mixing procedure 2.6 Product separation process.

3. Underpinning skills	3.1 Selecting mold and machine 3.2 Mixing color material with plastic granule 3.3 Setting temperature in hoper dryer 3.4 Setting parameters in dashboard 3.5 Performing pretest 3.6 Setting cycle time 3.7 Carrying out de-flashing 3.8 Identifying causes of product defect.
4. Required attitudes	4.1 Commitment to occupational safety and health 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 Respect for rights of peers and seniors at workplace 4.8 Communicate with peers and seniors at workplace.
5. Resource implication	The following resources must be available: 5.1 workplace (actual or simulated) 5.2 equipment and outfits appropriate in applying safety measures 5.3 tools, materials and documentation required.
6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning 6.4 portfolio.
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre; 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Unit Code and Title	**OU-PS-PIMMO-04-L3-V2: Perform Visual Identification of Product Defect**
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform visual identification of product defect. It includes preparing for work, identifying and rectifying defect and maintaining workplace, tools, equipment and materials.
Nominal Hours	**20 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Prepare for work	1.1 **Safe work practices** are followed throughout the work process; 1.2 **Personal protective equipment (PPE)** is worn as per job requirement; 1.3 Tools and material are selected and collected as per job requirement; 1.4 Product are collected according to the workplace procedure.
2. Identify and rectify defect	2.1 Product are inspected for **defect** identification; 2.2 Product defect **causes** are identified; 2.3 Defective products are segregated as per range of rectification; 2.4 **Remedial measures** are taken to rectify defect; 2.5 Unrectified products are crushed as per company procedure; 2.6 Report is prepared in company format and submitted to the designated authority.
3. Maintain workplace, tools, equipment and materials	3.1 Work area is cleaned in accordance with workplace procedures; 3.2 Unused materials are stored for re-use or disposed following workplace procedures; 3.3 Waste and scrap materials are disposed with following workplace procedures; 3.4 Inventory of tools equipment are conducted and recorded as per checklist; 3.5 Tools and equipment are cleaned and stored as per manufacturer recommendation in appropriate location.

Range of Variables	
Variable	**Range** (may include but not limited to):
1. Safe work practice	1.1 Use PPE 1.2 Use fire extinguisher 1.3 Response emergency situation 1.4 Identify hazard 1.5 Control hazards 1.6 Measure risk 1.7 Use first aid 1.8 Report uncontrolled hazards

2. Personal Protective Equipment (PPE)	2.1 Heat resistant hand gloves 2.2 Apron 2.3 Safety shoes 2.4 Mask 2.5 Safety googles 2.6 Ear plugs 2.7 Safety helmet
3. Product defects	3.1 Short molding 3.2 Spot 3.3 Flash 3.4 Silver stick 3.5 Shrinkage 3.6 Short weight 3.7 Over weight 3.8 Air bubble 3.9 Blow hole 3.10 Burn mark 3.11 Warpage 3.12 Scratch 3.13 Over cut 3.14 Wave mark 3.15 Color mark 3.16 Color deviation 3.17 Flow mark 3.18 Sink mark 3.19 Runner point 3.20 Weld mark 3.21 Male adjustment of two parts 3.22 Crack 3.23 Hole
4. Cause	4.1 Injection pressure, speed and time 4.2 Injection holding time 4.3 Cooling time 4.4 Improper water circulation 4.5 Improper water cooling temperature 4.6 Temperature 4.7 Material grade 4.8 Mold problem 4.9 Charging problem 4.10 Material moisture content 4.11 Lack of material proper distribution 4.12 Back pressure 4.13 Material leakage 4.14 Cushion

	4.15 Fill time 4.16 Pack time
5. Remedial measures	5.1 Adjust pressure and speed 5.2 Adjust temperature 5.3 Use proper material grade 5.4 Adjust cooling time 5.5 Adjust holding time 5.6 Adjust holding pressure 5.7 Checking mold 5.8 Suck back 5.9 Adjust back pressure 5.10 Adjust cooling water temperature

Evidence Guide

The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.

1. Critical aspect of competency	Assessment required evidences that the candidate: 1.1 inspected product for defect identification 1.2 identified causes of product defect 1.3 taken remedial measures 1.4 submitted report 1.5 disposed of waste material.
2. Underpinning knowledge	2.1 Safe work practices 2.2 Product defect 2.3 Causes of product defect 2.4 Segregating defected product 2.5 remedial measure 2.6 Report preparation process.
3. Underpinning skills	3.1 Inspecting product 3.2 Identifying product defect and causes 3.3 Segregating defect product 3.4 Carrying out remedial measure.
4. Required attitudes	4.1 Commitment to occupational safety and health 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 Respect for rights of peers and seniors at workplace 4.8 Communicate with peers and seniors at workplace.
5. Resource implication	The following resources must be available: 5.1 workplace (actual or simulated) 5.2 relevant materials and equipment 5.3 relevant specific actions or work instructions.

6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning 6.4 portfolio.
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre; 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

Unit Code and Title	OU-PS-PIMMO-05-L3-V2: Perform Minor Machine Servicing and Maintenance
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform minor machine servicing and maintenance. It includes performing routine maintenance, identifying and rectifying minor machine problem and restoring workplace.
Nominal Hours	**30 Hours**
Elements of Competency	**Performance Criteria** **Bold & Underlined** terms are elaborated in the Range of Variables
1. Perform routine maintenance	1.1 **Safe work practices** are followed throughout the work process; 1.2 **Personal Protective Equipment (PPE)** is worn as per job requirement; 1.3 **Tools** and material are collected as per job requirement; 1.4 Preventive maintenance works are determined as per preventive maintenance schedule; 1.5 Workplace and machine cleanliness is checked; 1.6 Hydraulic oil level is checked and filled up according to the instruction given in machine operation manual; 1.7 Water and air line is checked for machine and mold; 1.8 Mold clamping nuts tightening is checked at the beginning of shift; 1.9 Lubrication and greasing of machine parts is performed.
2. Identify and rectify minor machine problem	2.1 Machine is inspected according to the manufacture manual; 2.2 **Machine minor problems** are identified; 2.3 Oil leakage is checked and the causes are identified; 2.4 Abnormal noise is checked and the causes are identified; 2.5 Oil temperature is checked as per standard Operating Procedure (SOP); 2.6 Loose machine parts are tightened as per standard torque; 2.7 Identified minor machine problems are rectified as per manufacturer manuals; 2.8 Maintenance issues are reported to the designated authority.

3. Maintain workplace, tools, equipment and materials	3.1 Work area is cleaned in accordance with workplace procedures; 3.2 Unused materials are stored for re-use or disposed following workplace procedures; 3.3 Waste and scrap materials are disposed with following workplace procedures; 3.4 Inventory of tools equipment are conducted and recorded as per checklist; 3.5 Tools and equipment are cleaned and stored as per manufacturer recommendation in appropriate location.
Range of Variables	
Variable	**Range** (may include but not limited to):
1. Safe work practice	1.1 Use PPE 1.2 Use fire extinguisher 1.3 Response emergency situation 1.4 Identify hazard 1.5 Control hazards 1.6 Measure risk 1.7 Use first aid 1.8 Report uncontrolled hazards
2. Personal Protective Equipment (PPE)	2.1 Heat resistant hand gloves 2.2 Apron 2.3 Safety shoes 2.4 Mask 2.5 Safety googles 2.6 Ear plugs 2.7 Safety helmet
3. Tool	3.1 Neon tester 3.2 Multimeter 3.3 Digital sensing tester 3.4 Screwdriver 3.5 Combination pliers 3.6 Adjustable wrench 3.7 Torque wrench 3.8 Grip vise 3.9 Mallet 3.10 Pipe wrench 3.11 Allen key set 3.12 Open ended wrench

4. Machine minor problems.	4.1 Loose thermocouple / heater 4.2 Loose valve connection 4.3 Jam filter (Auto loader) 4.4 Jam water filter (water line strainer) 4.5 Air filter jam 4.6 Loose nozzle
Evidence Guide The evidence must be authentic, valid, sufficient, reliable, consistent, recent and meet all requirements of current version of the Unit of Competency.	
1. Critical aspect of competency	Assessment required evidences that the candidate: 1.1 inspected machine 1.2 identified machine minor problem 1.3 performed lubrication of machine parts 1.4 cleaned jam filter 1.5 disposed of waste material.
2. Underpinning knowledge	2.1 Usages of tools 2.2 Machine inspecting process 2.3 Machine minor problem 2.4 Cleaning procedure of jam filter 2.5 Safety precaution of handling machine 2.6 Preventive maintenance.
3. Underpinning skills	3.1 Checking and filling up oil level 3.2 Performing lubrication and greasing of machine parts 3.3 Identifying machine minor problem 3.4 Cleaning jam filter 3.5 Tighten lose machine parts.
4. Required attitudes	4.1 Commitment to occupational safety and health 4.2 Promptness in carrying out activities 4.3 Sincere and honest to duties 4.4 Eagerness to learn 4.5 Tidiness and timeliness 4.6 Environmental concerns 4.7 Respect for rights of peers and seniors at workplace 4.8 Communicate with peers and seniors at workplace.
5. Resource plication	The following resources must be available: 5.1 workplace (actual or simulated) 5.2 relevant specific actions or work instructions 5.3 Tools, equipment and materials relevant to the proposed activities.

6. Methods of assessment	Methods of assessment may include but not limited to: 6.1 written test 6.2 demonstration 6.3 oral questioning 6.4 portfolio.
7. Context of assessment	7.1 Competency assessment must be done in NSDA accredited assessment centre; 7.2 Assessment should be done by NSDA certified assessor.

Accreditation Requirements

Training Providers must be accredited by National Skills Development Authority (NSDA), the National Quality Assurance Body, or a body with delegated authority for quality assurance to conduct training and assessment against this unit of competency for credit towards the award of qualification under BNQF. Accredited providers assessing against this unit of competency must meet the quality assurance requirements set by NSDA.

References:

- Competency Standard of Bangladesh Technical Education Board (BTEB)
- Competency Standard of National Skills Development Authority (NSDA)

Development of Competency Standard

The Competency Standards for National Skills Certificate in Plastics Injection Molding Machine Operation, Level-3 is developed by NSDA on 25-26 May, 2025.

List of the Members of Development Workshop

Sl. No.	Name and Designation, Institution Address,	E-mail & Mobile	Signature
1.	K. M. Iqbal Hossain Senior Vice President, BPGMEA, Dhaka	Email: iqbalhossain1954@gmail.com Mobile: 01713030289	
2.	Md. Altaf Hossain Ex. Executive Engineer, BITAC, Dhaka	Email: altaf19501950@gmail.com Mobile: 01927923022	
3.	Md. Jafar Ikbal General Manager (Operation) Q-Pail Limited, Dhaka.	Email: jafar.rfl@gmail.com Mobile: 01957995846	
4.	Iftakhar Ahmed General Manager, Durable Plastic Ltd: RFL Group. Dhaka.	Email: rfl314@rflgroupbd.com Mobile: 01844607332	
5.	Md. Atiqur Rahman General Manager (Factory Operation) Sajan Polymer Industry Limited, Dhaka.	Email: arahmanaggm212@gmail.com Mobile: 01843836146	
6.	Mosiur Rahman Instructor, BIPET, Dhaka.	Email: mkajol2023@gmail.com Mobile: 01711935622	
7.	A. S. M Hadiuzzaman Senior S. In-charge Bengal Polymer Wares Limited, Dhaka.	Email: hadiuzzaman0091@gmail.com Mobile: 01705442080	
8.	Md. Raju Ahmed Senior Machine Operator Zihan Plastic Industry, Dhaka.	Email: zihantoy@gmail.com Mobile: 01777-443823	
9.	Soumitra Mondal Assistant Secretory Plastic ISC	Email: smbpgmea@gmail.com Mobile: 01521241994	
10.	Shovonlal Sarker Instructor, BIPET, Dhaka.	Email: shovonlal.bipet@gmail.com Mobile: 01714878010	
11.	Md. Saroat Sabin Tonmoy Instructor, BIPET, Dhaka.	Email: sstonmoy93@gmail.com Mobile: 01626443788	
12.	Md. Nazrul Islam Competency Standard Expert National Skills Development Authority (NSDA)	Mobile: +880 1711 273708 Email: ndewli@yahoo.com	

Validation of Competency Standard

The Competency Standards for National Skills Certificate in Plastics Injection Molding Machine Operation, Level-3 is validated by SCVC on 18 Jun, 2025

List of the Members of Validation Workshop

Sl. No.	Name and address	Position in the committee	Signature
1	Shamim Ahmed Vice Chairman Plastics ISC Mobile: 01711542273 Email: shamim.lvt@gmail.com	Chairman	
2	K. M. Iqbal Hossain Senior Vice President, BPGMEA, Dhaka Email: iqbalhossain1954@gmail.com Mobile: 01713030289	Member	
3	Narayan Chandra Dey Secretary General BPGMEA, Dhaka. Email: narayandy@yahoo.com Mobile: 01552388587	Member	
4	Md. Altaf Hossain Ex. Executive Engineer, BITAC, Dhaka Email: altaf19501950@gmail.com Mobile: 01927923022	Member	
5	Md. Alimul Haque Executive (Gazi Tank) Gazi Group - Dhaka Email: mdalimul32@gmail.com Mobile: 01737605932	Member	
6	Sharif Uddin Senior Manager (Quality Assurance) RFL Plastics Limited, Dhaka. Email: rfl530@rflgroupbd.com Mobile: 01844602511	Member	
7	Mosiur Rahman Instructor, BIPET, Dhaka. Emai: mkajol2023@gmail.com Mobile: 01711935622	Member	
8	A. S. M Hadiuzzaman Senior S. In-charge Bengal Polymer Wares Limited, Dhaka. Email: hadiuzzaman0091@gmail.com Mobile: 01705442080	Member	
9	Soumitra Mondal Assistant Secretory Plastics ISC	Member	

	Email: smbpgmea@gmail.com Mobile: 01521241994		
10	Md. Saroat Sabin Tonmoy Jr. Instructor Email: sstonmoy.bipet@gmail.com Mobile: 01626443788	Member	
11	Md. Nazrul Islam Competency Standard Expert National Skills Development Authority (NSDA) Mobile: +880 1711 273708 Email: ndewli@yahoo.com	Member	