



EQF-Based Model VET Curriculum for Plastics Production Line Conductor

VOCATIONAL EDUCATION AND TRAINING PROGRAM

Deliverable D2.1

Identifier: Deliverable D2.1 (WP2) EQF-based model VET curriculum		Date: 07/10/2019
Type: Vocational education and training program	Dissemination level: Public	Responsible: VPM and ISPA

Co-funded by the Erasmus+ Program of the European Union



VERSION RECORD

Version	Date	Author	Description of changes
V1	20/05/2019	VPM	Document created (first draft) and shared with partners
V2	06/06/2019	LINPRA	Part of partners comments adapted
V3	02/08/2019	ISPA	Last correction
V4	07/10/2019	ISPA	Decision (October 2 nd 2019 Steering Committee) of merging of the 2 units dedicated to composites manufacturing

APPROVALS

Author/s	Reviewers
VPM – Gintautas Dervinis	APRC – Raimonda Radlinskaitė
ISPA – Marc Manguin	VPM – Gintautas Dervinis
	EuPC – Marjan Ranogajec
	FPC – Bastien Hervé du Penhoat
	ISPA – Marc Manguin
	TREDU – Sirkka-Helena Ilveskoski, Ritva Haveri
	FIPIF – Pirjo Pietikäinen

DISCLAIMER OF WARRANTIES

This project is co-funded by the Erasmus+ Program of the European Union.

This document has been prepared by UPSKILL project partners as an account of work carried out within the framework of GA 2018-2933/001-001

Neither Project Coordinator, nor any signatory party of UPSKILL Project Consortium Agreement, nor any person acting on behalf of any of them:

- makes any warranty or representation whatsoever, express or implied,
 - with respect to the use of any information, apparatus, method, process, or similar item disclosed in this document, including merchantability and fitness for a particular purpose, or
 - that such use does not infringe on or interfere with privately owned rights, including any party's intellectual property, or
 - that this document is suitable to any particular user's circumstance; or
- assumes responsibility for any damages or other liability whatsoever (including any consequential damages, even if Project Coordinator or any representative of a signatory party of the UPSKILL Project Consortium Agreement, has been advised of the possibility of such damages) resulting from your selection or use of this document or any information, apparatus, method, process, or similar item disclosed in this document.

EXECUTIVE SUMMARY

As it is described in the document “Detailed project description” for the UPSKILL project, this document is part of the expected results of the work package 2 (Task 2.1. of WP2) of which the main aim is to design EQF based model VET curriculum for plastics machine operators’ professional profile and to adapt it to national requirements and industry environment.

The present curriculum provides adequate information about the modules and studies included in the qualification, assessment and arrangements concerning completion of the studies.

This VET curriculum states:

- objectives set for the qualification and study program or specialization,
- qualification structure,
- module-specific skills requirements or objectives,
- targets of assessment and assessment criteria for core subjects,
- ways of demonstrating vocational skills in the case of vocational qualification modules.

It is based on the outcome of work package 1 (“Qualifications & curricula research”) which stipulates recommendations for the development process for a common curriculum designed for VET level European plastic product processing workers.

The present VET program content meets the requirements of ECVET and facilitate recognition and certification of the learning outcomes by implementing ECVET principles, as well as the quality assurance framework in VET.

Therefore, the development of innovative VET curriculum within the project will help to achieve an appropriate match between skills and labor market needs in the plastics industry.

The curriculum covers EQF defined competencies emphasizing the necessary knowledge and the technical, organizational and relational skills needed for plastics production line conductor’s position. The program structured in training units. Its contents take into account ECVET based methodology for evaluation and certification.

The VET curriculum defines the modules to be included in qualification and any possible specializations (depending on production processes). made up of different units, the qualification contents, the vocational skills required in each unit, the guidelines for assessment (targets and criteria of assessment) as well as ways of demonstrating vocational competency.

The VET program includes the following units: Basic and common skills on manufacturing of plastic products; Special skills on injection moulding/ blow moulding/ pipe and profile extrusion/ thermoforming/ manufacturing of composite plastic/ manufacturing of rubber compounds; Use of digital technologies and robotics; Green skills (circular economy); Lean manufacturing; Entrepreneurial skills; Quality, health, safety and environment at work.

This EQF-based modular VET curriculum will be flexible to apply for IVET and CVET and for incorporating in WBL system.

Finally, this document will constitute the working base to produce 3 translated versions into the 3 national languages of the partners (Task 2.1. of WP2) and aligned to each country's legal framework and industrial environment.

CONTENTS

1. PLASTICS PRODUCTION LINE CONDUCTOR QUALIFICATION	10
1.1. QUALIFICATION FRAMEWORK.....	11
1.2. TABLE OF CORRESPONDENCE: COMPETENCIES (SEE DOCUMENT “Qualifications curricula research reports”) – UNITS	14
2. TRAINING CURRICULUM	16
2.1. UNITS RELATED TO BASIC COMPETENCIES.....	16
2.1.1. Unit 1 - PARTICIPATE IN WORKPLACE COMMUNICATION	16
2.1.2. Unit 2 - CONTRIBUTE TO TEAMWORK.....	18
2.1.3. Unit 3 - WORK AS A PROFESSIONAL	20
2.1.4. Unit 4 - APPLY Q.H.S.E. RULES AND PROCEDURES.....	23
2.1.5. Unit 5 - DIAGNOSE AND HELP SOLVING A DYSFUNCTION ON A PLASTIC PRODUCTION LINE	25
2.1.6. Unit 6 - MONITORING, CHECKING, SORTING OUT, RECORDING	28
2.2. UNITS RELATED TO COMMON COMPETENCIES.....	30
2.2.1. Unit 7 - READ, INTERPRET AND APPLY ENGINEERING DRAWINGS.....	30
2.2.2. Unit 8 - CONDUCT A DIGITALLY OPERATED SYSTEM	32
2.2.3. Unit 9 - KNOW MAIN CHARACTERISTICS OF PLASTIC MATERIALS	34
2.3. UNITS RELATED TO CORE COMPETENCIES	36
2.3.1. Unit 10 - OPERATE EQUIPMENT FOR MANUFACTURING OF PLASTIC COMPOSITES	36
2.3.2. Unit 11 - OPERATE INJECTION MOULDING EQUIPMENT.....	39
2.3.3. Unit 12 - OPERATE BLOW MOULDING EQUIPMENT.....	42
2.3.4. Unit 13 - OPERATE PLASTIC EXTRUSION EQUIPMENT	45

2.3.5. Unit 14 - OPERATE THERMOFORMING EQUIPMENT	48
2.3.6. Unit 15 - OPERATE MANUFACTURING EQUIPMENT FOR RUBBER COMPOUNDS	51
2.3.7. Unit 16 - MONITOR PROCESS OPERATIONS.....	54
2.3.8. Unit 17 - FINISH PRODUCTS AND COMPONENTS	57
3. ASSESSMENT	61
3.1. ELEMENTS OF EVALUATION.....	61
3.2. EVALUATION PROCESS.....	61
3.2.1. Assessment procedures and organization of the test	61
3.2.2. Criteria for the assessment of professional competencies	63
3.2.3. Assessment of cross-cutting competencies.....	67
3.2.4. Conditions for the presence and intervention of the jury.....	68
3.2.5. Monitoring and confidentiality conditions during the assessment session	68

OVERVIEW OF THE DELIVERABLE

WP:	2
Task:	2.1 To design a model modular VET programme including WBL plan
Title:	EQF-Based Model VET Curriculum for Plastics Production Line Conductor

This document is structured in 3 main sections.

The first one describes the specifications of the plastics production line conductor qualification such as elaborated by the Upskill partners. It locates it in each partner's national educational system and in the EQF levels table. After defining and classifying different categories of skills, it establishes the qualification framework of the plastics production line conductor. An ECTS table presents the dispatching of European credit within the framework with a system of potential options for the specific technical themes. This section concludes on a very important element: the table of correspondence between the "competencies" such as identified in the recommendations of the WP1 "QUALIFICATIONS CURRICULA RESEARCH REPORTS" and the "units" constituting the qualification framework.

The different units of the qualification framework are detailed in the second section of the document: the "training curriculum". The units are classified in 3 categories: Units referring to the basic competencies (involving cross-cutting skills), units referring to common competencies (involving peripheral technical skills) and units referring to core competencies (involving specific high level technical skills). Each unit is presented in 4 sections:

1. a description of the unit
2. the performance criteria related to the unit
3. the recommended content required to deliver results in competency
4. a table stipulating in a precise manner the critical aspects of competency, the underpinning knowledge, technical, organizational and relational skills, the resources implications, the method and context of assessment

The third part of the document details the assessment scheme. In this part, we draw the attention of the reader to the fact that this assessment scheme has been largely inspired by the French assessment process defined in the "Technicien de production en plasturgie" certification repository. This can only be seen as an example since the certification regulation may vary from one partner's country to the other. As indicated in the objectives of the Upskill project, this certification relies mainly on competency demonstrations in front of a jury composed of professionals in activity.

LIST OF ABBREVIATIONS AND ACRONYMS

WP	Work Package
RNCP	National Register of vocational certifications (France)
VET	Vocational education and training which aims to equip people with knowledge, know-how, skills and/or competences required in particular occupations or more broadly on the labour market. Source: adapted from European Training Foundation, 1997.
EQF	Reference tool for describing and comparing qualification levels in qualifications systems developed at national, international or sectoral levels. <i>Comment:</i> the EQF's main components are a set of eight reference levels described in terms of learning outcomes (a combination of knowledge, skills and/or competences) and mechanisms and principles for voluntary cooperation. The eight levels cover the entire span of qualifications from those recognising basic knowledge, skills and competences, to those awarded at the highest level of academic, professional and vocational education and training. EQF is a translation device for qualification systems. Source: based on European Parliament and Council of the European Union, 2008.
IVET	Initial vocational and education training. General or vocational education and training carried out in the initial education system, usually before entering working life. Comments: 1. some training undertaken after entry into working life may be considered as initial training (such as retraining); 2. initial education and training can be carried out at any level in general or vocational education (full-time school-based or alternance training) or apprenticeship pathways. Source: Cedefop, 2008.
CVET	Continuing Education and Training. Education or training after initial education and training – or after entry into working life aimed at helping individuals to improve or update their knowledge and/or skills, acquire new skills for a career move or retraining, continue their personal or professional development. Continuing education and training is part of lifelong learning and may encompass any kind of education (general, specialised or vocational, formal or non-formal, etc.). It is crucial for the employability of individuals.
ECVET	The European Credit System for Vocational Education and Training. It is a technical framework which supports the transfer, recognition and accumulation of learning outcomes. ECVET provides a set of principles and tools that facilitate the process of learner recognition, with a view to achieving a qualification. Source: Erasmus plus, UK National agency.
WBL	Work Based Learning
QHSE	Quality Health Safety Environment
ECTS	European Credits Transfer System
ICT	Information and Communication Technology
TLV	Threshold Limit Values
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
IoT	Internet of Things

1. PLASTICS PRODUCTION LINE CONDUCTOR QUALIFICATION

The main objective of the training program is to properly prepare machine conductors for plastic injection moulding, blow moulding, pipe and profile extrusion, thermoforming, manufacturing of plastic composite and manufacturing of rubber compounds. The conductors should be capable to work as part of production in order to prepare equipment, set the right parameters, control the process, react to unforeseen problems in the process and to solve them in a real work environment.

The qualification consists of different competencies that include preparing moulds for composites production, setting parameters for production, operating injection moulding equipment, blowing moulding equipment, plastic extrusion equipment, manufacturing plastic composite equipment and rubber compounds equipment. It also includes competency to monitor process operations and finish products and components.

During the training, students are familiarized with the company's activities and specificity of the production, process technology, work instructions. Under this curriculum, students will also learn about quality, health, safety and environmental rules and regulations at work, Green skills, Lean manufacturing, Entrepreneurial skills. The student must comply with workplace practices and occupational safety requirements relevant to manufacturing. As it is indicated in the document "Detailed project description", this curriculum emphasizes a Work Based Learning process (WBL) as it is a fundamental aspect of vocational training. This is why the competency evaluation is at the heart of the assessment system that is described in this document.

The students, after the full theoretical training course and after completing the tasks provided for the practical training program, take the final qualification exam. The assessment process that is fully described in the "Assessment" section of this document. However, depending on the national regulation of each partner's country, it could be adapted. After successful qualification exam the student is awarded a diploma certifying the qualification of a plastic production line conductor.

The minimum and necessary education level to enter this program is lower secondary education plus a basic vocational program. Depending on the country of each partner, this level corresponds to:

- First 2-years "vocational program" (16 years old) in Belgium
- "Lower secondary program" (15 years old) in France
- "Basic education" (16 years old) in Finland
- "Lower secondary education" (16 years old) in Lithuania

The duration of the learning program is variable according to the specificities of each partner's state regulation. However it is based on a 1 year session, on a full-time or a part-time basis. The program includes practical training in the form of a company internship for the full-time basis and a part-time

work contract with a company for the part-time basis. The WBL principle is then preserved since, in each case, the learning process is activated in the training center and in the company.

Successful training path provides 60 ECTS credits. Student weekly workload – 40 academic hours. Practical training consists of around 70 percent training time. For the integrity of learning, theoretical training is integrated with practical training.

The level IV of Qualification level by EQF (European Qualifications Framework) is targeted though this program:

- **Knowledge:** Factual and theoretical knowledge in broad contexts within a field of work or study
- **Skills:** A range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study
- **Responsibility and autonomy:** Exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities

The program includes these supplementary competencies in addition to the core subjects:

- **Digital skills** for the digital economy - the ICT contribution to the plastics factories of the future will improve the efficiency, adaptability and sustainability of plastics manufacturing systems.
- Innovative approach to developing **transversal skills** (ability to think critically, planning and organization, problem solving and team-working skills): Vocational Education And Training program will include a module on lean manufacturing that will provide tools and processes to eliminate waste from the plastics manufacturing process resulting in improved efficiency, effectiveness, and profitability. Lean aims to shorten the time of order execution, reduce costs and improve work safety and quality.
- **Green skills** - developing specific skills required to move ahead in the circular economy, analyzing plastics value chain, resource and energy efficiency, "greening" manufacturing, products, consumption and end-of-life, resource management within the circular economy.

1.1. QUALIFICATION FRAMEWORK

The Qualification consists of the following units of competency:

1. BASIC COMPETENCIES¹

- 1.1. Participate in workplace communication
- 1.2. Contribute to team work

¹ The competencies of the basic modules can be acquired by integrating them into the core modules

- 1.3. Work as a professional (including principles and concepts of Green skills, Lean manufacturing, Entrepreneurial skills)
- 1.4. Apply quality, health, safety and environmental procedures
- 1.5. Diagnose and help solving a dysfunction on a plastic production line
- 1.6. Monitor, check, sort out, record

2. COMMON COMPETENCIES

- 2.1. Read, interpret and apply engineering drawings
- 2.2. Conduct a digitally operated system
- 2.3. Know main characteristics of plastic materials

3. CORE COMPETENCIES

- 3.1. Operate equipment for manufacturing of plastic composite
- 3.2. Operate injection moulding equipment
- 3.3. Operate blow moulding equipment
- 3.4. Operate plastic extrusion equipment
- 3.5. Operate thermoforming equipment
- 3.6. Operate equipment of manufacturing of rubber compounds
- 3.7. Monitor process operations (technology depends on the modules selected)
- 3.8. Finish products and components (technology depends on the modules selected)

Layout of module credits

N°	COMPETENCIES	UNIT	MODULES		ECTS CREDITS
1	COMMON COMPETENCIES	7	READ, INTERPRET AND APPLY ENGINEERING DRAWINGS		6
		8	CONDUCT A DIGITALLY OPERATED SYSTEM		6
		9	KNOW MAIN CHARACTERISTICS OF PLASTIC MATERIALS		6
2	CORE COMPETENCIES	10	Optional (3 out of 6)	OPERATE EQUIPMENT FOR MANUFACTURING OF PLASTIC COMPOSITES	10
		11		OPERATE INJECTION MOULDING EQUIPMENT	10
		12		OPERATE BLOW MOULDING EQUIPMENT	10
		13		OPERATE PLASTIC EXTRUSION EQUIPMENT	10
		14		OPERATE THERMOFORMING EQUIPMENT	10
		15		OPERATE MANUFACTURING EQUIPMENT FOR RUBBER COMPOUNDS	10
		16	MONITOR PROCESS OPERATIONS		6
		17	FINISH PRODUCTS AND COMPONENTS		6
TOTAL ECTS CREDITS					60

1.2. TABLE OF CORRESPONDENCE: COMPETENCIES (SEE DOCUMENT “Qualifications curricula research reports”) – UNITS

	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17
<p style="text-align: center;">UNITS</p> <p style="text-align: center;">COMPETENCES</p>	Participate in workplace communication	Contribute to team work	Work as a professional	Apply quality, health, safety and environmental procedures	Diagnose and help solving a dysfunction on a plastic production line	Monitor, check, sort out, record	Read, Interpret and Apply Engineering Drawings	Conduct a digitally operated system	Know main characteristics of plastic materials	Operate equipment for manufacturing of plastic composites	Operate injection moulding equipment	Operate blow moulding equipment	Operate plastic extrusion equipment	Operate thermoforming equipment	Operate equipment for manufacturing of rubber compounds	Monitor process operations (technology depends on the modules selected)	Finish products and components (technology depends on the modules selected)
Performing general plastic processing skills																	
Performing general tasks of plastic processing operator according to the listed processing technologies																	
Performing general plastic injection molding operator occupation tasks																	
Identifying companies that want to integrate circular economy concepts (5 steps)																	
Creating product life-cycles																	
Knowing how to develop and implement sustainable product and service ideas																	
Applying the principles of quality management systems																	
Evaluating production efficiency, profitability indicators																	
Performing general tasks of the plastic processing operator according to the principles of Lean applied to the above-mentioned plastic processing technologies																	

Explaining the areas of business creation, organization, specifics and legal regulation, evaluating differences and understanding the importance of theory for practical business organization																	
Responding to questions, illustrating and interpreting them in an unusual way, developing creative thinking, offering innovative ways to solve problems, to communicate and collaborate																	
Becoming at your own level, an actor in your company's development																	
Getting to know yourself, your way of life and career, developing the attitude to continual improvement, to achieve goals																	
Performing plastic product manufacturing safely (internal need for safe working)																	
Assessing the conditions of the workplace and the state of the work environment in terms of existing and potential occupational risk factors, applying protective measures against their effects																	

2. TRAINING CURRICULUM

2.1. UNITS RELATED TO BASIC COMPETENCIES

2.1.1. Unit 1 - PARTICIPATE IN WORKPLACE COMMUNICATION

Description: This unit covers the knowledge, skills and attitudes required to gather, interpret and convey information in response to workplace culture requirements

Performance criteria

1 Obtain and convey workplace information

- 1.1 Specific and relevant information is accessed from appropriate sources
- 1.2 Effective questioning, active listening and speaking skills are used to gather and convey information
- 1.3 Appropriate medium is used to transfer information and ideas
- 1.4 Appropriate non- verbal communication is used
- 1.5 Appropriate lines of communication with supervisors and colleagues are identified and followed
- 1.6 Defined workplace procedures for the location and storage of information are used
- 1.7 Personal interaction is carried out clearly and concisely

2 Participate in workplace meetings and discussions

- 2.1 Team meetings are attended on time
- 2.2 Own opinions are clearly expressed and those of others are listened to without interruption
- 2.3 Meeting inputs are consistent with the meeting purpose and established protocols
- 2.4 Workplace interactions are conducted in a courteous manner
- 2.5 Questions about simple routine workplace procedures and matters concerning working conditions of employment are tasked and responded to
- 2.6 Meetings outcomes are interpreted and implemented

3 Complete relevant work related documents

- 3.1 Range of forms relating to conditions of employment are completed accurately and legibly
- 3.2 Workplace data are recorded on standard workplace forms and documents
- 3.3 Basic mathematical processes are used for routine calculations
- 3.4 Errors in recording information on forms/ documents are identified and properly acted upon

3.5 Reporting requirements to supervisor are completed

Recommended content required to deliver results in competency:

Workplace communication participation

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Prepare written communication following Standard format of the organization	
2	Access information on using communication equipment	
3	Make use of relevant terms as an aid to transfer information on effectively	
4	Convey information on effectively adopting the formal or informal communication	
<i>Underpinning knowledge</i>		
1	Effective communication	
2	Different modes of communication	
3	Written communication	
4	Organizational policies	
5	Communication procedures and systems	
6	Technology relevant to the enterprise and the individual's work responsibilities	
<i>Underpinning technical skills</i>		
1	Follow simple spoken language	
2	Perform routine workplace duties following simple written notices	
4	Complete work related documents	
5	Estimate, calculate and record routine workplace measures	
6	Perform the four fundamental operations (addition, subtraction, division and multiplication)	
<i>Underpinning organizational skills</i>		
8	Gather and provide information in response to workplace requirements	
<i>Underpinning relational skills</i>		
3	Participate in workplace meetings and discussions	
7	Ability to relate to people of social range in the workplace	
<i>Resource implications</i>		

1	Personal computer with Internet and Multimedia	
2	Writing materials	
3	Telephone	
Method of assessment		
1	Direct observation	
2	Oral interview and written test	
Context of assessment		
1	Competency may be assessed individually in the actual workplace or through accredited institution	

2.1.2. Unit 2 - CONTRIBUTE TO TEAMWORK

Description: This unit covers the skills, knowledge and attitudes to identify role and responsibility as a member of a team.

Performance criteria

1 Describe the team's role and scope

- 1.1 The role and objective of the team is identified from available sources of information
- 1.2 Team parameters, reporting relationships and responsibilities are identified from team discussions and appropriate external sources

2 Identify own role and responsibility within the team

- 2.1 Individual role and responsibilities within the team environment are identified
- 2.2 Roles and responsibility of other team members are identified and recognized
- 2.3 Reporting relationships within team and external to team are identified

3 Work as a team member

- 3.1 Effective and appropriate forms of communications used and interactions undertaken with team members who contribute to known team activities and objectives
- 3.2 Effective and appropriate contributions made to complement team activities and objectives, based on individual skills and competencies and workplace context
- 3.3 Observed protocols in reporting using standard operating procedures
- 3.4 Contribute to the development of team work plans based on an understanding of team's role and objectives and individual competencies of the members.

Recommended content required to deliver results in competency:

Work in team environment

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Operate in a team to complete workplace activity	
2	Work effectively with others	
3	Convey information in written or oral form	
4	Select and use appropriate workplace language	
5	Follow designated work plan for the job	
6	Report outcomes	
<i>Underpinning knowledge</i>		
1	Communication process	
2	Team structure	
3	Team roles	
4	Group planning and decision making	
<i>Underpinning technical skills</i>		
1	Communicate appropriately, consistent with the culture of the workplace	
2	Distribute instructions	
<i>Underpinning organisational skills</i>		
1	Make sure that the proper information is available in the proper place	
<i>Underpinning relational skills</i>		
1	Collaborate to work teams in order to improve and optimize the production processes	
2	Accompany other operators in order to follow the manufacturing program	
3	Bring a technical support	
<i>Resource implications</i>		
1	Access to relevant workplace or appropriately simulated environment where assessment can take place	
2	Materials relevant to the proposed activity or tasks	
<i>Method of assessment</i>		
1	Observation of the individual member in relation to the work activities of the group	
2	Observation of simulation and or role play involving the participation of individual member to the attainment of organizational goal	
3	Case studies and scenarios as a basis for discussion of issues and strategies in teamwork	

Context of assessment		
1	Competency may be assessed in the workplace or in a simulated workplace setting	
2	Assessment shall be observed while task are being undertaken whether individually or in group	

2.1.3. Unit 3 - WORK AS A PROFESSIONAL

Description: This section includes knowledge, skills and attitudes to promote career growth and progress, green skills in green industry, entrepreneurial skills

Performance criteria

1 Integrate personal objectives with organizational goals

- 1.1 Personal growth and work plans are pursued towards improving the qualifications set for the profession
- 1.2 Intra- and interpersonal relationships are maintained in the course of managing oneself based on performance evaluation
- 1.3 Commitment to the organization and its goals is demonstrated in the performance of duties

2 Set and meet work priorities

- 2.1 Competing demands are prioritized to achieve personal, team and organizational goals and objectives
- 2.2 The concept of Lean Manufacturing is obviously applied at the work station
- 2.3 Resources are utilized efficiently and effectively to manage work priorities and commitments
- 2.4 Practices along economic use and maintenance of equipment and facilities are followed as per established procedures
- 2.5 Principles of circular economy, recycling and sustainability are applied at the work station
- 2.6 The principles of entrepreneurial skills are applied at the work station

3 Maintain professional growth and development

- 3.1 Trainings and career opportunities are identified and applied on job requirements
- 3.2 Recognitions are sought/received and demonstrated as proof of career advancement

3.3 Licenses and/or certifications relevant to job and career are obtained and renewed

Recommended content required to deliver results in competency:

Working as a professional

Critical aspects of competency		<i>Comments</i>
1	Attain job targets within key result areas	
2	Maintain intra and interpersonal relationship in the course of managing oneself based on performance evaluation	
3	Complete trainings and career opportunities which are based on the requirements of the industries	
4	Acquire and maintain licenses and/or certifications according to the requirement of the qualification	
5	Apply the core principals of lean manufacturing	
6	Implement Green Skills, the type of Green Skills demanded by Green Industry	
Underpinning knowledge		
1	Work values and ethics	
2	Company policies	
3	Company operations, procedures and standards	
4	Fundamental rights at work including gender sensitivity	
5	Tools and processes to eliminate waste from the plastics manufacturing process resulting in improved efficiency, effectiveness, and profitability	
6	How can green industrial skills be defined and how can green practices and technology help to move the products, processes, and systems developed by society towards sustainability?	
7	Key elements of the Circular Economy, policy issues, life-cycle thinking, theoretical and practice approaches to implementing changes, renewable energies and energy efficiency, environmental impact and energy costs of business activity, respect for nature, shared responsibility	
8	Interpersonal skills, motivation, communication, teamwork, adaptability, planning, problem solving	
Underpinning technical skills		
1	Evaluate LEAN production efficiency improvement methodology	
2	Evaluate the methodology for increasing the efficiency of TOC production	
3	Evaluate SIX SIGMA production efficiency improvement methodology;	
4	Diagnose production company problems and choose the right tool to increase production efficiency	

5	Evaluate production cost and actual production costs, analyse other financial ratios at the moment	
6	Performing general tasks of the plastics production line conductor according to the principles of Lean	
7	Evaluate the external and internal business environment	
8	Compare and evaluate different forms of business organization, distinguishing their advantages and disadvantages	
9	Describe and calculate business paid taxes	
10	Evaluate and validate new business ideas	
<i>Underpinning organizational skills</i>		
1	Demonstrate proficient sustainability skills (economic, social and environmentally sustainable products and services)	
2	Analysis of installed new technologies	
3	Adopt an active posture in the company in order to contribute to its development	
4	Develop a strong sense of curiosity which will bring opportunities to improve the manufacturing processes and the organization	
5	Show proactivity to bring a solid contribution to innovative projects	
6	Have the ability to become project leader at your own level of responsibility	
7	Prepare a career portfolio	
<i>Underpinning relational skills</i>		
1	Publish results in short meetings	
2	Reveal the entrepreneurial skills and abilities of the group and its members	
3	Become a teamwork facilitator	
4	Become a source of proposals in the company	
<i>Resource implications</i>		
1	Workplace or assessment location	
2	Case studies/scenarios	
<i>Method of assessment</i>		
1	Portfolio Assessment	
2	Interview	
3	Simulation/Role-plays	
4	Observation	
5	Exams and Tests	
<i>Context of assessment</i>		

1	Competency may be assessed in the workplace or in a simulated workplace setting	
---	---	--

2.1.4. Unit 4 - APPLY Q.H.S.E. RULES AND PROCEDURES

Description: This unit covers the outcomes required to comply with regulatory and organizational requirements for quality, health, safety and environment at work.

Performance criteria

1 Identify hazards and risks

- 1.1 Safety regulations and workplace safety and hazard control practices and procedures are clarified and explained based on organization procedures
- 1.2 Hazards/risks in the workplace and their corresponding indicators are identified to minimize or eliminate risk to coworkers and the line conductor himself, workplace and environment in accordance with organization procedures
- 1.3 Contingency measures during workplace accidents, fire and other emergencies are recognized and established in accordance with organization procedures

2 Evaluate hazards and risks

- 2.1 Terms of maximum tolerable limits which when exceeded will result in harm or damage are identified based on threshold limit values (TLV)
- 2.2 Effects of the hazards are determined
- 2.3 OHS issues and/or concerns and identified safety hazards are reported to designated personnel in accordance with workplace requirements and relevant workplace OHS legislation

3 Control hazards and risks

- 3.1 Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace are consistently followed
- 3.2 Procedures for dealing with workplace accidents, fire and emergencies are followed in accordance with organization OHS policies
- 3.3 Personal protective equipment (PPE) is correctly used in accordance with organization OHS procedures and practices
- 3.4 Appropriate assistance is provided in the event of a workplace emergency in accordance with established organization protocol

4 Maintain OHS awareness

4.1 Emergency-related drills and trainings are participated in as per established organization guidelines and procedures

4.2 OHS personal records are completed and updated in accordance with workplace requirements

Recommended content required to deliver results in competency:

Practice occupational health and safety procedures

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Explain clearly established workplace safety and hazard control practices and procedures	
2	Identify hazards/risks in the workplace and its corresponding indicators in accordance with company procedures	
3	Recognize contingency measures during workplace accidents, fire and other emergencies	
4	Identify terms of maximum tolerable limits based on threshold limit value	
5	Follow Occupational Health and Safety (OHS) procedures for controlling hazards/risks in workplace	
6	Use Personal Protective Equipment (PPE) in accordance with company OHS procedures and practices	
7	Complete and update OHS personal records in accordance with workplace requirements	
<i>Underpinning knowledge</i>		
1	OHS procedures and practices and regulations	
2	PPE types and uses	
3	Personal hygiene practices	
4	Hazards/risks identification and control	
5	Threshold limit value	
6	OHS indicators	
7	Organization safety and health protocol	
8	Safety consciousness	
9	Health consciousness	
<i>Underpinning technical skills</i>		
1	Practice of personal hygiene	
2	Identify the electrical, mechanical and thermal hazards on the production	

	facility	
Underpinning organisational skills		
1	Priorize the hygien, safety, environment and health elements of all actions for oneself and other persons and for the environment.	
2	Follow rules towards hygien, safety, environment and health at work applicable in the environment in question	
Underpinning relational skills		
1	Enforce rules towards hygien, safety, environment and health at work applicable in the environment in question	
Resource implications		
1	Workplace or assessment location	
2	OHS personal records	
3	Personal Protective Equipment	
4	Health records	
Method of assessment		
1	Portfolio Assessment	
2	Interview	
3	Case Study/Situation	
Context of assessment		
1	Competency may be assessed in the workplace or in a simulated workplace setting	

2.1.5. Unit 5 - DIAGNOSE AND HELP SOLVING A DYSFUNCTION ON A PLASTIC PRODUCTION LINE

Description: From the alerts noticed on the installation, from an oral request of an operator of production and with the help of the technical information of the installation, the manufacturing file, the history of production and known problems, react according to the alarm of the installation, configure the installation for the intervention, diagnose the origin of the dysfunction, estimate its incidence over the delivery deadline, repair the installation if the curative operation is short and simple, or appeal to the maintenance department and help it in its task, in order to pursue the production.

Suggest and argue, if necessary and in dialogue with the quality department and one's manager, the starting up and the functioning in degraded mode of the production line.

Fill in the documents of production monitoring. Report the intervention to the manager.

Performance criteria

1 Actual causes are identified and analyzed.

- 1.1 HSE modus operandi, procedures and rules are applied and followed.
- 1.2 Technical manufacturing documents are analysed and exploited.
- 1.3 The failing function, on the machine, the tools or the equipment, is identified with method.

2 The proposed solutions are realistic and relevant.

- 2.1 The work is carried out in a time compatible with the delivery time.
- 2.2 Decisions and precautionary measures are taken appropriately.
- 2.3 Simple malfunctions are solved.

3 The effectiveness of the solution is measured and the gaps are processed.

- 3.1 The production monitoring documents and the instructions booklets are filled in, legible and usable.
- 3.2 Information transmitted on production tracking documents, computer terminal, touch screen are reliable.
- 3.3 Any incident or significant event is analysed and reported to the line manager; the impact on the production is analysed and measured.

4 The return to normal operation is carried out.

- 4.1 The workstation is cleared, tidy and cleaned.

Recommended content required to deliver results in competency:

Diagnosing and solving a problem

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Identify and analyse the causes of dysfunction	
2	Elaborate realistic and relevant solutions	
3	Report orally and by writing precise and pertinent information about the dysfunction	
4	Assure the return to normal operation in proper conditions	
<i>Underpinning knowledge</i>		
1	Rules relating to gestures and postures at work	
2	Safety systems and main components of the means of production	
3	Knowledge of the organ technology of plastic processing machine	
4	Technologies and their risks: automatics, electricity, mechanics, pneumatics, robotics, hydraulics	

5	Different energies and their dangers	
6	Various electrical and mechanical clearances	
7	Organization of a maintenance department	
8	Different types and levels of maintenance	
9	Maintenance response documents	
10	Industrial cleaning products and their use	
11	Different intervention tools, their use and hazards	
12	Machine control console	
13	Lubrication and lubrication techniques	
14	Temperature and pressure measuring equipment technology and operation	
15	TPM (Total productive maintenance)	
16	Operating modes of production means such as "automatic", "setup"	
17	Production management software and ERP	
18	Customer-supplier relationship	
<i>Underpinning technical skills</i>		
1	Apply a modus operandi, procedure, HSE rule	
2	Use and make use of personal protective equipment	
3	Position the installation in the recommended state	
4	Identifying overall the faulty function of a machine	
5	Detect manufacturing anomaly related to tooling	
6	Analyze and assess a risk due to the nature of a defective item	
7	Read and compare energy indication results against a given data: pressure, temperature	
8	Cleaning and lubricating a mechanical element	
9	Alert on electrical, mechanical, pneumatic, hydraulic and thermal hazards	
10	Enter a result or indication on a production tracking document, on a computer terminal or on a touch screen	
11	Maintain order and cleanliness, clear a workstation	
12	Sort the waste	
<i>Underpinning organizational skills</i>		
1	Organizing the workspace	
2	Follow rigorous methodological processes	
<i>Underpinning relational skills</i>		
1	Communicate orally and in writing with the environment	

2	Work with a team spirit	
3	Take into account the information transmitted	
4	Adapt to different situations	
5	Make decisions and be responsive	
6	Assure reporting	
Resource implications		
1	Procedures	
2	Manufacturing file	
3	Tools, peripherals and means of product	
4	Manufacturing monitoring documents or terminal	
Method of assessment		
1	Portfolio Assessment	
2	Interview	
3	Case Study/Situation	

2.1.6. Unit 6 - MONITORING, CHECKING, SORTING OUT, RECORDING

Description: In order to achieve a high level of performance, all along his activity of production, the plastics production line conductor is constantly in charge of monitoring, checking, sorting out and recording tasks .

The objective of this unit is to allow the trainee to develop regular skill in each one of these activities all along a continuous process.

Performance criteria

1 Monitoring

1.1 The monitoring of a process is assured in a preventive manner

2 Checking

2.1 Checking procedures and modus operandi are followed

2.2 Basic measurement tools are properly used

3 Sorting out

3.1 Parts with defects are properly identified and put aside

4 Recording

4.1 Critical information is correctly recorded by writing or on a digital terminal

4.2 Deviations (dimension, aspect, shape, value,...) are detected and reported orally or by writing

Recommended content required to deliver results in competency:

Monitoring, checking, sorting out, recording

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Maintain a high level of vigilance for a predefined period of time	
2	Perform simple tasks rigorously	
3	Perform practical tasks accurately	
4	Demonstrate skill in manual tasks	
5	Express thoughts clearly and succinctly orally and in writing	
<i>Underpinning knowledge</i>		
1	Use properly units of measure and the calculation of the conversions of unit	
2	Apply and make apply procedures, modus operandi	
3	Use properly production documents (Control card, control screen)	
<i>Underpinning technical skills</i>		
1	Use a standard measuring tool	
2	Sort parts according to different criteria	
3	Handle the input screens of a control console	
4	Enter a result on a tracking document, on a computer terminal	
5	Verify and control the reference of a component	
6	Check the proper condition and operation of a device	
7	Fill out an incident report sheet	
<i>Underpinning organizational skills</i>		
1	Take into account information received	
2	Apply a procedure	
3	Respond to incidents	
4	Prioritize operations	
<i>Underpinning relational skills</i>		
1	Assure reporting	
<i>Resource implications</i>		
1	Measurement tools	
2	Production documents	

3	Process	
4	Monitoring tools	
Method of assessment		
1	Portfolio Assessment	
2	Interview	
3	Case Study/Situation	

2.2. UNITS RELATED TO COMMON COMPETENCIES

2.2.1. Unit 7 - READ, INTERPRET AND APPLY ENGINEERING DRAWINGS

Description: This unit deals with identifying, interpreting and applying specifications from engineering prints or drawings that provide measurements of the product and pattern that is to be produced.

Performance criteria

1 Identify and access engineering drawings/specification

- 1.1 Appropriate engineering drawings are identified and accessed as per job requirements
- 1.2 Version and date of drawing is checked to ensure correct specification and procedure are identified

2 Interpret drawings

- 2.1 Relevant dimensions and sections of the drawings/ specifications are located in relation to the work to be conducted
- 2.2 Information in the manual is interpreted in accordance to industry practices
- 2.3 Drawings are read and compiled using computer technology

3 Apply information in the drawings & specifications

- 3.1 Engineering drawing is interpreted according to job requirements
- 3.2 Work steps are correctly identified in accordance with the specifications in the drawings
- 3.3 Dimensional data and shape are applied according to the given task

4 Store drawings

4.1 The drawings and specification are stored properly to ensure prevention of damage, ready access and updating of information when required in accordance with company requirements

Recommended content required to deliver results in competency:

Read, interpret and apply engineering drawings

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Identify and accessed drawings/specification	
2	Interpret drawings	
3	Apply information in drawings	
4	Store drawings	
<i>Underpinning knowledge</i>		
1	Types of drawings used in plastic manufacturing industry	
2	Identification of symbols used in the drawings	
3	Identification of units of measurements	
4	Unit conversion	
<i>Underpinning technical skills</i>		
1	Reading and comprehension skills required to identify and interpret engineering drawings and specifications	
2	Exploit records of technical manufacturing documents	
3	Evaluate a result visually or tactilely against a reference	
4	Properly use computer technology	
<i>Underpinning organizational skills</i>		
1	Accessing information and data	
2	Follow rigorous methodological processes	
3	Analyze, synthesize and memorize information from a variety of sources	
<i>Underpinning relational skills</i>		
1	Communicate orally and in writing with the environment	
<i>Resource implications</i>		
1	All drawings/engineering specifications relative to plastic manufacturing	
2	Job order, requisitions	
3	Product sample	

4	Computer with special software	
Method of assessment		
1	Observation with questioning	
2	Interview	
3	Practical work with a computer	
Context of assessment		
1	Assessment must be undertaken in accordance with the endorsed assessment guidelines	
2	Assessment may be conducted in the workplace or a simulated environment	

2.2.2. Unit 8 - CONDUCT A DIGITALLY OPERATED SYSTEM

Description: The plastics production line incorporates various technologies to help the line conductor in his daily tasks. Thanks to the connected tools, the line conductor can now monitor his line remotely. Thus, with the internet of things (IoT), he will no longer need to carry out certain maintenance operations because he will be directly alerted by the machine in case of malfunction via internet connection.

This unit covers identification and use of the automated system and its individual parts. The conductor will be able to understand the consequences of his actions on a console either on the plastic manufacturing machine or on the eventually associated robot, through the digital / analog interfaces.

Performance criteria

1 Understand the principles of an automated system

- 1.1 Principles of a programmable digital system
- 1.2 Principles of operation, devices, schemes of automated production system
- 1.3 Principles of measurement acquisition and information treatment
- 1.4 Elements of automation systems are known

2 Perform process parameters adjustments with a console

- 2.1 The proper parameters are identified and displayed on the console
- 2.2 Process parameters are correctly adjusted
- 2.3 The effect of the modification is controlled

3 Detect defects of automatic system with a console

3.1 The defect is identified through the console and reported to the appropriate services

Recommended content required to deliver results in competency:

Perform monitoring of automatic equipment operation and quality

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Interact with a programmed device	
2	Exploit the information available on a console	
3	Adjust parameters on a console	
4	Identify defective parts from the information of the console	
<i>Underpinning knowledge</i>		
1	Principles of a digitally programmed system	
2	Principles of operation, devices, schemes of automated production system	
3	Principles of measurement acquisition and information treatment	
4	Elements of automation systems	
5	Sensor types, constructions, operating principles and technical characteristics	
<i>Underpinning technical skills</i>		
1	Navigate through the console pages in order to find the proper parameter	
2	Monitor equipment operation and read process parameters from a console	
3	Adjust process parameters on a console	
4	Adjust, start and stop a robot in accordance with the process	
<i>Underpinning organizational skills</i>		
1	Plan own work including predicting consequences and identifying improvements	
2	Complete work related digital documents	
3	Gather and provide information in response to workplace requirements	
<i>Underpinning relational skills</i>		
1	Report all incidents detected through the console	
<i>Resource implications</i>		
1	Access to a range of automatic system and equipment	
2	Tools, equipment and workplace relevant with the requirements for the job	
3	Consoles	
4	Modus operandi and procedures manuals	

Method of assessment		
1	Direct observation with questioning	
2	Written assessment	
Context of assessment		
1	Competency may be assessed individually in the actual workplace or in a simulated workplace environment	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribed outcome must be achieved without direct supervision	

2.2.3. Unit 9 - KNOW MAIN CHARACTERISTICS OF PLASTIC MATERIALS

Description: This unit deals with the understanding of the history of plastics, the different categories and application fields, their structure and main characteristics, and the recycling issue.

It also addresses the behavior of plastic materials and the usual defects that can occur during a transformation process.

Performance criteria

1 Identify general used plastic material (Characterization)

- 1.1 Origin and composition of plastics (History, method of production, thermoplastics, thermosets) are known
- 1.2 General chemical and physical characteristics of plastic materials can be described
- 1.3 The principles of chemical transformation of plastic materials are known
- 1.4 Properties of polymers (physic-chemical characteristics of a polymer, relationship between structure and properties, consequences of the presence of additives) can be explained

2 Detect and report usual defects of plastic part during production

- 2.1 Behavior of plastics during process (Injection, extrusion, blow, thermoforming) is known
- 2.2 Defect on a plastic part is detected (based on manufacturing specifications) and reported

Recommended content required to deliver results in competency:

Knowledge of plastic materials

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Identify a plastic material in a production context	
2	Detect and report a usual defect of a plastic part during production	
<i>Underpinning knowledge</i>		
1	Composition of thermoplastics and thermosetting materials	
2	Properties of polymers (Physic-chemical characteristics, relation between structure and properties, presence of additives, transformation conditions)	
3	Identification of plastic materials	
4	Recycling and biodegradability	
<i>Underpinning technical skills</i>		
1	Identify a plastic material on package bags	
2	Identify a usual defect on a plastic part	
<i>Underpinning organizational skills</i>		
1	None	
<i>Underpinning relational skills</i>		
1	Ability to participate in a discussion about plastic materials in the context of production team of plastic parts	
<i>Resource implications</i>		
1	Access to a documentation	
2	Access to technical data sheets	
<i>Method of assessment</i>		
1	Written assessment	
2	Direct Observation with questioning	
<i>Context of assessment</i>		
1	Competency may be assessed in group (written test) and individually in the actual workplace or a simulated workplace environment	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribe outcome must be able to achieve without direct supervision	

2.3. UNITS RELATED TO CORE COMPETENCIES

2.3.1. *Unit 10 - OPERATE EQUIPMENT FOR MANUFACTURING OF PLASTIC COMPOSITES*

Description: This competency covers two important phases composing the process of manufacturing of composite parts:

- 1) the preparation of the moulds, materials and equipments for composite production. This phase includes the inspection and repair of defects in the mould surface.
- 2) The operations of manufacturing of composite parts, for different processes: injection moulding (short fiber thermoplastics, long fiber thermoplastics), hand lay-up, spray lay-up, infusion, resin transfer moulding, compression moulding. This phase covers also the resolution of routine problems during the manufacturing process.

This competency is typically performed by line conductors working either independently or as a part of a work team.

Performance criteria

1 Check work requirements

- 1.1 Work requirements are identified based on the procedures
- 1.2 Product, materials and equipment requirements are identified based on the job requirements.
- 1.3 Hazards are recognized and precautionary steps are adopted to ensure workers safety
- 1.4 Requirements are checked with supervisor/appropriate person if they do not comply with best practice

2 Conduct pre start checks as required

- 2.1 Safety gates and guards are checked if in position and in working condition
- 2.2 Raw materials are checked for correctness based on product specifications.
- 2.3 Other pre-start checks are undertaken in accordance with procedures

3 Operate equipment

- 3.1 Surfaces are prepared according to industry standard procedures
- 3.2 Mould release system is applied to mould surfaces as per manufacturer's specifications
- 3.3 Masking tape and other materials are applied to mould according to standard operating procedures.
- 3.4 Machine is started safely and correctly when required based on equipment operating instruction

- 3.5 Process is implemented within the required limits in order to meet product specifications
- 3.6 Composite plastic products are collected and stored as required
- 3.7 Product/process are checked if within specification/ as to required quality standard
- 3.8 Supply of materials is maintained as required
- 3.9 Logs and records are completed according to the requirements
- 3.10 Collection and reprocessing/discarding scrapping/trimming of materials are undertaken in accordance with procedures
- 3.11 Equipment and work area are cleaned up in accordance with company procedures
- 3.12 Equipment is stopped/paused in an emergency, following workplace and emergency procedures

4 Resolve routine problems

- 4.1 Routine problems/ faults likely to occur are identified during the operation and appropriate precautionary measures are readied according to company standard operating procedures.
- 4.2 Appropriate records and log books of equipment operations are ensured and maintained according to company procedures
- 4.3 Non-routine problems are identified and reported to designated person

Recommended content required to deliver results in competence:

Operate equipment for manufacturing of composite plastics

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Check work requirements	
2	Conduct pre-start checks as required	
3	Operate equipment	
4	Take appropriate action to resolve faults or report faults to appropriate personnel	
5	Follow all safety procedures (process and materials)	
<i>Underpinning knowledge</i>		
1	Understand effects of contamination on surface quality	
2	Kinds of equipment, tools and consumables required to deliver the specified mould surface	
3	Different types of mould release systems	
4	Different application techniques for the mould release systems used	

5	Typical problems with each mould release system	
6	Faults caused by materials, contaminants and equipment	
7	Operation of manufacturing of composite plastic and components	
8	Correct use of equipment, materials, processes and procedures	
9	Production workflow sequences and materials demand	
10	Different reasons for checking process control panels and reporting readings which do not conform to the work instructions	
11	Potential effects of variations in raw materials and equipment operation in relation to quality of product	
12	Waste management and importance of reusing nonconforming products wherever possible	
13	Factors which may affect product quality or production output are identified	
14	Possible causes of for routine production faults	
15	Approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup	
<i>Underpinning technical skills</i>		
1	Prepare surfaces	
2	Identify repairs and take appropriate action	
3	Apply mold release system	
4	Mask-up mould	
5	Explain and implement emergency shutdown procedures	
6	Ensure Composite Plastic standards are met consistently	
7	Identify materials (Matrix, reinforcement, additives)	
8	Identify problems and take appropriate action	
9	Monitor equipment operation and product quality	
10	Handle safely products and materials, read relevant safety information and apply safety precautions appropriate to the task	
11	Pause equipment, or shut down equipment in abnormal circumstances	
12	Monitor equipment operation and surface quality	
13	Select and correctly use equipment, materials, processes and procedures	
14	Use PPE, safely handle products and materials, read relevant safety information and apply safety precautions appropriate to the task	
15	Perform routine workplace duties following simple written notices	

<i>Underpinning organizational skills</i>		
1	Plan own work including predicting consequences and identifying improvements	
2	Complete work related documents	
3	Gather and provide information in response to workplace Requirements	
4	Read and interpret correctly the operating procedures and work instructions	
<i>Underpinning relational skills</i>		
1	Participate in workplace meetings and discussions	
2	Ensure upstream and downstream communication is timely and effective	
<i>Resource implications</i>		
1	Access to a range of mould release system and equipment	
2	A bank of scenarios and questions	
3	Tools, equipment and workplace relevant with the requirements for the job	
4	Supplies and consumable materials	
5	Engineering manuals	
<i>Method of assessment</i>		
1	Direct Observation with questioning	
2	Oral interview and written test	
3	Portfolio assessment	
<i>Context of assessment</i>		
1	Competency may be assessed individually in the actual workplace or a simulated workplace environment	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribe outcome must be able to achieve without direct supervision.	

2.3.2. Unit 11 - OPERATE INJECTION MOULDING EQUIPMENT

Description: This competency covers the operation of injection moulding equipment and resolving routine problems to produce plastic products.

This competency is typically performed by operators working either independently or as a part of a team

Performance criteria

1 Check work requirements

- 1.1 Work requirements are identified based on procedures
- 1.2 Product, materials and equipment requirements are identified based on the job requirements.
- 1.3 Hazards are recognized and precautionary steps are adopted to ensure safety
- 1.4 Requirements are checked with supervisor/appropriate person if found not in accordance with normal practice

2 Conduct pre-start checks as required

- 2.1 Safety gates and guards are checked if in position and in working condition
- 2.2 Raw materials are checked for correctness based on product specifications.
- 2.3 Other pre-start checks are undertaken in accordance with procedures

3 Operate equipment

- 3.1 Machine is started safely and correctly when required based on equipment operating instruction
- 3.2 Process is check if within the required limits based on product specifications
- 3.3 Moulded products are collected and stored as required
- 3.4 Product/process are checked if within specification/ as to required quality standard
- 3.5 Supply of materials is maintained as required
- 3.6 Logs and records are completed when required
- 3.7 Collection and reprocessing/discarding scrapping/trimming of materials are undertaken in accordance with procedures
- 3.8 Equipment and work area are cleaned up in accordance with company procedures
- 3.9 Equipment is stopped/paused in an emergency, following workplace and emergency procedures

4 Resolve routine problems

- 4.1 Routine problems/ faults likely to occur are identified during the operation and appropriate precautionary measures are prepared according to company standard operating procedures.

4.2 Appropriate records and log books of equipment operations are up to date and maintained according to company procedures

4.3 Non-routine problems are identified and reported to the person in charge in order to get them solved quickly

Recommended content required to deliver results in competency:

Operate injection moulding equipment

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Check work requirements	
2	Conduct pre-start checks as required	
3	Operate equipment	
4	Resolve routine problems	
5	Take appropriate action to resolve faults or report faults to appropriate personnel	
6	Explain and implement emergency shutdown procedures	
7	Ensure Injection molding production standards are met consistently	
8	Ensure upstream and downstream communication is timely and effective	
9	Read and interpret correctly the operating procedures and work instructions	
10	Identify problems and take appropriate action	
11	Follow all safety procedures	
<i>Underpinning knowledge</i>		
1	Operation of injection molding equipment and components	
2	Production workflow sequences and materials demand	
3	Different reasons for checking process control panels and reporting readings which do not conform to the work instructions	
4	Potential effects of variations in raw materials and equipment operation in relation to quality of product	
5	Waste management and importance of reusing nonconforming products wherever possible	
6	Correct selection and use of equipment, materials, processes and procedures	
7	Factors which may affect product quality or production output and appropriate	
8	Possible causes of routine injection molding faults	
9	Approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup	

<i>Underpinning technical skills</i>		
1	Monitor equipment operation and product quality	
2	Handle safely products and materials, read relevant safety information and apply safety precautions appropriate to the task	
3	Pause equipment, or shut down equipment in abnormal circumstances	
<i>Underpinning organizational skills</i>		
1	Plan own work including predicting consequences and identifying improvements	
2	Complete work related documents	
3	Gather and provide information in response to workplace Requirements	
<i>Underpinning relational skills</i>		
1	Participate in workplace meetings and discussions	
<i>Resource implications</i>		
1	A bank of scenarios and questions	
2	Tools, equipment and workplace relevant with the requirements for the job	
3	Supplies and consumable materials	
4	Engineering manuals	
<i>Method of assessment</i>		
1	Direct Observation with questioning	
2	Oral interview and written test	
3	Portfolio assessment	
<i>Context of assessment</i>		
1	Competency may be assessed individually in the actual workplace or a simulated workplace environment	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribe outcome must be able to achieve without direct supervision	

2.3.3. Unit 12 - OPERATE BLOW MOULDING EQUIPMENT

Description: This competency covers the operation of blow moulding equipment and the resolving of routine problems to procedure.

This competency is typically performed by operators working either independently or as part of a team

Performance criteria

1 Check work requirements

- 1.1 Work requirements are identified based on procedures
- 1.2 Product, materials, tools and equipment are identified based on job requirements
- 1.3 Hazards are recognized and steps required to ensure safety are considered and adopted.
- 1.4 Requirements are checked with supervisor/appropriate person if found not to be in accordance with normal practice

2 Conduct required pre-start checks

- 2.1 Safety gates and guards are checked if in position and in working condition
- 2.2 Raw materials are check based on listed specification
- 2.3 Other pre-start checks are undertaken in accordance with procedures

3 Operation equipment

- 3.1 Condition of equipment is checked and raw materials are introduced as required by procedures
- 3.2 Product/process is checked if within required limits based on work instruction
- 3.3 Moulded products are collected and stored as required
- 3.4 Product/process is checked if within specification/ as to required quality standard
- 3.5 Supply of materials is maintained as required
- 3.6 Logs and records are completed as required and in accordance with company standard operating procedures
- 3.7 Materials are collected, reprocessed/discarded, scraped/trimmed in accordance with procedures
- 3.8 Equipment and work area is clean up in accordance with procedures
- 3.9 Equipment operation is stopped/paused in an emergency, following workplace and emergency procedures

4 Resolve routine problems

- 4.1 Faults that likely to occur are identified during the operation
- 4.2 Causes of routine problems/faults are identified and actions are taken on in accordance with procedures

4.3 Appropriate records and log books of equipment operations are maintained to meet procedures

4.4 Non-routine problems and report are identified including persons designated to respond to problems.

Recommended content required to deliver results in competency:

Operate blow molding equipment

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Check work requirements and recognize the importance of material properties and qualities	
2	Apply approved procedures	
3	Take appropriate action to resolve faults or report faults to appropriate personnel	
4	Explain and implement emergency shutdown procedures	
5	Ensure blow moulding production standards are met consistently	
6	Ensure upstream and downstream communication is timely and effective	
7	Read and interpret correctly the operating procedures and work instructions	
8	Identify problems and take appropriate action	
9	Follow all safety procedures	
<i>Underpinning knowledge</i>		
1	Procedure in operation of blow moulding equipment and components	
2	Production workflow sequences and materials demand	
3	Reasons for checking process control panels and reporting readings which do not conform to the work instructions	
4	Approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup	
5	Potential effects of variations in raw materials and equipment operation in relation to quality of product	
6	Waste management and importance of reusing non-conforming products wherever possible	
7	Correct selection and use of equipment, materials, processes and procedures	
8	Different factors which may affect product quality or production output and appropriate	
9	Possible causes of routine blow moulding faults	
10	Honesty in the workplace, perseverance and safety awareness	

<i>Underpinning technical skills</i>		
1	Monitor equipment operation and product quality	
2	Handle safely products and materials, read relevant safety information and apply safety precautions appropriate to the task	
3	Pause equipment, or shut down equipment in abnormal circumstances	
<i>Underpinning organizational skills</i>		
1	Plan own work including predicting consequences and identifying improvements	
2	Complete work related documents	
3	Gather and provide information in response to workplace Requirements	
<i>Underpinning relational skills</i>		
1	Participate in workplace meetings and discussions	
<i>Resource implications</i>		
1	A bank of scenarios and questions	
2	Tools, equipment and workplace relevant with the requirements for the job	
3	Supplies and consumable materials	
4	Engineering manuals	
<i>Method of assessment</i>		
1	Direct Observation with questioning	
2	Written examination	
3	Portfolio	
<i>Context of assessment</i>		
1	Competency may be assessed individually in the actual workplace or a simulated workplace environment.	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribe outcome must be able to achieve without direct supervision	

2.3.4. Unit 13 - OPERATE PLASTIC EXTRUSION EQUIPMENT

Description: This competency covers the operation of plastic sheet and profile extrusion equipment and the resolving routine problems to produce plastic products.

This competency is typically performed by operators working either independently or as a part of a work team

Performance criteria

1 Check work requirements

- 1.1 Work requirements are identified based on procedures
- 1.2 Product, materials and equipment requirements are identified based on the job requirements.
- 1.3 Hazards are recognized and precautionary steps are adopted to ensure safety
- 1.4 Requirements are checked with supervisor/appropriate person if found not in accordance with normal practice

2 Conduct required pre-start checks

- 2.1 Safety gates and guards are checked if in position and in working condition
- 2.2 Raw materials are checked for correctness based on product specifications.
- 2.3 Other pre-start checks are undertaken in accordance with appropriate procedures

3 Operate equipment

- 3.1 Machine is started safely and correctly when required based on equipment operating instruction
- 3.2 The process is checked for required limits within product specifications
- 3.3 Extruded products are collected and stored as required
- 3.4 Product/process are checked if within specification/ as to required quality standard
- 3.5 Supply of materials is maintained as required
- 3.6 Logs and records are completed when required
- 3.7 Collection and reprocessing/discarding scrapping/trimming of materials are undertaken in accordance with procedures
- 3.8 Equipment and work area are cleaned up in accordance with company procedures
- 3.9 Equipment is stopped/paused in an emergency, following workplace and emergency procedures

4 Resolve routine problems

- 4.1 Routine problems/ faults are identified during the operation and appropriate precautionary measures are readied according to company standard operating procedures.
- 4.2 Appropriate records and log books of equipment operations are ensured and maintained according to company procedures

4.3 Non-routine problems are identified and reported to designated person

Recommended content required to deliver results in competency:

Operate plastic extrusion equipment

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Check work requirements	
2	Conduct pre-start checks as required	
3	Operate equipment	
4	Resolve routine problems	
5	Take appropriate action to resolve faults or report faults to appropriate personnel	
6	Explain and implement emergency shutdown procedures	
7	Ensure Extrusion production standards are met consistently	
8	Ensure upstream and downstream communication is timely and effective	
9	Read and interpret correctly the operating procedures and work instructions	
10	Identify problems and take appropriate action	
11	Follow all safety procedures	
<i>Underpinning knowledge</i>		
1	Operation of extrusion equipment and components	
2	Production workflow sequences and materials demand	
3	Different reasons for checking process control panels and reporting readings which do not conform to the work instructions	
4	Potential effects of variations in raw materials and equipment operation in relation to quality of product	
5	Waste management and importance of reusing nonconforming products wherever possible	
6	Correct selection and use of equipment, materials, processes and procedures	
7	Factors which may affect product quality or production output and appropriate	
8	Possible causes of routine extrusion faults	
9	Approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup	
<i>Underpinning technical skills</i>		
1	Monitor equipment operation and product quality	
2	Handle safely products and materials, read relevant safety information and apply safety precautions appropriate to the task	

3	Pause equipment, or shut down equipment in abnormal circumstances	
Underpinning organizational skills		
1	Plan own work including predicting consequences and identifying improvements	
2	Complete work related documents	
3	Gather and provide information in response to workplace Requirements	
Underpinning relational skills		
1	Participate in workplace meetings and discussions	
Resource implications		
1	A bank of scenarios and questions	
2	Tools, equipment and workplace relevant with the requirements for the job	
3	Supplies and consumable materials	
4	Engineering manuals	
Method of assessment		
1	Direct Observation with questioning	
2	Oral interview and written test	
3	Portfolio assessment	
Context of assessment		
1	Competency may be assessed individually in the actual workplace or a simulated workplace environment	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribe outcome must be able to achieve without direct supervision	

2.3.5. Unit 14 - OPERATE THERMOFORMING EQUIPMENT

Description: This competency covers the operation of Thermoforming equipment and resolving routine problems to produce plastic products.

This competency is typically performed by operators working either independently or as a part of a team

Performance criteria

1 Check work requirements

1.1 Work requirements are identified based on procedures

- 1.2 Product, materials and equipment requirements are identified based on the job requirements.
- 1.3 Hazards are recognize and precautionary steps are adopted to ensure safety
- 1.4 Requirements are checked with supervisor/appropriate person if found not in accordance with normal practice

2 Conduct pre-start checks as required

- 2.1 Safety gates and guards are checked if in position and in working condition
- 2.2 Raw materials are checked for correctness based on product specifications.
- 2.3 Other pre-start checks are undertaken in accordance with Procedures

3 Operate equipment

- 3.1 Machine is started safely and correctly when required based on equipment operating instruction
- 3.2 Thermoforming products are collected and stored as required
- 3.3 Products are checked if within specification/ as required by quality standard
- 3.4 Supply of materials is maintained as required
- 3.5 Logs and records are completed when required
- 3.6 Collection and reprocessing/discarding scrapping/trimming of materials are undertaken in accordance with procedures
- 3.7 Equipment and work area are cleaned up in accordance with company procedures
- 3.8 Equipment is stopped/paused in an emergency, following workplace and emergency procedures

4 Resolve routine problems

- 4.1 Routine problems/ faults likely to occur are identified during the operation and appropriate precautionary measures are readied according to company standard operating procedures.
- 4.2 Appropriate records and log books of equipment operations are ensured and maintained according to company procedures
- 4.3 Non-routine problems are identified and reported to designated person

Recommended content required to deliver results in competency:

Operate thermoforming equipment

Critical aspects of competency		<i>Comments</i>
1	Check work requirements	
2	Conduct pre-start checks as required	
3	Operate equipment	
4	Resolve routine problems	
5	Take appropriate action to resolve faults or report faults to appropriate personnel	
6	Explain and apply emergency shutdown procedures	
7	Ensure upstream and downstream communication is timely and effective	
8	Read and interpret correctly the operating procedures and work instructions	
9	Identify problems and take appropriate action	
10	Follow all safety procedures	
Underpinning knowledge		
1	Operation of thermoforming and components	
2	Production workflow sequences and materials demand	
3	Different reasons for checking process control panels and reporting readings which do not conform to the work instructions	
4	Potential effects of variations in raw materials and equipment operation in relation to quality of product	
5	Waste management and importance of reusing nonconforming products wherever possible	
6	Correct selection and use of equipment, materials, processes and procedures	
7	Factors which may affect product quality or production output and appropriate	
8	Possible causes of routine thermoforming defects	
9	Approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup	
Underpinning technical skills		
1	Monitor equipment operation and product quality	
2	Handle safely products and materials, read relevant safety information and apply safety precautions appropriate to the task	
3	Pause equipment, or shut down equipment in abnormal circumstances	
Underpinning organizational skills		
1	Plan own work including predicting consequences and identifying improvements	
2	Complete work related documents	
3	Gather and provide information in response to workplace Requirements	

<i>Underpinning relational skills</i>		
1	Participate in workplace meetings and discussions	
<i>Resource implications</i>		
1	A bank of scenarios and questions	
2	Tools, equipment and workplace relevant with the requirements for the job	
3	Supplies and consumable materials	
4	Modus operandi and procedures	
<i>Method of assessment</i>		
1	Direct Observation with questioning	
2	Oral interview and written test	
3	Portfolio assessment	
<i>Context of assessment</i>		
1	Competency may be assessed individually in the actual workplace or a simulated workplace environment	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribe outcome must be able to achieve without direct supervision.	

2.3.6. Unit 15 - OPERATE MANUFACTURING EQUIPMENT FOR RUBBER COMPOUNDS

Description: This competency covers the operation of manufacturing equipment for rubber compounds and the resolving routine problems to produce rubber products.

This competency is typically performed by operators working either independently or as a part of a team

Performance criteria

1 Check work requirements

- 1.1 Work requirements are identified based on procedures
- 1.2 Product, materials and equipment requirements are identified based on the job requirements.
- 1.3 Hazards are recognized and precautionary steps are adopted to ensure safety
- 1.4 Requirements are checked with supervisor/appropriate person if found not in accordance with normal practice

2 Conduct required pre-start checks

- 2.1 Safety gates and guards are checked if in position and in working condition
- 2.2 Raw materials are checked for correctness based on product specifications.
- 2.3 Other pre-start checks are undertaken in accordance with procedures

3 Operate equipment

- 3.1 Machine is started safely and correctly based on equipment operating instruction
- 3.2 Process is check if within the required limits based on product specifications
- 3.3 Rubber Compounds products are collected and stored as required
- 3.4 Product/process are checked if within specification/ as to required quality standard
- 3.5 Supply of materials is maintained as required
- 3.6 Logs and records are completed according to a timetable
- 3.7 Collection and reprocessing/discarding scrapping/trimming of materials are undertaken in accordance with procedures
- 3.8 Equipment and work area are cleaned up in accordance with company procedures
- 3.9 Equipment is stopped/paused in an emergency, following workplace and emergency procedures

4 Resolve routine problems

- 4.1 Routine problems/ faults likely to occur are identified during the operation and appropriate precautionary measures are taken according to company standard operating procedures.
- 4.2 Appropriate records and log books of equipment operations are ensured and maintained according to company procedures
- 4.3 Non-routine problems are identified and reported to designated person

Recommended content required to deliver results in competency:

Operate manufacturing equipment of rubber compounds plastic extrusion equipment

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Check work requirements	
2	Conduct pre-start checks as required	
3	Operate equipment	

4	Resolve routine problems	
5	Take appropriate action to resolve faults or report faults to appropriate personnel	
6	Explain and implement emergency shutdown procedures	
7	Ensure rubber compounds standards are met consistently	
8	Ensure upstream and downstream communication is timely and effective	
9	Read and interpret correctly the operating procedures and work instructions	
10	Identify problems and take appropriate action	
11	Follow all safety procedures	
<i>Underpinning knowledge</i>		
1	Operation of manufacturing of rubber compounds and components	
2	Production workflow sequences and materials demand	
3	Different reasons for checking process control panels and reporting readings which do not conform to the work instructions	
4	Potential effects of variations in raw materials and equipment operation in relation to quality of product	
5	Waste management and importance of reusing nonconforming products wherever possible	
6	Correct selection and use of equipment, materials, processes and procedures	
7	Factors which may affect product quality or production output and appropriate	
8	Possible causes of routine of production defects	
9	Approved hazard control and safety procedures and the use of PPE in relation to handling materials, equipment operation and cleanup	
<i>Underpinning technical skills</i>		
1	Monitor equipment operation and product quality	
2	Handle safely products and materials, read relevant safety information and apply safety precautions appropriate to the task	
3	Pause equipment, or shut down equipment in abnormal circumstances	
<i>Underpinning organizational skills</i>		
1	Plan own work including predicting consequences and identifying improvements	
2	Complete work related documents	
3	Gather and provide information in response to workplace Requirements	
<i>Underpinning relational skills</i>		
1	Participate in workplace meetings and discussions	

Resource implications		
1	A bank of scenarios and questions	
2	Tools, equipment and workplace relevant with the requirements for the job	
3	Supplies and consumable materials	
4	Engineering manuals	
Method of assessment		
1	Direct Observation with questioning	
2	Oral interview and written test	
3	Portfolio assessment	
Context of assessment		
1	Competency may be assessed individually in the actual workplace or a simulated workplace environment	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribe outcome must be able to achieve without direct supervision.	

2.3.7. Unit 16 - MONITOR PROCESS OPERATIONS

Description: This competency covers the use of production processing equipment. This competency is typically performed by all line conductors working either independently or as part of a work team.

Performance criteria

1 Identify equipment control and procedures

- 1.1 Work requirements are identified from workplace operating procedures.
- 1.2 Operating procedures and controls are checked and approved adjustments are made based on company operating parameters
- 1.3 Actions to be used in the event of faulty production are established according to company operating procedures
- 1.4 Procedures for obtaining materials for the process are identified and approved according to company standard operating procedures
- 1.5 Hazards and environmental issue that might surround the operation are identified and dealt with according to company standard operating procedures on safety and emergency, provision on European Union Countries and other existing environmental legislations

2 Prepare for work/job

- 2.1 Ancillary tools and equipment are assembled based on equipment operating instruction
- 2.2 Inspection procedures are identified
- 2.3 Finishing activities are identify
- 2.4 Any hazards connected with materials and process are identified and appropriate safety procedures are readied in accordance with equipment operating instruction, workplace reference materials including materials safety data sheets and equipment instructions
- 2.5 Risks from the identified hazards are considered and appropriate measures are taken to minimize them
- 2.6 Location and function of equipment emergency stops and ensure guards are established and appropriate inspections are undertaken to ensure that they are in place
- 2.7 Requirements are identified and noted or checked:
 - 2.7.1 materials inputs and outputs
 - 2.7.2 ancillary supplies and equipment
 - 2.7.3 product quality requirements for the relevant process stage(s)

3 Maintenance operations

- 3.1 Process operations are checked, including noting product quality, production outputs and waste, in accordance with workplace practices
- 3.2 Product outputs are collected, checked for conformity/stored, and necessary adjustments to the equipment are made (where appropriate)
- 3.3 Materials which are able to be reprocessed and reused are collected, and procedure for waste and scrap management is undertaken in accordance with workplace procedures (where applicable)
- 3.4 Check readouts against standard statistical process information and enter production data into the control system
- 3.5 Clean up equipment, work area and manage waste in accordance with workplace procedures

4 Identify product quality requirements

- 4.1 Monitor process and note conditions which may affect product quality standards
- 4.2 Report process variations within workplace procedures
- 4.3 Note and implement authorized changes in standard operating procedures and specifications

Recommended content required to deliver results in competency:

Monitor process operation

Critical aspects of competency		<i>Comments</i>
1	Identify equipment control and procedures and understand the importance of critical material properties and quantities	
2	Prepare for work/job	
3	Maintain operations and recognize potential faulty situations requiring action and implement appropriate action	
4	Identify product quality requirements and ensure that production standards are met consistently	
Underpinning knowledge		
1	Impact of incorrect or faulty materials	
2	Production workflow sequences and materials demand	
3	Operation of work systems and equipment	
4	Selection and use of equipment, materials, processes and procedures	
5	Hazards of the materials and process and appropriate hazard control procedures	
6	Safety and emergency procedures and OHS and use of personal protective equipment	
7	Honesty in work, Perseverance and Alertness	
Underpinning technical skills		
1	Read and interpret typical product specifications, job sheets, procedures, material labels and safety information as provided to operators	
2	Distinguish between causes of faults such as: <ul style="list-style-type: none"> - wrong raw materials/additives - incorrect quantity of materials/additives - contaminated materials/additives - product variations from specification 	
Underpinning organizational skills		
1	Complete work related documents	
2	Gather and provide information in response to workplace requirements	
Underpinning relational skills		
1	Participate in workplace meetings and discussions	
Resource implications		
1	Suitable access to an operating plant or equipment that allows for appropriate and realistic simulation	
2	Tools, equipment and workplace relevant with the requirements for the job	

3	Supplies and consumable materials	
4	A bank of case studies/scenarios and questions	
Method of assessment		
1	Direct Observation with questioning	
2	Oral interview and written test	
3	Portfolio assessment	
Context of assessment		
1	Competency may be assessed individually in the actual workplace or a simulated workplace environment	
2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribed outcome must be able to achieve without direct supervision	

2.3.8. Unit 17 - FINISH PRODUCTS AND COMPONENTS

Description: This competency covers a range of processes subsequent to the actual making of the product which have been grouped together under the heading of “finishing”. It applies to the finishing of products for customer use and the finishing components for use by a subsequent process or organization which may then further process or assemble these components into a finished product, and similar activities. It applies across all sectors of the industry.

This competency is typically performed by personnel working either independently or as part of a work team.

Performance criteria

1 Establish requirements for the finishing process

- 1.1 Work requirements are identified from procedures
- 1.2 Equipment and consumables for the finishing process are assemble
- 1.3 Workplace procedures and materials safety data sheets are consulted to confirm the work planning process
- 1.4 Safety equipment are checked and ensured to be available and in sound condition
- 1.5 Products are removed from equipment if required using enterprise standard handling methods
- 1.6 End-of-product run are recognized

2 Check quality of product

- 2.1 Products are inspected to identify for routine or non-routine finishing requirements.
- 2.2 Significant finishing, flash or other quality problems are identified and reported to appropriate person for investigation of mold/die closure/alignment.
- 2.3 Modifications are check with appropriate personnel regarding to finishing process.
- 2.4 Non-conforming products are identified and processed in accordance with workplace procedures.

3 Undertake the finishing operation

- 3.1 Products are trimmed as required
- 3.2 Other secondary process operations are undertaken as required
- 3.3 Waste and recycling procedures are followed according to company standard operating procedures
- 3.4 Finished products are inspected and compared to specifications for suitability for further processing or for customer delivery
- 3.5 Finished products are assembled and sorted in accordance with procedures
- 3.6 Products are packed as required and according to packaging/stacking specifications
- 3.7 Product data are recorded as required
- 3.8 Work area are cleaned up and housekeeping is performed

4 Identify and rectify routine product imperfections

- 4.1 Range of routine imperfections that can occur during the production process are identified
- 4.2 Routine product imperfections are determined and rectified in accordance with procedures
- 4.3 Appropriate records and log books are maintained and ensure to meet procedures/work instructions.
- 4.4 Non-routine product imperfections are identified and reported to designated person.

Recommended content required to deliver results in competency:

Finish products and components

<i>Critical aspects of competency</i>		<i>Comments</i>
1	Establish requirements for the finishing process and recognize the importance of critical material properties and quantities to the finishing process	
2	Check quality of product	

3	Undertake the finishing operation	
4	Identify and rectify routine product imperfections and ensure production standards are met consistently	
5	Follow safety procedures	
<i>Underpinning knowledge</i>		
1	Different selection and application of finishing process	
2	Different tools and equipment for the process	
3	Safe handling of products	
4	Procedure in waste and recycling management	
5	Causes of faults such as: <ul style="list-style-type: none"> ○ flashing, distortion, stress marks, sinks, voids, short shot, poor color distribution, moisture marks, gassing, burn marks ○ inappropriate selection and use of finishing equipment/processes ○ poor surface finish ○ fining or shuts ○ variations in section thickness 	
<i>Underpinning technical skills</i>		
1	Ability to read and interpret typical product specifications, job sheets and material labels as provided to operators	
2	Perform routine workplace duties following simple written notices	
<i>Underpinning organisational skills</i>		
1	Complete work related documents	
2	Gather and provide information in response to workplace Requirements	
<i>Underpinning relational skills</i>		
1	Participate in workplace meetings and discussions	
<i>Resource implications</i>		
1	Suitable access to an operating plant or equipment for simulation.	
2	Tools, equipment and workplace relevant with the requirements for the job	
3	Supplies and consumable materials	
4	Engineering manuals and drawings	
<i>Method of assessment</i>		
1	Direct Observation with questioning	
2	Written examination	
<i>Context of assessment</i>		
1	Competency may be assessed individually in the actual workplace or a simulated workplace environment	

2	Practical skills must take place only after a period of supervised practice and repetitive experience	
3	Prescribe outcome must be able to achieve without direct supervision	

3. ASSESSMENT

3.1. ELEMENTS OF EVALUATION

The skills of the candidates for the access to the professional certification are evaluated by a jury composed of two professionals, in the view of:

- a professional role-play or a presentation of a project realized upstream to the session, possibly completed by other methods of evaluation: technical interview, professional questionnaire, questioning from production.
- the professional record of the candidate and its possible appendices
- the results of the evaluations passed by the candidates during their training.
- an interview with the jury intended to verify the level of control by the candidate of the skills required for the exercise of the activities composing the position

3.2. EVALUATION PROCESS

3.2.1. *Assessment procedures and organization of the test*

MODALITY	ASSESSED COMPETENCY	DURATION	DETAIL OF THE ORGANIZATION OF THE TEST
Professional role-play	Assemble the tools and prepare the manufacture of a plastic production Start and stop a plastic production line Check the conformity of the produced parts and stabilize the plastic production process Diagnose and help solve a malfunction on a line of plastic production Suggest technical or organizational improvements to a plastic production line	3 h 30 min	This professional role-play, composed of two phases, is carried out individually on the production plant, in the presence of the jury. The candidate produces a series of plastic parts on a plastics installation, then he optimizes an adjustment. Phase 1 (2 h 30 min): From a manufacturing order and the technical file of the parts to be produced, the candidate assembles the tools, connects the energy and makes adjustments. He starts the installation, produces the first parts, then stabilizes the manufacturing process. He produces and checks the required series of parts, solves a malfunction, then fills in the

			<p>manufacturing tracking document.</p> <p>Phase 2 (1 h):</p> <p>the candidate optimizes a setting based on an improvement axis given by the jury. He dismantles the tooling.</p>
Other evaluation modalities:			
Technical interview	<p>Check the conformity of the parts produced and stabilize the plastic production process</p> <p>Diagnose and help solve a malfunction on a plastic production line</p> <p>Coordinate the activities of production operators</p> <p>Support the adaptation of production operators to the workplace</p>	20 min	<p>This technical interview takes place individually in the presence of the jury after the professional role-play and the professional questionnaire.</p> <p>The jury questions the candidate on his answers to the professional questionnaire and his ability to coordinate training and adaptation of operators to the workplace</p>
Professional questionnaire	<p>Check the conformity of the produced parts and stabilize the plastic production process</p> <p>Diagnose and help solve a malfunction on a plastic production line</p>	20 min	<p>All candidates respond individually and simultaneously to the professional questionnaire in the presence of an examination supervisor.</p>
Questioning from production	<p>Propose technical or organizational improvements to a plastic production line</p>	30 min	<p>This questioning takes place in two successive phases, in the presence of the jury:</p> <p>Phase 1 (15 min):</p> <p>Candidate presents individually and orally his report on professional activities.</p> <p>Phase 2 (15 min):</p> <p>Jury questions candidate on report of professional activities.</p>
Final interview		20 min	<p>Including exchange time with the candidate on his professional record.</p>

	Total test duration for the candidate:	5 h 00 min	
--	---	-------------------	--

Further information on professional role-play:

Tooling or processed material has a major technical difficulty in its implementation.

The machine and the material/tooling couple are in the candidate's area of knowledge.

Additional information on questioning from production:

The written professional activity report deals with the resolution of one or more common production issues, such as, for example, the study of problems of quality on a part, safety, productivity at the workplace, production flow.

3.2.2. Criteria for the assessment of professional competencies

Professional competencies	Assessment criteria	Professional role-play	Other evaluation modalities		
			Technical interview	Professional questionnaire	Questioning from production
Adjust and launch an automated plastic production line and monitor its operation					
Assemble the tools and prepare the manufacture of a plastic parts production	<ul style="list-style-type: none"> ○ QHSE procedures, modus operandi and rules are applied and respected. ○ The tools and peripheral equipment are prepared, attached and connected in accordance with the manufacturing file. ○ Actions on programs and control devices are carried out. ○ Supply of materials, consumables, containers, components and small equipment are made. ○ Procurement references are verified against the 	X	N/A	N/A	N/A

	<p>manufacturing file.</p> <ul style="list-style-type: none"> ○ The material is prepared in accordance with the manufacturing file. ○ The operations are carried out within the allotted time. ○ The workstation is cleaned up and cleared in accordance with the implantation scheme. ○ The production follow-up documents and the instruction booklet are filled in, legible and usable. ○ The information transmitted on the production monitoring documents, computer terminal, touch screen are reliable. Any incident or significant event is analysed and reported. 				
<p>Start and stop a plastic production line</p>	<ul style="list-style-type: none"> ○ QHSE procedures, modus operandi and rules are applied and respected. ○ The operations are carried out within the allotted time. ○ The manufactured parts comply with the technical documents. ○ The workstation is cleaned up and cleared in accordance with the implantation scheme. ○ The production follow-up documents and the instruction booklet are filled in, legible and usable. ○ The information transmitted on the production monitoring documents, computer terminal, touch screen are reliable. ○ Any incident or significant event is analysed and reported 	<p>X</p>	<p>N/A</p>	<p>N/A</p>	<p>N/A</p>

<p>Check the conformity of the produced parts and stabilize the process of plastic production</p>	<ul style="list-style-type: none"> ○ The control procedure is followed. ○ The calibration validity date of the measuring instruments is verified. ○ Measuring instruments are used in accordance with their instructions of use. ○ Reading the measurements is correct. ○ The manufacturing process is stabilized. ○ Production controls are carried out at the frequency and with the measuring instruments as recommended in the manufacturing file. ○ Defects are analyzed and if necessary compared to reference parts. ○ Non-compliant parts are isolated and identified according to the appropriate procedure. ○ Process drifts are identified. ○ The assumptions of adjustment changes are related to the identified anomalies. ○ Adjustment changes are carried out with method and rigorous validation of results. ○ The control station is cleaned up. ○ The production follow-up documents and the instruction booklet are filled in, legible and usable. ○ The information transmitted on the production monitoring documents, computer terminal, touch screen are reliable. ○ Any incident or significant event is analysed and reported. 	<p>X</p>	<p>X</p>	<p>X</p>	<p>N/A</p>
--	--	-----------------	-----------------	-----------------	------------

Diagnose and help solve a malfunction on a plastic production line	<ul style="list-style-type: none"> ○ QHSE procedures, modus operandi and rules are applied and respected. ○ The malfunction on the machine, tooling or equipment is identified with method. ○ Simple malfunctions are solved. ○ The work is completed within the allotted time. ○ The workstation is cleaned up. ○ The production follow-up documents and the instruction booklet are filled in, legible and usable. ○ The information transmitted on the production monitoring documents, computer terminal, touch screen are reliable. ○ Any incident or significant event is analysed and reported 	X	X	X	N/A
Organize production and optimize the manufacturing process on an automated plastic production line					
Coordinate the activities of production operators	<ul style="list-style-type: none"> ○ The language used is taken into account in the communication with the operators. ○ The various stages of information appropriation by operators are taken into account. ○ Appropriate monitoring is envisaged. 	N/A	X	N/A	N/A

Support the adaptation of production operators to the workplace	<ul style="list-style-type: none"> ○ Intake documents are explained. ○ The language used is taken into account in communication with operators. ○ The functions of a newcomer are envisaged. ○ Appropriate monitoring is envisaged and takes into account the potential difficulties of the persons to be trained. 	N/A	X	N/A	N/A
Propose technical or organizational improvements to a plastic production line	<ul style="list-style-type: none"> ○ Problem data are analyzed and exploited using appropriate analysis tools. ○ Potential points of improvement are identified and achievable. ○ The proposals are expressed in a concise and argued manner. ○ The potential cost of the modifications and effects are estimated. ○ The results obtained are the subject of a clear and exploitable written report 	X	N/A	N/A	X

3.2.3. Assessment of cross-cutting competencies

Cross-cutting skills are assessed through professional skills.

Cross-cutting competencies	Concerned professional competencies
Working with a team spirit	Propose technical or organizational improvements to a plastic production line
Diagnosing and solving a problem	Check the conformity of the produced parts and stabilize the process of a plastic parts production
	Diagnose and help solve a malfunction on a plastic production

	line
	Propose technical or organizational improvements to a plastic production line
Apply quality, health, safety, environmental rules	Assemble the tools and prepare the manufacture of a plastic production

3.2.4. Conditions for the presence and intervention of the jury

Total length of presence of the jury during the candidate evaluation: 4h 40 min

Jury intervention protocol:

The jury is present for the entire duration of the professional situation, the technical interview and the questioning from production.

When setting up a professional situation, one of the members of the jury can play the role of technical referent.

A jury composed of two members can observe and evaluate six candidates simultaneously if their safety is guaranteed: simultaneous visibility of these six candidates ensured by a sufficient proximity to their workstations.

The person responsible for the session must allow extra time for the jury to review the tests and the candidates records as well as the consideration of correction and deliberation times.

3.2.5. Monitoring and confidentiality conditions during the assessment session

The person responsible for the session designates an examination supervisor to pass the professional questionnaire.

A technical reference person familiar with the operation of the production facility is required during the professional role-play. He intervenes occasionally in case of technical difficulty during the professional role-play.

Bibliography/References

1. French labour Ministry. *Référentiel de Certification du titre professionnel "Technicien de production en plasturgie"*, 2018. Available from internet: <http://travail-emploi.gouv.fr>

Annexes

No annexes