



Federal Democratic Republic of Ethiopia
OCCUPATIONAL STANDARD



FOOTWEAR PRODUCTION
NTQF Level I-IV



*Ministry of Science and Higher
Education
November 2021*

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Introduction

Ethiopia has embarked on a process of reforming its TVET-System. Within the policies and strategies of the Ethiopian Government, technology transformation – by using international standards and international best practices as the basis, and, adopting, adapting and verifying them in the Ethiopian context – is a pivotal element. TVET is given an important role with regard to technology transfer. The new paradigm in the outcome-based TVET system is the orientation at the current and anticipated future demand of the economy and the labor market.

The Ethiopia Occupational Standard (EOS) is the core element of the Ethiopian National TVET-Strategy and an important factor within the context of the National TVET-Qualification Framework (NTQF). They are national Ethiopian standards, which define the occupational requirements and expected outcome related to a specific occupation without taking TVET delivery into account.

This document details the mandatory format, sequencing, wording and layout for the Ethiopian Occupational Standard comprised of Units of Competence.

A Unit of Competence describes a distinct work activity. It is documented in a standard format that comprises:

- Occupational title, NTQF level
- Unit code
- Unit title
- Unit descriptor
- Elements and Performance criteria
- Variables and Range statement
- Evidence guide

Together all the parts of a Unit of Competence guide the assessor in determining whether the candidate is competent.

The ensuing sections of this EOS document comprise a description of the respective occupation with all the key components of a Unit of Competence:

- chart with an overview of all Units of Competence for the respective level including the Unit Codes and the Unit Titles
- contents of each Unit of Competence (competence standard)
- Occupational map providing the technical and vocational education and training (TVET) providers with information and important requirements to consider when designing training programs for this standard, and for the individual, a career path.

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Occupational Standard: Footwear Production Level I**Occupational Code: IND FWP1*****NTQF I***[IND FWP1 01 1121](#)

Identify Footwear
Product and Materials

[IND FWP1 02 1121](#)

Perform Leather Grading

[IND FWP1 03 1121](#)

Cut Materials by Hand

[IND FWP1 04 1121](#)

Operate Footwear
Cutting Machines

[IND FWP1 05 1121](#)

Perform Pre-fabrication
Works

[IND FWP1 06 1121](#)

Perform Basic Stitching

[IND FWP1 07 1121](#)

Apply 5S Procedures

Occupational Standard: Footwear Production Level II**Occupational Code: IND FWP2*****NTQF Level II***[IND FWP2 01 1121](#)

Prepare Footwear
Upper Material
Requirement

[IND FWP2 02 1121](#)

Perform Closing of
Uppers

[IND FWP2 03 1121](#)

Perform Minor
Maintenance

[IND FWP2 04 1121](#)

Perform Moccasin
Stitching Operations

[IND FWP2 05 1121](#)

Perform Bottom
Components
Operations

[IND FWP2 06 1121](#)

Perform Basic Lasting
Operations

[IND FWP2 07 1121](#)

Perform Footwear
Finishing and
Packaging

[IND FWP2 08 1121](#)

Prevent and Eliminate
MUDA

Occupational Standard: Footwear Production Level III**Occupational Code: IND FWP3*****NTQF III***[IND FWP3 01 1121](#)Perform Manual
Design and Pattern
Making[IND FWP3 02 1121](#)Perform Pattern
Grading and
Engineering[IND FWP3 03 1121](#)Perform Mechanized
Lasting[IND FWP3 04 1121](#)Apply Advanced
Footwear Lasting
Techniques[IND FWP3 05 1121](#)Apply Polymers in
Footwear[IND FWP3 06 1121](#)Perform Sole
Operation

Occupational Standard: Footwear Production Level IV**Occupational Code: IND FWP4*****NTQF IV*****IND FWP4 01 1121**

Apply Fashion and
Illustration Techniques

IND FWP4 02 1121

Prepare Footwear Design
and Patterns Using
CAD/CAM

IND FWP4 03 1121

Coordinate Product
Development and
Processes

IND FWP4 04 1121

Perform Footwear and
Material Testing

IND FWP4 05 1121

Calculate Product
Costing

IND FWP4 06 1121

Coordinate Die Making
Operations

IND FWP4 07 1121

Manage Footwear
Production Operations

Occupational Standard: Footwear Production Level I	
Unit Title	Identify Footwear Product and Materials
Unit Code	<u>IND FWP1 01 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude required to identify foot anatomy and foot abnormality, processes to produce footwear and the sizing system. In addition to this, parts of shoes, footwear styles and construction, footwear materials and accessories in footwear production are dealt. Basic leather tanning process is also described.

Elements	Performance Criteria
1. Describe Foot anatomy and foot abnormality	1.1 The structure and main function of the foot is explained. 1.2 Abnormality of the foot is explained 1.3 Various types of the abnormality and their basic features is explained
2. Describe processes to produce footwear	2.1 Introduction to history of footwear is described. 2.2 Basic Processes used to produce footwear features are identified. 2.3 Instances where specialized footwear for abnormalities maybe required are identified
3. Determine the sizing system	3.1 Different sizing systems and its purpose are explained 3.2 Various types of the size measuring tools are identified. 3.3 Procedures of foot measurement are explained. 3.4 Various types of lasts are explained.
4. Identify parts of shoes	4.1 Upper parts of a shoe are described 4.2 Lining and interlining parts of a shoe are described. 4.3 Bottom parts of a shoe are described.
5. Describe footwear types, styles and construction	5.1 Different types of footwear are identified and their uses described. 5.2 Footwear designs/styles for various purposes are explained. 5.3 Design characteristics are identified 5.4 Common client requirements for footwear designs are described. 5.5 Basic design tools used to develop design concepts are identified. 5.6 Accessories used to accent footwear designs are identified. 5.7 Footwear's basic construction is explained.
6. Identify footwear materials	6.1 Materials used in footwear production are identified. 6.2 Types and sources of materials are identified. 6.3 Characteristics of materials are identified. 6.4 Generic and trade names for materials are identified.
7. Identify Leather Manufacturing Processes	7.1 Types of leather are identified. 7.2 Basic structure of the skin/hide is identified. 7.3 Different tanning types and stage process are identified. 7.4 Basic crusting operations at the crust stage treatment of leather are identified.

	<p>7.5 Basic difference between corrected grain and full grain leather is identified.</p> <p>7.6 Different types of <i>finished leather</i> is described.</p> <p>7.7 Method of storing and bundling leather is explained and demonstrated.</p>
8. Determine care and performance of materials for footwear	<p>8.1 Handling and care requirements for materials are identified.</p> <p>8.2 Physical properties of materials are identified.</p> <p>8.3 <i>Performance characteristics</i> of materials are identified and described.</p> <p>8.4 Types of surface finishes used on materials are described as applicable.</p>

Variable	Range
Structure	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • muscles • bones • ligaments • joints
Main functions	<ul style="list-style-type: none"> • May include, but not limited to: • balance • walking • standing • running
Instances	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • injuries • amputations • diseases affecting the foot or ankle • sizing • foot muscle and structural features • deformities
Abnormality	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • flat feet • Foot abnormality • wide feet
Sizing systems	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • English sizing system • French sizing system • USA sizing system • Mondo point sizing system
size measuring tools	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Brannock device

	<ul style="list-style-type: none"> Measuring tape
Types of lasts	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> Sladometric last V hinge last Scoop last C hinge last Solid/block last Tonge last
Type of footwear	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> safety boots work boots and shoes fashion shoes casuals sport shoes
Footwear designs/styles	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> derby oxford court slip on boots sandal moccasin
Construction	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> cement flange out Good year welt Direct injection process /DIP Direct vulcanization process /DVP San crispino California Moccasin
Basic design tools	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> storyboards catalogues, pictures drawings and illustrations
Basic Processes	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> designing developing patterns and lasts Cutting Stitching Lasting and finishing

Materials	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • natural or synthetic • leather such as: <ul style="list-style-type: none"> ○ cow ○ kid ○ goat ○ sheep ○ adhesives and chemicals such as: <ul style="list-style-type: none"> ○ polyurethane adhesives ○ rubber cement ○ methyl ethyl ketone ○ halogenation solvent • fabrics such as: <ul style="list-style-type: none"> ○ woven , knitted and non-woven materials ○ drill cloths • canvas • sport shoes materials <ul style="list-style-type: none"> ○ Cosmo ○ PVC/PU coated ○ Mesh ○ Foam • Rivets • Shanks • Insole materials • Soles such as <ul style="list-style-type: none"> ○ PU, PVC, EVA , TPR, Leather soles • Eyelets • Laces • Shank boards • Toe-puffs • Stiffeners • Various types of heels
Characteristics	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • stretch and tightness • size • grain • nap • substance • physical properties and uses of different types of hides and leather • physical properties of the textile materials • physical Properties of soling materials

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Type of leather	May include, but not limited to: <ul style="list-style-type: none"> • Cow • Sheep • Goat • Kid
Tanning types	May include, but not limited to: <ul style="list-style-type: none"> • Vegetable tanning • Chrome tanning • Alum tanning
Basic crusting operations	May include, but not limited to: <ul style="list-style-type: none"> • Dying • Toggling • Splitting • Shaving • Buffing
Finished leather	May include, but not limited to: <ul style="list-style-type: none"> • Nap based leather • Corrected/printed grain leather • Full grain leathers • Nubuck • Oil pull up • Suede
OHS practices	OHS practices include implementation of risk reduction measures and may relate to: <ul style="list-style-type: none"> • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • ergonomic arrangement of workplace • housekeeping • environmental practices
Performance characteristics	May include but not limited to: <ul style="list-style-type: none"> • stretch • abrasion • wear ability • absorbency • durability • elasticity • Tightness

Evidence Guide

Critical Aspects of Competence	<p>Must demonstrate knowledge and skills competence to:</p> <ul style="list-style-type: none"> • describe footwear features • describe footwear design • describe processes to produce footwear • explain different sizing systems and method of measuring foot • describe materials used in footwear production and its uses within footwear industry • identifying common faults, problems and surface defects of materials
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • types and uses of footwear • foot functions and structure • specialized footwear • processes of footwear production • key characteristics of the designs • footwear construction • carry out work according to OHS practices • footwear care methods • sizing systems • various types of design in footwear • types and uses of footwear materials • sources and characteristics of materials • different material defects / problems and its causes • OHS practices relevant to materials uses and disposal • safety and environmental aspects including hazard identification and control measures of handling materials • recording and reporting practices
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • describe footwear design • describe footwear features • explain footwear production processes • measure of footwear sizes • identify of footwear accessories • read, interpret and follow information on work specifications, standard operating procedures and work instructions • handle materials • maintain accurate records • communicate in the workplace • clarify and check task-related information • quality standards and practices • apply OHS practices and measures in material handling

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be accessed through: <ul style="list-style-type: none"> • Interview /Written Test • Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the workplace or in a simulated workplace setting.

Occupational Standard: Footwear Production Level I	
Unit Title	Perform Leather Grading
Unit Code	<u>IND FWP1 02 1121</u>
Unit Descriptor	This unit covers knowledge, skills and attitude related to identify, prepare and use hand tools and equipment; describe principles, and concepts of leather grading; determine defects of leather and perform measurement of defective area; perform quality check on the leather and determine financial implication on procurement of leather.

Elements	Performance Criteria
1. Identify, prepare and use hand tools and equipment	1.1 Hand tools and equipment which are consistent with grading operations are identified. 1.2 Tools are checked for serviceability and safety and faults. 1.3 Work area is cleared, and hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and standard work practices.
2. Describe principles, and concepts of leather grading	2.1 The principle and concepts of leather grading is described. 2.2 The methods of leather grading are explained. 2.3 The objective of the leather grading is described.
3. Determine defects of leather	3.1 The types of defects on leather are described. 3.2 The defects on the leather are identified. 3.3 Effect of defects on the footwear is described.
4. Determine and perform measurement of defective area	4.1 The method of determination of the area of using different techniques is identified. 4.2 The method of determination of the area by grid method and fist method is described and performed. 4.3 The method of measuring of leather is described.
5 Perform quality check on the leather	5.1 Various physical tests (non-laboratory) on the leather are described and performed. 5.2 Method of sample selection is described and demonstrated. 5.3 Characteristics of the leather are checked.
6 Assess grade of the leather and determine financial implication on its procurement	6.1 The leather is evaluated for the cutting value and suitability for the footwear manufacturing. 6.2 Storage and bundling of the leather is performed. 6.3 The reassessment on the value of received consignment is performed and purchase cost variance is determined. 6.4 Accessories and equipment to be used are checked. 6.5 Reports and documentation work is performed.

Variable	Range
Leather	May include, but not limited to:

	<ul style="list-style-type: none"> • (Covering cow, sheep, goat, kid) • full grain leathers • corrected grain /embossed, patent, PU coated/ • nap based leathers • Nubuck • suede • oil pull up
Defects on Leather	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • scar marks • wrinkles • brand marks • flay cuts • scratches • tick marks • warble holes • growth marks
Techniques	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • area measuring machine • area measuring grid tool (=10SDM) • area measuring using fist method • area measuring by necked eye or judgment method
Accessories and equipment	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • calculator(simple) • grid (leather measuring) • white pencil(glass marking) • markers/ sketch pen • hand cutting knife • white cloth • thickness gauge • cello tape • brown paper

Evidence Guide

Critical Aspects of competence	<p>Must demonstrate knowledge and skills competence to:</p> <ul style="list-style-type: none"> • estimate cutting value of the leather • assess defects and type • sort leather as per the grade • sort leather as per grain, shade and grade • demonstrate method of bundling of the leather • carry out basic quality test upon the leather • demonstrate method of computation of grade and it's financial
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	implication
Underpinning Knowledge and Attitude	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • leather grades and it's relative cutting value • method of computation of financial implication • types of defects on the leather • difference between tanner's method of grading to footwear method of grading • purpose of conducting basic physical test • method of storage of the leather • procedures and work instructions, and other reference material • workplace practices • recording and reporting practices
Underpinning Skills	<p>Demonstrates skills in:</p> <ul style="list-style-type: none"> • assessment of the leather • check leather for grades • leather sorting as per grade, shade • read, interpret and follow information on work specifications, standard operating • maintain accurate records • communicate in the workplace
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • access to relevant workplace or appropriately simulated environment where assessment can take place • materials relevant to the proposed activity or tasks
Methods of Assessment	<p>Competence may be accessed through:</p> <ul style="list-style-type: none"> • Interview/Written Test • Observation/ Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in workplace or in a simulated workplace setting.

Occupational Standard: Footwear Production Level I	
Unit Title	Cut Materials By Hand
Unit Code	<u>IND FWP1 03 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude required to identify, prepare and use hand tools, materials and equipment; perform interlocking of upper components; assess materials; set up workstation; cut material manually; check quality and dispatch cut components.

Elements	Performance Criteria
1. Identify, prepare and use hand tools, materials and equipment	1.1 Materials , hand tools and equipment which are consistent with manual cutting are identified. 1.2 Tools are checked for serviceability and safety and faults. 1.3 Work area is cleared, and Hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and OHS practices .
2. Perform workplace duties following given instructions	2.1 Required information is gathered from workplace supervisor, written notices and instructions by listening attentively and correctly interpreting or understanding information/ instructions. 2.2 Written notices and instructions are read and interpreted correctly in accordance with organizational guidelines . 2.3 Feedback is given to workplace supervisor based on the instructions/information received.
3. Perform interlocking of upper components	3.1 A quality region of leather and its defects are identified. 3.2 Direction of tightness and stretchiness in hide and skin is identified. 3.3 Interlocking of upper components is performed.
4. Assess materials	4.1 Materials are assessed against job specifications. 4.2 Finishing of leather material is checked for defects that may impact to cutting against job specifications. 4.3 Materials are sorted according to color, grain or shade and other specifications.
5. Set up workstation	5.1 Workstation is set-up and arranged according to work specifications. 5.2 Cutting equipment and patterns are selected and prepared according to work specifications and manufacturer instructions. 5.3 Materials are collected, sorted and laid out in preparation for cutting. 5.4 Records are maintained.

6. Apply basic ergonomic principles	6.1 Causes of stress and fatigue in work area are identified according to standard procedures. 6.2 Hazards that will occur are identified as per OHS practices. 6.3 Workplace is designed following ergonomic and economy of movements.
7. Cut material manually (at least 5 shoe styles)	7.1 Problems or faults with patterns are identified and referred for repair. 7.2 Scars, marks and fault areas of leather are identified and patterns are positioned accordingly. 7.3 Cutting techniques are used to match pattern shape, size and leather quality. 7.4 Pieces are cut precisely to size as per specifications. 7.5 Materials are cut using scissor, gimping scissor and perforation tool as per OHS practices .
8. Check and dispatch cut components	8.1 Cut components are arranged and tied grain to grain as per ticket number, and checked against job specifications and enterprise quality standards. 8.2 Faults and irregularities are addressed following company standard procedures. 8.3 Record and report are accomplished in accordance with work procedures and standard format.

Variable	Range
Materials	May include but not limited to: <ul style="list-style-type: none"> • Cutting paper exercises on pre-determined lines • Cutting of synthetics against standard time with Tin patterns • leather or synthetic materials that have been treated or printed to achieve a uniform finish • suede • Nubuck • suede split • PU coated splits • PU coated non-woven fabrics • corrected / printed grains • leather/ synthetic linings • full grain leather such as: <ul style="list-style-type: none"> ○ cow ○ calf ○ kid /goat ○ sheep
Tools and equipment	<ul style="list-style-type: none"> • hand cutting patterns • ruler

	<ul style="list-style-type: none"> • silver pen • cutting board • cutting knives <ul style="list-style-type: none"> ○ normal cutter blades and knives ○ scissor ○ gimping scissor ○ perforating tools • working table • A1 sized brown /white paper
Written notices and instructions	<p>May include but not limited:</p> <ul style="list-style-type: none"> • Machine instruction • Technical book • Handwritten and printed material • Internal memos • Briefing notes • General correspondence • Marketing materials
Organizational Guidelines	<p>May include but not limited:</p> <ul style="list-style-type: none"> • Information documentation procedures • Company policies and procedures • Organization manuals • Technical book • Work procedure
OHS practices	<p>OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:</p> <ul style="list-style-type: none"> • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • Safe working practices include day-to-day observation of safety policies, and procedures, legislative and professional requirements • Specific hazard policies and procedures • Occupational health and safety information • Hazard, accident or incident reports as required by procedures • Occupational health and safety record keeping

Causes of stress	<p>It may include, but not limited to:</p> <ul style="list-style-type: none"> • lack of training • uncomfortable work place • working long hours • health problems • responsibility increase
Hazards	<p>It may include, but not limited to:</p> <ul style="list-style-type: none"> • mechanical hazards • chemical hazards • physical hazards
Workplace design	<p>may include, but not limited to:</p> <ul style="list-style-type: none"> • production room design • application of reaches • considering resource available • type of work performed

Evidence Guide

Critical Aspects of Competence	<p>Must demonstrate knowledge and skills competence to:</p> <ul style="list-style-type: none"> • set-up workstation and prepare work before commencing operations • assessed different qualities and types of materials • cut materials by hand applying techniques in over the full range of cutting operations • arranged pre and post cutting operations such as : <ul style="list-style-type: none"> • pair matching • shade matching • grain matching • sorting • checked work against specifications and enterprise standards • applied OHS practices in work operations • maintained accurate records
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Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • leather types and their qualities • principles of cutting • enterprise and workplace standards • job specifications and sequence of operations • wastage minimization and efficiency maximization • waste management and disposal • quality standards and practices • able to identify potential dangers from work environment and conditions • identify different types of hazards • OHS practices, including hazard identification and control measures • workplace practices and communication • recording and reporting practices
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • clarify and check task-related information • check work against specifications and enterprise standards • prepare equipment and workstation before commencing operations • sequence operations meet specifications • apply techniques in all over the full range of cutting operations • apply OHS practices in work operations • maintain accurate records
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • Access to relevant workplace or appropriately simulated environment where assessment can take place • Materials relevant to the proposed activity or tasks such as paper exercises, synthetics, leather of different finishes, tin patterns, stop watches etc.
Methods of Assessment	<p>Competence may be assessed through</p> <ul style="list-style-type: none"> • Observation / Demonstration by simulation • Oral questioning / Written test
Context of Assessment	<p>Competency may be assessed in workplace or in a simulated workplace setting.</p>

Occupational Standard: Footwear Production Level I	
Unit Title	Operate Footwear Cutting Machine
Unit Code	<u>IND FWP1 04 1121</u>
Unit Descriptor	This unit covers the knowledge, skill and attitude required to carry out the preparation activities, selection of materials and cutting of materials by machine to specifications and workplace standards

Elements	Performance Criteria
1. Identify and use hand tools equipment and machines	1.1 Materials, tools and equipment which are consistent with machine cutting are identified. 1.2 Tools are checked for serviceability and safety and faults. 1.3 Work area is cleared , hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and work standard practices 1.4 Work instructions, specifications and operation details related to machine cutting are obtained 1.5 Safety with regard to operator and workplace , tools, equipment and machine is identified as per OHS practices .
2. Set up workstation	2.1 Workstation is set up according to job specifications. 2.2 Cutting equipment and patterns are selected and prepared according to work specifications and manufacturer instructions. 2.3 Materials are collected, sorted and laid out in preparation for cutting. 2.4 Cutting board is routinely cleaned and maintained. 2.5 Records are maintained
3. Assess materials	3.1 Materials are assessed against job specifications. 3.2 Finishing of materials is checked for defects that may impact to cutting. 3.3 Materials are sorted according to color or shade and other specifications.
4. Prepare tools and equipment/ machine	4.1 Machine and its accessories and the necessary tools are checked for functionality and any defects reported for repair 4.2 Clicking knives are selected according to job specifications and size requirements 4.3 Pressures on press are adjusted to knife sizes and shapes 4.4 Problems or faults with press, patterns, knives and cutting boards are recognized and referred for repair or correction
5 Cut materials by machine	5.1 Work ticket specifications are followed according to pieces and pairs 5.2 Dies are positioned according to job specification. 5.3 Parts are cut to achieve best yield according to appropriate allowance and workplace quality standards

	<p>5.4 Pieces are selected, color or grain matched to workplace quality standards</p> <p>5.5 Distortion and defects on press cutting boards are identified and appropriate action taken</p>
6 Check and dispatch cut components	<p>6.1 The quality check points for cut materials are identified.</p> <p>6.2 Finished cut products are checked, and arranged as per ticket number and tied against job specifications and enterprise quality standard</p> <p>6.3 Appropriate record and report are accomplished in accordance with workplace procedures and standard format</p>

Variable	Range
OHS practices	<p>OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:</p> <ul style="list-style-type: none"> • standard operating procedures • personal protective equipment • safe materials handling • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • Safe working practices include day-to-day observation of safety policies, and procedures, legislative and professional requirements • Specific hazard policies and procedures • Occupational health and safety information • Hazard, accident or incident reports as required by procedures • Occupational health and safety record keeping
Materials	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • leather or synthetic materials that have been treated or printed to achieve uniform finish • Insole sheets • Shank board • Leather Sole bends • suede • suede split • Nu buck leather • PU coated splits • PU coated non-woven fabrics

	<ul style="list-style-type: none"> • corrected /printed grains • leather linings • Full grain leathers such as: • cow • calf • kid • sheep
Machines	May include, but not limited to: <ul style="list-style-type: none"> • swing beam press • travelling head press • strap cutting machine
Tools	May include, but not limited to: <ul style="list-style-type: none"> • cutting dies /Knives/ • Ruler • Cutting boards (Accessories)

Evidence Guide	
Critical Aspects of Competence	Must demonstrate knowledge and skills competence to: <ul style="list-style-type: none"> • set up workstation • assessed different qualities and types of materials • cut materials by machine • checked finished cut component
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: <ul style="list-style-type: none"> • cutting board maintenance • leather types, their qualities and principles of cutting • enterprise standards • wastage minimization and efficiency maximization • waste management and disposal • quality standards and practices • OHS practices, including hazard identification and control measures • workplace practices • recording and reporting practices • cutting procedures and techniques
Underpinning Skills	Demonstrates skills to: <ul style="list-style-type: none"> • plan and coordinate complicated cutting operations • check work against work specifications and enterprise standards • prepare equipment and work before commencing operations • clarify and check task-related information • operate cutting machines and using cutting boards • sequence operations and meet specifications • obtain maximum yield and achieve quality standards of the workplace • apply OHS practices in work operations • maintain accurate records

Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • Access to relevant workplace or appropriately simulated environment where assessment can take place • Materials relevant to the proposed activity or tasks
Methods of Assessment	<p>Competence may be accessed through</p> <ul style="list-style-type: none"> • Observation / Demonstration by simulation • Oral questioning / Written test
Context of Assessment	<p>Competency may be assessed in workplace or in a simulated workplace setting.</p>

Occupational Standard: Footwear Production Level I	
Unit Title	Perform Pre-fabrication Works
Unit Code	IND FWP1 05 1121
Unit Descriptor	This unit covers the knowledge, skills and attitude required to identify and use hand tools equipment and machines; set-up machine; split, emboss, stamp, mark, skive and fuse leather components by using a prefabrication machines.

Elements	Performance Criteria
1. Identify and use hand tools, equipment and machines	<p>1.1 Hand tools and equipment which are consistent with prefabrications are identified.</p> <p>1.2 Tools are checked for serviceability, safety and faults.</p> <p>1.3 Work area is cleared, and Hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and work standard practices</p> <p>1.4 Work instructions, specifications and operation details related to prefabrication machines are obtained</p> <p>1.5 Safety of operator and workplace, and safety with regard to tools, equipment and machines is identified.</p>
2. Set-up machine and associated equipment/ accessories	<p>2.1 The different prefabrication operations are identified as per standard guidelines.</p> <p>2.2 Product and/or work specification is determined and confirmed.</p> <p>2.3 Machine and its blade is checked for functionality and a its adjustment is done according to work specifications</p> <p>2.4 Band knife/ bell knife sharpening procedures are followed to manufacturer's specifications.</p> <p>2.5 Stamping foil is checked and changed/ replaced as required.</p> <p>2.6 Prefabrication machines are regularly lubricated, cleaned and maintained as per maintenance schedule.</p> <p>2.7 Workstation is set-up applying the ergonomics of the work environment</p>
3. Conduct sample run	<p>3.1 Materials for sample run are obtained following workplace procedure.</p> <p>3.2 Machines are run according to specified sample products and following standard procedures.</p> <p>3.3 Machine outputs are tested in accordance with company procedures to ensure required standards of quality are met.</p> <p>3.4 Machine outputs are organized to interpret test results according to company procedures.</p>
4. Adjust machine settings	<p>4.1 Test results are interpreted to determine machine adjustment requirements.</p> <p>4.2 Adjustment changes are assessed in accordance with product and machine specifications.</p>

	4.3 Availability of the newly setup machine is reported to concerned personnel.
5. Split components	<p>5.1 Components are assessed against job specifications.</p> <p>5.2 Thickness gauge is adjusted and correctly used, and various types of components are checked and according to work ticket specifications.</p> <p>5.3 Work ticket specifications are followed according to pairs and pieces.</p> <p>5.4 Parts are split to quality standards and checked against specifications.</p>
6. Emboss, stamp and mark components	<p>6.1 Various types of components are checked according to work ticket.</p> <p>6.2 Perform stamping and marking operations manually according to supervisory guidance.</p> <p>6.3 Dies for the embossing and stamping machines are adjusted to specification.</p> <p>6.4 Work ticket specifications are followed according to pairs and pieces.</p> <p>6.5 Parts are embossed and/or stamped to quality standards</p> <p>6.6 Parts are marked to specification either by hand or by marking device.</p>
7. Skive components	<p>7.1 The component to be skived is selected</p> <p>7.2 Perform skiving operation manually according to supervisory guidance.</p> <p>7.3 Machine adjustment is performed to the required skive thickness and width, and skiving the component is performed as per work specification</p> <p>7.4 Work ticket specifications are followed according to pairs and pieces.</p> <p>7.5 Parts are skived to quality standards and checked against specifications.</p>
8. Fuse components	<p>8.1 The components to be fused together are selected</p> <p>8.2 Perform fusing operation manually according to supervisory guidance.</p> <p>8.3 Machine adjustment is performed to the required standards.</p> <p>8.4 The components are fused by machine as per work specification and OHS measures.</p> <p>8.5 Work ticket specifications are followed according to pairs and pieces.</p>
9. Complete work	<p>9.1 Problems or faults with tools and machines are observed and referred for repair or correction</p> <p>9.2 Hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and work standard practices</p>

	9.3 Records are documented in standard format, maintained and reported to appropriate personnel following workplace procedures and requirements
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Variable	Range
Machines	May include, but not limited to: <ul style="list-style-type: none"> • Splitting machine • Fusing machine • Embossing machine • Skiving machine • Stamping machine • Marking equipment
Machine output	May include, but not limited to: <ul style="list-style-type: none"> • Product sample • Service samples • Machine operation
Components	May include, but not limited to: <ul style="list-style-type: none"> • Vamp • Toe-cap • Quarter • Tongue • Apron, Counter
Work ticket	<ul style="list-style-type: none"> • A format containing daily task given to the worker according to the work plan including all information and performance measurement.
Device	<ul style="list-style-type: none"> • Marking device used to enable the operator to work with a better speed.
Machine adjustments	May include, but not limited to: <ul style="list-style-type: none"> • Air Pressure • Temperature • Speed • Thickness and depth • Time delay • Motor
Skiving	May include, but not limited to: <ul style="list-style-type: none"> • Raw edge skiving • Underlay skiving • Folding skiving • Skiving of toe-puff and counter-stiffener skiving

Evidence Guide	
Critical Aspects of	Must demonstrate knowledge and skills competence to:

Competence	<ul style="list-style-type: none"> • checked work against specifications or workplace standards • prepared workstation and work before commencing operations • identified product specifications in relation to machine setting requirements • obtained appropriate materials to be used for sample/test run • operated machines with ease and confidence • made judgments about uniform split of materials so that standards for quality of materials are met • applied appropriate split techniques as specified • applied appropriate marking techniques as specified • made judgments about the cut components received whether they are matching with the marking patterns. • applied appropriate skive techniques as specified • made judgments about uniform skive of materials so that standards for quality requirements for folding of components are met • applied appropriate folding techniques as specified • applied OHS practices in work operations
Underpinning Knowledge and Attitude	<p>Demonstrate knowledge of:</p> <ul style="list-style-type: none"> • relevant machines and principles in use of splitting, stamping and skiving machine • quality standards and practices • thickness measurement techniques and units • OHS practices, including hazard identification and control measures • workplace practices • recording and reporting practices
Underpinning Skills	<p>Demonstrate skills in:</p> <ul style="list-style-type: none"> • start up, shut down, adjust and carry out minor machine maintenance with safety • arranging/preparing operation • checking machine and tools for irregularities • conducting sample run • testing machine outputs • split and skive components
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • access to relevant workplace or appropriately simulated environment where assessment can take place • Materials relevant to the proposed activity or tasks
Methods of Assessment	<p>Competence may be accessed through:</p> <ul style="list-style-type: none"> • Interview / Written exam • Observation / Demonstration
Context for Assessment	<p>Competence may be assessed in workplace or in a simulated workplace setting</p>

Occupational Standard: Footwear Production Level I	
Unit Title	Perform Basic Stitching
Unit Code	<u>IND FWP1 06 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to identify and use materials, tools, equipment and machines; perform basic stitching operation skills and checks quality and dispatch the stitched components.

Element	Performance Criteria
1. Identify and use materials, tools, equipment and machines	<p>1.1 Work instructions, specifications, and operational details relevant to the tasks are obtained.</p> <p>1.2 Materials, <i>tools</i>, equipment and machines are identified and prepared in consistent with the needs of the job, <i>and checked for proper functionality</i>.</p> <p>1.3 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer specifications and work standard practices.</p> <p>1.4 Safety of operator and work place in closing section is identified according to operational procedure</p>
2. Set up machine	<p>2.1 Closing section machines are <i>set up</i> and adjusted for operation according to task requirements.</p> <p>2.2 Closing section <i>machines</i> are routinely cleaned and maintained.</p> <p>2.3 Records are maintained as per work guideline</p>
3. Perform sewing	<p>3.1 Sewing machine is properly controlled.</p> <p>3.2 Sewing machine parts and functions are identified</p> <p>3.3 Basic stitching operation skills are practiced.</p> <p>3.4 <i>Material</i> is positioned and accurate stitching of different shapes and components is performed in consistent with stitching requirements</p> <p>3.5 Sewing machine is oiled and cleaned following manufacturer's instructions</p> <p>3.6 <i>Minor problems</i> in the sewing machine are diagnosed and rectified according to specifications and <i>OHS practices</i>.</p>
4. Check quality and dispatch the stitched components	<p>4.1 The quality check points for stitched materials are identified.</p> <p>4.2 Stitched components are checked against job specifications and workplace standards.</p> <p>4.3 Sewing faults or irregularities are addressed or resolved in accordance with workplace standard procedures.</p> <p>4.4 Completed component parts, panels or pieces are bundled,</p>

	stacked, stored /dispatched, and recorded in accordance with workplace procedures.
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Variable	Range
Tools	May include, but not limited to: <ul style="list-style-type: none"> • scissors and trimmer • thread burning tool • screw driver • oil can • glue tank and brush
Set up	May include, but not limited to: <ul style="list-style-type: none"> • Top threading • winding and inserting bobbin in to shuttle • operating the sewing machine • adjustment of thread tension and stitch density • inserting needles • cleaning the work place
Materials	May include, but are not limited to: <ul style="list-style-type: none"> • paper (SPE-1, SPE-2, SPE-3, SPE-4 and SPE-5) • synthetic materials (SSE-1 up to SPE-16) • fabrics • reinforcements
Attachments	May include, but not limited to: <ul style="list-style-type: none"> • guides • pressure foots • piping attachments • binding attachments
OHS practices	OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: <ul style="list-style-type: none"> • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • ergonomic arrangement of workplace • safe storage of equipment • reporting accidents and incidents • environmental practices
Machines	May include, but not limited to: <ul style="list-style-type: none"> • Flatbed single needle sewing machine • post bed double needle sewing machine • cylinder bed machine
Minor problems	May include, but are not limited to:

	<ul style="list-style-type: none"> • needle breakages • thread breakages • tension adjustments
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Evidence Guide

Critical Aspects of Competence	<p>Demonstrates skills and knowledge in:</p> <ul style="list-style-type: none"> • check work against work specifications and enterprise standards • selection of needle and thread in accordance with the specification • prepare work area before commencing operations • perform sewing operations • apply OHS practices in work operations • maintain accurate records
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • basic types of sewing machines • different types of threads, sizes and quality parameters • workplace procedures and reporting processes • relevant OHS legislation and codes of practice
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • control pedal • control speed • mount needle • thread the machine • wind bobbin • insert bobbin into bobbin case • insert bobbin case into shuttle • perform stitching of different shapes
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • workplace or fully equipped environment with necessary tools and equipment as well as consumable materials
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	<p>Competence may be assessed in the work place or in a simulated work place setting</p>

Occupational Standard: Footwear Production Level I	
Unit Title	Apply 5S Procedures
Unit Code	<u>IND FWP1 07 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude required to apply 5S techniques to his/her workplace. It covers responsibility for the day-to-day operations of the workplace and ensuring that continuous improvements of Kaizen elements are initiated and institutionalized.

Elements	Performance Criteria
1. Prepare for work.	<p>1.1. Work instructions are used to determine job requirements, including method, material and equipment.</p> <p>1.2. Job specifications are read and interpreted following working manual.</p> <p>1.3. OHS requirements, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work.</p> <p>1.4. Tools and equipment are prepared and used to implement 5S.</p> <p>1.5. Safety equipment and tools are identified and checked for safe and effective operation.</p> <p>1.6. Kaizen Board (Visual Management Board) is prepared and used in harmony with different workplace contexts.</p>
2. Sort items.	<p>2.1. Plan is prepared to implement sorting activities.</p> <p>2.2. Cleaning activities are performed.</p> <p>2.3. All items in the workplace are identified following the appropriate procedures.</p> <p>2.4. Necessary and unnecessary items are listed using the appropriate format.</p> <p>2.5. Red tag strategy is used for unnecessary items.</p> <p>2.6. Unnecessary items are evaluated and placed in an appropriate place other than the workplace.</p> <p>2.7. Necessary items are recorded and quantified using appropriate format.</p> <p>2.8. Performance results are reported using appropriate formats.</p> <p>2.9. Necessary items are regularly checked in the workplace.</p>
3. Set all items in order.	<p>3.1. Plan is prepared to implement set in order activities.</p> <p>3.2. General cleaning activities are performed.</p> <p>3.3. Location/Layout, storage and indication methods for items are decided.</p> <p>3.4. Necessary tools and equipment are prepared and used for setting in order activities.</p> <p>3.5. Items are placed in their assigned locations.</p> <p>3.6. After use, the items are immediately returned to their assigned</p>

	<p>locations.</p> <p>3.7. Performance results are reported using appropriate formats.</p> <p>3.8. Each item is regularly checked in its assigned location and order.</p>
4. Perform shine activities.	<p>4.1 Plan is prepared to implement shine activities.</p> <p>4.2 Necessary tools and equipment are prepared and used for shining activities.</p> <p>4.3 Shine activity is implemented using appropriate procedures.</p> <p>4.4 Performance results are reported using appropriate formats.</p> <p>4.5 Regular shining activities are conducted.</p>
5. Standardize 5S.	<p>5.1. Plan is prepared and used to standardize 5S activities.</p> <p>5.2. Tools and techniques to standardize 5S are prepared and implemented based on relevant procedures.</p> <p>5.3. Checklists are followed for standardize activities and reported to relevant personnel.</p> <p>5.4. The workplace is kept to the specified standard.</p> <p>5.5. Problems are avoided by standardizing activities.</p>
6. Sustain 5S.	<p>6.1. Plan is prepared and followed to sustain 5S activities.</p> <p>6.2. Tools and techniques to sustain 5S are discussed, prepared and implemented based on relevant procedures.</p> <p>6.3. Workplace is inspected regularly for compliance to specified standard and sustainability of 5S techniques.</p> <p>6.4. Workplace is cleaned up after completion of job and before commencing next job or end of shift.</p> <p>6.5. Situations are identified where compliance to standards is unlikely and actions specified in procedures are taken.</p> <p>6.6. Improvements are recommended to lift the level of compliance in the workplace.</p> <p>6.7. Checklists are followed to sustain activities and report to relevant personnel.</p> <p>6.8. Problems are avoided by sustaining activities.</p>

Variable	Range
OHS requirements	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Legislation/Regulations/Codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of fire fighting equipment, enterprise first aid, hazard control and hazardous materials and substances. • Personal protective equipment is to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices.

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	<ul style="list-style-type: none"> • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated with workplace organization. • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Tools and equipment	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Paint • Hook • Sticker • Signboard • Nails • Shelves • Chip wood • Sponge • Broom • Pencil • Shadow board/Tools board
Safety equipment and tools	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Dust masks/goggles • Glove • Working cloth • First aid and safety shoes
Items	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Tools • Jigs/Fixtures • Materials/components • Machine and equipment • Manuals • Documents • Personal items (e.g. Bags, lunch boxes and posters) • Safety equipment and personal protective equipment • Other items which happen to be in the work area
The appropriate procedures	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Steps for implementing 5S (sort, set in order and shine) activities. • Written, verbal and computer based or in some other format.
Unnecessary items	<p>Are not needed for current production or administrative operation and include but not limited to:</p> <ul style="list-style-type: none"> • Defective or excess quantities of small parts and inventory • Out dated or broken jigs and dies

	<ul style="list-style-type: none"> • Worn-out bits • Out dated or broken tools and inspection gear • Old rags and other cleaning supplies • Electrical equipment with broken cords • Out dated posters, signs, notices and memos • Some locations where unneeded items tend to accumulate • In rooms or areas not designated for any particular purpose • In corners next to entrances or exists • Along interior and exterior walls • Next to partitions and behind pillars • Under the eaves of warehouses • Under desks and shelves and in desk and cabinet drawers • Near the bottom of tall stacks of items • On unused management and production schedule boards • In tools boxes that are not clearly sorted
Appropriate format	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • All items, necessary and unnecessary items.
Red tag	<p>A format prepared with a red color paper or card which is filled and attached temporarily on the unnecessary items until decision is made. The red tag catch people's attention because red is a color that stands out. So to fill and attach red tag on items, asks the following three questions:</p> <ul style="list-style-type: none"> • Is this item needed? • If it is needed, is it needed in this quantity? • If it is needed, does it need to be located here?
Necessary items	<p>Are required in the workplace for current production or administrative operation in the amount needed.</p>
Shine activity	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Inspection • Cleaning • Minor maintenance May include, but not limited to: <ul style="list-style-type: none"> ➤ Tightening bolts ➤ Lubrication and Replacing missing parts
Tools and techniques to standardize 5S	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • 5S Job Cycle Charts • Visual 5S • The Five Minute 5S • Standardization level checklist • 5S checklist • The five Whys and one How approach(5W1H) • Suspension

	<ul style="list-style-type: none"> • Incorporation and Use Elimination • 5S slogans • 5S posters • 5S photo exhibits and storyboards • 5S newsletter • 5S maps • 5S pocket manuals • 5S department/benchmarking tours • 5S months • 5S audit • Awarding system • Big cleaning day • Patrolling system May include, but not limited to: <ul style="list-style-type: none"> ➤ Top management Patrol ➤ 5S Committee members and Promotion office Patrol ➤ Mutual patrol ➤ Self-patrol • Checklist and Camera patrols
Relevant procedures	May include, but not limited to: <ul style="list-style-type: none"> • Assign 5S responsibilities • Integrate 5S duties into regular work duties • Check on 5S maintenance level • OHS measures such as signage, symbols / coding and labelling of workplace and equipment • Creating conditions to sustain your plans • Roles in implementation
Reporting	May include, but not limited to: <ul style="list-style-type: none"> • Verbal responses • Data entry into enterprise database • Brief written reports using enterprise report formats
Relevant personnel	May include, but not limited to: <ul style="list-style-type: none"> • Supervisors, managers and quality managers • Administrative, laboratory and production personnel • Internal/external contractors, customers and suppliers

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge to: <ul style="list-style-type: none"> • Discuss how to organize KPT. • Describe the pillars of 5S. • Discuss the relationship between Kaizen elements. • Implement 5S in own workplace by following appropriate

	procedures and techniques.
Required Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • Kaizen principle, pillars and concept • Key characteristic of Kaizen • Elements of Kaizen • Wastes/MUDA • Basics of KPT • Aims, benefits and principles of KPT • Stages of KPT • Structure and role of the components of Junior KPT • Concept and parts of Kaizen board • Concept and benefits of 5S • The pillars of 5S • Three stages of 5S application • Benefits and procedure of sorting activities • The concept and application of Red Tag strategy • Relevant Occupational Health and Safety (OHS) and environment requirements • Benefits and procedure of set in order activities • Set in order methods/techniques • Benefits and procedure of shine activities • Inspection methods • Planning and reporting methods • Method of Communication • Benefits of standardizing and sustaining 5S • Tools and techniques to sustain 5S • Ways to improve Kaizen elements • Benefits of improving kaizen elements • Relationship between Kaizen elements
Required Skills	<p>Demonstrates skills of:</p> <ul style="list-style-type: none"> • Participating actively in KPT • Technical drawing • Communication skills • Planning and reporting own tasks in implementation of 5S • Following procedures to implement 5S in own workplace • Using sorting formats to identify necessary and unnecessary items • Improving workplace layout following work procedures • Preparing labels, slogans, etc. • Reading and interpreting documents • Observing situations • Gathering evidence by using different means

	<ul style="list-style-type: none"> • Recording activities and results using prescribed formats • Working with others • Solving problems by applying 5S • Preparing and using kaizen board • Preparing and using tools and equipment to implement and sustain 5S • Improving Kaizen elements by applying 5S • Standardizing and sustaining procedures and techniques to avoid problems • Procedures to standardizing 5S activities • Analysing and preparing shop layout of the workplace • Standardizing and sustaining checklists
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: <ul style="list-style-type: none"> • Interview/Written Test • Observation/Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

NTQF Level II

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Occupational Standard: Footwear Production Level II	
Unit Title	Prepare Footwear Upper Material Requirement
Unit Code	<u>IND FWP2 01 1121</u>
Unit Descriptor	This unit covers knowledge, skills and attitude related to the preparation of the upper material (leather and synthetic) consumption for footwear.

Elements	Performance Criteria
1. Identify and prepare tools, materials and equipment	<p>1.1 Work instructions, specifications, and operational details relevant to the tasks are obtained as per work standards.</p> <p>1.2 Hand tools, patterns and <i>materials</i> are identified and obtained in consistent with the needs of the job.</p> <p>1.3 Materials, <i>tools and equipment</i> are checked for proper functionality according to OHS practices</p>
2. Apply principles and concepts of upper material estimation	<p>2.1 The <i>principle and concepts</i> of material estimations are described.</p> <p>2.2 The different methods of material estimation are described.</p> <p>2.3 The purpose of material estimation is described.</p> <p>2.4 The footwear specification including <i>type of footwear</i>, material type and number of components per pair are identified and obtained.</p>
3. Perform parallelogram area of the pattern	<p>3.1 Fundamental of parallelogram is described.</p> <p>3.2 Zero degree method of construction of the parallelogram is performed.</p> <p>3.3 One eighty degree method of construction of parallelogram is performed.</p> <p>3.4 Selection of method of construction of the parallelogram is described.</p> <p>3.5 Determination of the parallelogram area is described and performed.</p>
4. Determine second wastage	<p>4.1 Size of leather is determined as per specifications.</p> <p>4.2 Relationship between pattern area and leather size is described.</p> <p>4.3 Use of different methods applicable to different types of leather and pattern condition is described.</p> <p>4.4 Second waste computation is performed.</p>

5. Determine material estimation for one pair	<p>5.1 The average grade of the leather is determined.</p> <p>5.2 Estimation of the material consumption is performed based upon the grade of the material is determined.</p> <p>5.3 The grade of material is documented according to manufacturer's requirements</p>
6. Perform synthetic material estimation	<p>6.1 Difference between characteristics of synthetic and leather material is described.</p> <p>6.2 Tracing method is performed.</p> <p>6.3 Consumption of synthetic material is performed.</p> <p>6.4 The grade of material is recorded.</p>

Variable	Range
Tools and equipment	<p>May include:</p> <ul style="list-style-type: none"> • calculators(simple) • scale • pencils • erasers • graph sheets (a1 size or equivalent size) • brown paper
Type of footwear	<p>May include, but not limited to upper and lining patterns of various designs such as:</p> <ul style="list-style-type: none"> • derby • oxford • slip on • moccasins • court
Materials	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • synthetics such as: <ul style="list-style-type: none"> ○ cloth ○ non-woven lining ○ synthetic lining ○ sheet materials such as: <ul style="list-style-type: none"> ○ insole sheets ○ toe puffs ○ counters • different types of leathers such as: <ul style="list-style-type: none"> ○ cow ○ goat/kid ○ sheep

	<ul style="list-style-type: none"> ○ nu buck ○ suede
Principle and concepts	<ul style="list-style-type: none"> • Able to differentiate between synthetic and leather material estimation • Able to make parallelogram with maximum permissible error of +/- 2 mm between opposite sides. • Able to select between 0^0 and 180^0 method after verifying the patterns. • Able to compute material estimation per pair of footwear using graphical method. • Shall possess basic knowledge related to the different methods of material estimations.

Evidence Guide	
Critical Aspects of competence	<p>Assessment requires evidence that the candidate able to:</p> <ul style="list-style-type: none"> • draw parallelogram correctly • calculate parallelogram area correctly • select and compute second and third wastage from given leather and style • demonstrate computation of synthetic material estimation • demonstrate method of computation of upper and lining material estimate for one pair • select most suitable method between 0^0 and 180^0 through assessment of the patterns
Underpinning Knowledge and Attitude	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • leather grades and it's relative cutting value • method of computation parallelogram area • mathematical formulae application for area and other calculation • relationship between pattern size to the area of the skin • effect of grades on leather material computation

	<ul style="list-style-type: none"> • procedures and work instructions, and other reference material • workplace practices • recording and reporting practices
Underpinning Skills	<p>Demonstrates skills in:</p> <ul style="list-style-type: none"> • check parallelogram for correctness • check leather for grades • read, interpret and follow information on work specifications, standard operating • maintain accurate records • communicate in the workplace • efficient layout from given patterns on synthetic
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • access to relevant workplace or appropriately simulated environment where assessment can take place • materials relevant to the proposed activity or tasks
Methods of Assessment	<p>Competence may be accessed through:</p> <ul style="list-style-type: none"> • Interview/Written Test • Observation/ Demonstration with Oral Questioning
Context of Assessment	<p>Competence may be assessed in workplace or in a simulated workplace setting.</p>

Occupational Standard: Footwear Production Level II	
Unit Title	Perform Closing of Uppers
Unit Code	<u>IND FWP2 02 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude required to prepare, stitch and assemble upper for four basic styles. Operating of stitching and other ancillary machines as per defined procedures are also addressed. Additionally, folding, toe puff attaching and eyeleting operations are also performed.

Element	Performance Criteria
1. Identify and use materials, tools, equipment and machines	1.1 Work instructions, specifications, and operational details relevant to the tasks are obtained. 1.2 Materials, tools , equipment and machines are identified and prepared consistent with the needs of the job and checked for proper functionality 1.3 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer specifications and work standard practices. 1.4 Safety with regards to tools, equipment, machines, operator and work place in closing section is identified
2. Set up machine	2.1 Closing section machines are set up and adjusted for operation according to task requirements. 2.2 Closing section machines are routinely cleaned and maintained. 2.3 Records are maintained as per manufacturer's requirement.
3. Attach and perform sewing operation	3.1 Attaching of materials is carried out as per the requirements using appropriate glue 3.2 Material is positioned and sewn accurately consistent with stitch requirement 3.3 Sewing of the components are carried out according to OHS practices .
4. Perform folding operations	4.1 Different folding types and techniques are identified and explained. 4.2 Folding by hand is performed in accordance with standards. 4.3 Folding machine adjustments is performed in accordance with job requirements. 4.4 Folding is performed by using thermo folding machine in accordance with manufacturer's instructions and OHS practices. 4.5 Folding machine is cleaned and maintained regularly in accordance with enterprise standard procedures.
5. Perform closing of upper	5.1 Sequence of operation for the assembly is determined. (four styles : derby, oxford, slip-on and court) 5.2 Tools, machines and other technical specifications required for

	<p>the making of the uppers are identified and documented.</p> <p>5.3 The sewing of upper is performed as per the sequence of operation.</p>
6. Check machine performance	<p>6.1 The performance of the machine is routinely monitored for signs of faulty operations according to manufacturer's specification</p> <p>6.2 Minor problems in the sewing machine are diagnosed and rectified</p> <p>6.3 Appropriate action is undertaken in accordance with workplace procedures</p> <p>6.4 The machine is oiled and cleaned regularly following manufacturer's instructions</p>
7. Toe puff attaching and bottom line stitching	<p>7.1 The toe puff component to be attached is identified.</p> <p>7.2 Machine adjustment is performed to the required temperature and pressure.</p> <p>7.3 The toe puff component is attached by hand or machine as per work specification and according to OHS practices, and checked against specifications.</p> <p>7.4 Bottom line stitching of upper and lining is carried out as per standards.</p>
8. Perform eyeletting operation	<p>8.1 Punching and eye-letting by hand is performed in accordance with job specifications and requirements following OHS measures</p> <p>8.2 Eye-letting machine is set up and operated in accordance with job specifications and requirements following OHS measures</p> <p>8.3 Quality of eye-letting is checked and appropriate action undertaken to correct faults as per standards.</p>
9. Check quality of stitched upper	<p>9.1 Quality check points are identified</p> <p>9.2 Uppers are checked against job specifications and workplace standards.</p> <p>9.3 Handling of upper is carried out as per the operating instructions.</p> <p>9.4 Faults or irregularities are addressed or resolved as per standards.</p>
10. Dispatch completed work	<p>10.1 Completed component parts, panels or pieces are bundled, stacked, stored or dispatched in accordance with workplace procedures.</p> <p>10.2 Sewing faults are recorded in accordance with workplace standard procedures.</p> <p>10.3 Records are completed in accordance with workplace procedures and format as applicable.</p>

Variable	Range
Tools	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • scissors and trimmer • gimping scissor

	<ul style="list-style-type: none"> • thread burner • screw driver • folding hammer • puncher • dies for eye-letting
Set up	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Top threading • winding and inserting bobbin in to shuttle • operating the sewing machine • adjustment of thread tension and stitch density • inserting the appropriate type of needle • cleaning the work place • adjustment of folding, eyeleting and toe puff attaching machines
OHS practices	<p>OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:</p> <ul style="list-style-type: none"> • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • ergonomic arrangement of workplace • safe storage of equipment • reporting accidents and incidents • environmental practices
Attachments	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • guides • pressure foots • piping attachments • binding attachments
Machines	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • post bed single needle sewing machine • post bed double needle sewing machine • strobble machine • seam rubbing and taping • cylinder bed machine • folding machine • toe puff attaching machine • eye-letting machine • gimping and punching machine
Materials	<p>May include, but are not limited to:</p> <ul style="list-style-type: none"> • leather

	<ul style="list-style-type: none"> • synthetic materials • fabrics • reinforcements
Minor problems	<p>May include, but are not limited to:</p> <ul style="list-style-type: none"> • needle breakages • thread breakages • tension adjustments

Evidence Guide

Critical Aspects of Competence	<p>Demonstrates skills and knowledge in:</p> <ul style="list-style-type: none"> • check work against work specifications and enterprise standards • sequence of operation for making of uppers • handling of the uppers • selection of needle and thread in accordance with the specification • prepare work area before commencing operations • perform sewing operations • apply OHS practices in work operations • maintain accurate records
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • types of sewing machines and application • various type of stitches • needle points, sizes • different types of threads, sizes and quality parameters • workplace procedures and reporting processes • relevant OHS legislation and codes of practice
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • mount needle • thread the machine • wind bobbin • insert bobbin into bobbin case • insert bobbin case into shuttle • perform stitching of upper • do folding by hand • folding by machine • eye-letting by hand • eye-letting by machine • trimming by hand • trimming by machine
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • workplace or fully equipped environment with necessary tools and equipment as well as consumable materials

Methods of Assessment	Competence may be assessed through: <ul style="list-style-type: none"> • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Footwear Production Level II	
Unit Title	Perform Minor Maintenance
Unit Code	IND FWP2 03 1121
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to perform basic/routine preventive machine maintenance and adjustments for cutting, prefabrications and stitching machines.

Element	Performance Criteria
1. Prepare for basic routine maintenance	<p>1.1 <i>Tools and supplies</i> required to carry out <i>basic routine maintenance</i> tasks are identified, selected and provided on site according to supervisor's instructions.</p> <p>1.2 <i>Routine pre-operational checks</i> of machinery and equipment are carried out and adjustments made according to manufacturer's specifications and/or enterprise procedures.</p> <p>1.3 Faulty or unsafe machinery and equipment are identified and segregated for repair or replacement according to <i>enterprise requirements</i>.</p> <p>1.4 <i>OHS</i> hazards in the workplace are identified and reported to the supervisor.</p>
2. Carry out basic routine maintenance for cutting, prefabrication and stitching machines	<p>2.1 Suitable <i>personal protective equipment</i> is stored, selected, used and maintained according to OHS requirements.</p> <p>2.2 Greasing, lubrication and other basic servicing for all machinery are carried out according to operator's manual/manufacturers specifications and supervisor's instructions.</p> <p>2.3 Routine adjustments and repairs are made to cutting, skiving, splitting, embossing, fusing, folding, crimping and stitching machinery and equipment according to operators' manual/manufacturers' specifications and supervisors instructions.</p>
3. Complete basic routine maintenance	<p>3.1 Tools are cleaned, returned to operating order and stored according to manufacturers' specifications and enterprise requirements.</p> <p>3.2 <i>Environmental procedures</i> are followed and waste from maintenance activities is collected, treated and disposed or recycled according to enterprise requirements.</p> <p>3.3 Work area is cleaned and maintained according to OHS and enterprise requirements.</p> <p>3.4 Malfunctions, faults, wear or damage to tools are reported to the supervisor according to enterprise requirements.</p> <p>3.5 Maintenance record and documentation as per company guidelines</p>

Variable	Range
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Tools and supplies	<p>It may include but not limited to:</p> <ul style="list-style-type: none"> • hand tools • personal protective equipment • hand held power tools • grease guns • cleaning and maintenance supplies including: <ul style="list-style-type: none"> • grease, fuel, oil • chemicals, water steam • power and air
Routine pre-operational checks	<p>It may include but not limited to:</p> <ul style="list-style-type: none"> • Routine safety and pre-start checks and preparatory procedures including: <ul style="list-style-type: none"> • cleaning • lubricating • hand sharpening • riming pumps • clearing filters • tightening • basic repairs and adjustments
Basic routine maintenance	<p>It may include but not limited to:</p> <ul style="list-style-type: none"> • dismantling and assembling, • testing • tightening • minor adjustments and repairs • routine servicing procedures including: <ul style="list-style-type: none"> • lubricating, and checks of cooling system • fuel, grease and oil, and battery levels
Enterprise requirements	<p>It may include but not limited to:</p> <ul style="list-style-type: none"> • Standard Operating Procedures (SOPs) • industry standards • production schedules • material safety data sheets (MSDS) • work notes and plans • product labels • manufacturers specifications • operators' manuals • enterprise policies and procedures (including waste disposal, recycling and re-use guidelines), and supervisors oral or written instructions

OHS	<p>Systems and procedures for:</p> <ul style="list-style-type: none"> • the safe maintenance of equipment including hydraulics and guarding of exposed moving parts • identifying and reporting hazards • safe lifting, carrying and manual handling • the provision of safety decals and signage • the safe handling and storage of hazardous substances • the appropriate use, maintenance and storage of personal protective equipment • outdoor work including protection from solar radiation • working in confined spaces • the protection of people in the workplace • protection from hazardous noise, organic and other dusts
Personal protective equipment	<p>It may include but not limited to:</p> <ul style="list-style-type: none"> • Safety shoes • hat/hard hat • overalls • gloves • protective eyewear • hearing protection • safety harness, respirator or face mask • sun protection (sun hat, sunscreen)
Environmental procedures	<p>It may include but not limited to:</p> <ul style="list-style-type: none"> • measures to reduce excessive noise and exhaust emissions, the safe use and disposal of maintenance debris including oil containers, fuel and chemical residues

Evidence Guide	
Critical Aspects of Competence	<p>Must demonstrate skills and knowledge competence to:</p> <ul style="list-style-type: none"> • prepared for basic routine maintenance • carried out basic routine maintenance • completed basic routine maintenance activities
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • types, characteristics and functions of machinery and equipment • machinery and equipment testing and operating procedures • types, characteristics and functions of tools used in maintenance of machinery and equipment • OHS legislative requirements • codes of Practice with regard to the use and control of hazardous substances and/or working in confined spaces • environmental Codes of Practice with regard to maintenance

	activities
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • preparing for basic routine maintenance • carrying out basic routine maintenance • completing basic routine maintenance activities
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • workplace or fully equipped environment with necessary tools and equipment as well as consumable materials
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview/ Written Test • Observation/Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Footwear Production Level II	
Unit Title	Perform Moccasin Stitching Operations
Unit Code	<u>IND FWP2 04 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude required to carry out stitching operation for moccasin upper by hand or using machines.

Elements	Performance Criteria
1. Prepare tools and materials	1.1 Hand tools, patterns and materials required for moccasin stitching are identified and obtained consistent with the needs of the job. 1.2 Work instructions, specifications, and operational details relevant to the tasks are obtained. 1.3 Tools and materials are checked for proper functionality according to <i>OHS practices</i>
2. Set up workstation	2.1 Workstation is set-up and arranged according to work specifications. 2.2 Tools, equipment and patterns are selected and prepared according to work specifications and manufacturer instructions. 2.3 Materials are collected, sorted and laid out in preparation for stitching.
3. Stitch upper material manually	3.1 Hand stitching type or work procedures/techniques are identified as per the required specification 3.2 Prepare the work for hand stitching 3.3 Components are stitched manually according to work procedure and OHS practices
4. Set up machine	4.1 Machine is set-up and adjusted for operation according to task requirements. 4.2 Temperature and steam is set according to specifications 4.3 Machine is routinely cleaned and maintained.
5. Stitch upper material	5.1 Material is positioned accurately consistent with stitch requirement 5.2 Material is sewn and molded according to specification 5.3 Sewing of the components and molding of stitched upper are carried out according to OHS practices.
6. Check for quality and dispatch	6.1 Quality check points are identified. 6.2 Quality of upper is checked against job specifications and enterprise quality standards. 6.3 Faults and irregularities are addressed following company standard procedures. 6.4 Necessary records and dispatching are carried out in accordance with work procedures and standard format

Variable	Range
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Tools and Materials	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • leather/ synthetic upper component • leather/ synthetic/fabric linings component • waxed moccasin thread • adhesive • hand stitching needle /moccasin needle/ • awl • ruler • cutter/knives • leather glove
OHS practices	<p>OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:</p> <ul style="list-style-type: none"> • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents
Machine	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Moccasin stitching machine • Moccasin ironing

Evidence Guide	
Critical Aspects of Competence	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> • set-up workstation and prepare work before commencing operations • assessed different qualities and types of upper • checked work against specifications and enterprise standards • applied OHS practices in work operations • maintained accurate records
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • enterprise and workplace standards • job specifications and sequence of operations • checked proper stitching and ironing of moccasin upper as per quality standards and practices • OHS practices, including hazard identification and control measures • recording and reporting practices

Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • clarify and check task-related information • check work against specifications and enterprise standards • prepare equipment and workstation before commencing operations • sequence operations meet specifications • apply OHS practices in work operations • maintain accurate records
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • Access to relevant workplace or appropriately simulated environment where assessment can take place • Materials relevant to the proposed activity or tasks such as paper exercises, synthetics, leather of different finishes, tin patterns, stop watches etc.
Methods of Assessment	<p>Competence may be assessed through</p> <ul style="list-style-type: none"> • Observation /Demonstration by simulation • Oral questioning / Written test
Context of Assessment	<p>Competency may be assessed in workplace or in a simulated workplace setting.</p>

Occupational Standard: Footwear Production Level II	
Unit Title	Perform Bottom Component Operation
Unit Code	IND FWP2 05 1121
Unit Descriptor	This unit covers the knowledge, attitudes and skills required to perform bottom component operations including insole making, leather sole making, and heel making and attaching.

Element	Performance Criteria
1. Prepare tools, materials, equipment and machines	<p>1.1 Materials used as bottom component are identified and selected as per supervisor requirement</p> <p>1.2 Tools and machines are identified and made ready for operation</p> <p>1.3 Handling and care requirements for materials are performed.</p> <p>1.4 Common problems and faults of materials are identified.</p> <p>1.5 Suitable personal protective equipment for safety with regards to tools, equipment and machines is identified</p> <p>1.6 Safety of operator and work place in component section is identified</p>
2. Perform bottom component operations	<p>2.1 Types and sequence of operation for the preparation of the bottom components is identified.</p> <p>2.2 Interlocking for major components is performed.</p> <p>2.3 Toe puff and stiffener materials are prepared and cut as per the specification of the footwear and procedure.</p> <p>2.4 Different types of insole are prepared as per the specification of the footwear and procedure.</p> <p>2.5 Leather sole is prepared as per the specification of the footwear and procedure.</p> <p>2.6 Heels are prepared and attached to the leather sole as per the specification of the footwear and procedure.</p> <p>2.7 Work area is cleaned and maintained according to OHS practices and enterprise requirements.</p>
3. Assess final quality of the bottom components and dispatch	<p>3.1 Quality check points and critical stages of the inspections are identified</p> <p>3.2 Quality checks in relation to the design of footwear and last is performed.</p> <p>3.3 Problems and faults are identified and analyzed.</p> <p>3.4 Report and record is maintained</p> <p>3.5 Dispatch completed work</p>

Variable	Range
Materials	<p>It may include, but not limited to: types and characteristics, Generic and trade names, and uses and care for the following materials</p> <ul style="list-style-type: none"> • insole sheets

	<ul style="list-style-type: none"> • steel shank • shank board • toe puff sheets • stiffener sheets • sole:- leather • heels:- wedge heel • EVA sheet • Fabric • Interlining /reinforcement/ • Foam
Tools and Machines	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • cutting knives • travel head cutting • insole molding • insole beveling • shank skiving • toe puff and stiffener skiving • insole grooving • riveting • gluing • roughing and scouring
types of insoles	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • continental • good year welt • sandal • runner
Personal protective equipment	<p>It may include, but not limited to:</p> <ul style="list-style-type: none"> • Safety shoes • hat/hard hat • overall wear • gloves • protective eyewear • hearing protection • safety harness, respirator or face mask • sun protection (sun hat, sunscreen)
OHS practices	<p>Systems and procedures for:</p> <ul style="list-style-type: none"> • identifying and reporting hazards • safe lifting, carrying and manual handling • the provision of safety decals and signage • the safe handling and storage of hazardous substances • the appropriate use, maintenance and storage of personal protective equipment • working in confined spaces • the protection of people in the workplace • protection from hazardous noise, organic and other dusts

Major components	<p>It may include, but limited to:</p> <ul style="list-style-type: none"> • Insole • Shank • Toe puff • Counter • Heel
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Evidence Guide	
Critical Aspects of Competence	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> • identify materials, its characteristics and uses within footwear industry • able to make insole, leather sole, toe puff and counter stiffener as per specification of the product and procedure • able to interpret insole pattern, sole pattern and size range • identify the knives used for the manufacturing of the insole and soles • able to identify faults and problems related to the product
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • types, characteristics and functions of machinery and equipment • types of insoles, construction methods • types of soles, method of construction of leather soles • types of toe puffs and counters • sequence of operation for the preparation of the insoles, toe puffs and counters
Underpinning Skills	<p>Demonstrate skill on:</p> <ul style="list-style-type: none"> • insole making • toe puff • counter stiffener • leather soles making • identification of faults
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • workplace or fully equipped environment with necessary tools and equipment as well as consumable materials
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview/ Written Test • Observation/Demonstration with Oral Questioning
Context of Assessment	<p>Competence may be assessed in the work place or in a simulated work place setting.</p>

Occupational Standard: Footwear Production Level II	
Unit Title	Perform Basic Lasting Operations
Unit Code	<u>IND FWP2 06 1121</u>
Unit Descriptor	This unit covers knowledge, skills and attitude required to perform lasting preparation activities, drafting pulls and post manual lasting operations.

Element	Performance Criteria
1. Identify and prepare tools, materials and machines	1.1 Hand lasting materials and tools are identified and checked for appropriateness and functionality. 1.2 Tools are checked for serviceability and safety and faults. 1.3 Work area is cleared following workplace standard procedures. 1.4 Machines are identified, arranged and made ready for specified products. 1.5 Hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and OHS practices 1.6 Work instructions, specifications and operation details related to lasting machines are obtained 1.7 Safety with regard to tools, equipment and machine is identified. 1.8 Safety of operator and workplace is identified.
2. Perform basic lasting procedure	2.1 Basic methods of lasting are described and appropriate method identified for the job order or specification. 2.2 Appropriate method of attaching insoles are identified and performed in accordance with enterprise procedures. 2.3 Correct methods of toe-puff and counter stiffener attachment are performed. 2.4 Essential drafting pulls are identified in accordance with standard procedures.
3. Identify and perform post manual lasting operations	3.1 Heat setting is performed. 3.2 Application of appropriate adhesive is described and performed. 3.3 Roughing and scouring is performed. 3.4 Upper and sole preparation is performed as per the specification and procedure. 3.5 Sole pressing and Delasting is performed. 3.6 Work area is cleaned and maintained according to OHS and enterprise requirements. 3.7 Environmental procedures are followed and waste from

	maintenance activities is collected, treated and disposed or recycled according to enterprise requirements.
4. Determine quality check points of the lasted shoes	<p>4.1 Final check points (quality faults) on the lasted shoes is identified and performed.</p> <p>4.2 Method of handling of the complete finished shoe is described and demonstrated.</p> <p>4.3 Method of packing the finished shoe is described and performed.</p> <p>4.4 Work area is cleaned and maintained according to OHS and enterprise requirements.</p>

Variable	Range
Materials	<p>It may include, but not limited to:</p> <ul style="list-style-type: none"> • Insole • Last • upper • Temporary laces • toe puff • stiffener • nails and tacks • plaster or insole tapes • adhesive • sole such as leather, PVC, PU, TR • finishing materials such as creams, waxes • solvents • emery paper
Tools	<p>It may include, but not limited to:</p> <ul style="list-style-type: none"> • pincer • tack remover • lasting jack • scissors • brushes for adhesives • adhesive pot • hammer • working table
Machines	<p>It may include, but not limited to:</p> <ul style="list-style-type: none"> • roughing and scouring • wrinkle chasing • heat setting • adhesive activator • sole pressing • brushing and polishing • Delasting
Environmental procedures	<p>It may include but not limited to:</p> <ul style="list-style-type: none"> • measures to reduce excessive noise and exhaust emissions, the safe use and disposal of maintenance debris including oil containers, fuel

	and chemical residues
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Evidence Guide	
Critical Aspects of Competence	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> • carry out hand lasting operation as per the sequence • able to do the hand lasting operation leading to complete making of the footwear • able to select appropriate type of adhesive in relation to sole • carried out basic routine maintenance • able to identify defects in the complete footwear • able to demonstrate handling of the finished footwear
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • types, characteristics and functions of machinery, tools and equipment • procedure of manual lasting • types of adhesive and its relationship with different types of soling materials • parameter for temperature and pressure during lasting • codes of practice with regard to the use and control of hazardous substances and/or working in confined spaces
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • able to demonstrate sequence of manual lasting(hand) • use of tools and equipment in manual lasting process • determine method of final shoe inspection • reporting and maintaining the records in accurate condition
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • workplace or fully equipped environment with necessary tools and equipment as well as consumable materials
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview/ Written Exam • Observation/Demonstration with Oral Questioning
Context of Assessment	<p>Competence may be assessed in the work place or in a simulated work place setting</p>

Occupational Standard: Footwear Production Level II	
Unit Title	Perform Footwear Finishing and Packaging
Unit Code	<u>IND FWP2 07 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude to perform footwear finishing and packaging operations.

Elements	Performance Criteria
1. Prepare tools, materials and equipment and machine	<p>1.1 Materials and components used for footwear finishing are identified and selected as per the required specification.</p> <p>1.2 Tools and equipment are identified as per the required work specification and made ready for operation.</p> <p>1.3 Common problems and faults of materials are identified and rectified.</p> <p>1.4 Suitable personal protective equipment for safety with regards to tools, equipment and machines is identified</p> <p>1.5 Safety of operator and work place for finishing operation is described.</p>
2. Prepare workstation and set up the machine	<p>2.1 Workstation is set-up and arranged according to work specifications and OHS practices.</p> <p>2.2 Footwear are collected, sorted, laid out and prepared for finishing operation.</p> <p>2.3 Finishing machineries are set-up and adjusted for operation according to task requirements.</p> <p>2.4 Finishing machineries are routinely cleaned and maintained.</p>
3. Perform Finishing and packaging of the work	<p>3.1 Different types of leather finishes are identified.</p> <p>3.2 Finishing processes I and II are identified and described.</p> <p>3.3 Finishing operations are performed according to customer specifications and standard procedure.</p> <p>3.4 Packaging and labeling materials are identified and sorted</p> <p>3.5 Products are checked as per customer specification</p> <p>3.6 Packaging operations are performed according to customer specifications and standard procedure.</p> <p>3.7 Action is taken according to OHS practices to prevent accidents and to eliminate risks to personal safety.</p> <p>3.8 Production and other records are completed.</p>
4. Check final quality of the finished pair and dispatch	<p>4.1 Quality check points are identified</p> <p>4.2 Footwear is checked against final quality inspection standards.</p> <p>4.3 Faults are identified, rectified and returned to appropriate section for repair if necessary.</p> <p>4.4 Quality records and documentation are completed following</p>

	standard formats before dispatch.
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Variable	Range
OHS practices	<p>OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:</p> <ul style="list-style-type: none"> • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • environmental practices
Materials and components	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • labels/ tags • laces • socks • cleaner • cream • wax • spray • dye/colorant • pigments • shoe box and carton • polybag • tissue paper • shoe lifter • Teflon tape • Sticker • Silica gel • Micro pack sticker
Tools and equipment	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Brush (cotton and woolen) • Sponge /foam • Crepe rubber and resin rubber • Scissor • Tag gun • Hand brush
machine	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Ironing machine • Brushing and polishing machine • Spraying cabin • Heat seater

	<ul style="list-style-type: none"> • Wrinkle chaser
Finishing operations	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • trimming loose threads • checking/inspecting • cleaning of sole and upper • Repairing • Ironing and wrinkle chasing • Cream application (base coat and top coat) • Brushing and polishing • spraying • hand or machine sewing buckles • attaching accessories or trims • inserting heel cushion pads • flaring • lining trimming
Packaging operations	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • lacing • stuffing • attaching labels • pairing up • bundling • boxing • packing • dispatching
Inspection of full shoe	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • look of the footwear • leather defects • stitching defects • alignment of upper • alignment of sole • sole bonding • wrinkles in lining • floating toe-puff • finish of the footwear • packing instructions • size • paper insertion • back height • height of the topline • shape of the topline • thread burning • lacing of the footwear • rocking of footwear

Evidence Guide

Critical Aspects of Competence	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> • attached correct components to footwear • completed finishing and packing operations • ensured finished and packed footwear meets specifications • addressed faults appropriately • maintained accurate records
Underpinning Knowledge and Attitude	<p>Demonstrate knowledge of:</p> <ul style="list-style-type: none"> • characteristics of typical materials used in footwear finishing and packaging • quality standards and practices • required finishing procedures • industry and product processes and equipment • OHS practices, including hazard identification and control measures • workplace practices • recording and reporting practices
Underpinning Skills	<p>Demonstrate skills to:</p> <ul style="list-style-type: none"> • set up safe work area • maintain housekeeping practices • report and address faults • read, interpret and follow information on work specifications, standard operating • procedures and work instructions, and other reference material • maintain accurate records • communicate in the workplace • perform finishing and packaging operations sequentially • meet specifications • clarify and check task-related information • carry out work according to OHS practices
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • access to relevant workplace or appropriately simulated environment where assessment can take place • materials relevant to the proposed activity or tasks
Methods of Assessment	<p>Competence may be accessed through:</p> <ul style="list-style-type: none"> • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	<p>Competence may be assessed in workplace or in a simulated workplace setting.</p>

Occupational Standard: Footwear Production Level II	
Unit Title	Prevent and Eliminate MUDA
Unit Code	IND FWP2 08 1121
Unit Descriptor	This unit covers the knowledge, skills and attitude required by a worker to prevent and eliminate MUDA/wastes in his/her workplace by applying scientific problem-solving techniques and tools to enhance quality, productivity and other kaizen elements on continual basis It covers responsibility for the day-to-day operation of the work and ensures Kaizen Elements are continuously improved and institutionalized.

Element	Performance Criteria
1. Prepare for work	<p>1.1. Work instructions are used to determine job requirements, including method, material and equipment.</p> <p>1.2. Job specifications are read and interpreted following working manual.</p> <p>1.3. OHS requirements, including dust and fume collection, breathing apparatus and eye and ear personal protection needs are observed throughout the work.</p> <p>1.4. Appropriate material is selected for work.</p> <p>1.5. Safety equipment and tools are identified and checked for safe and effective operation.</p>
2. Identify MUDA and problem	<p>2.1 Plan of MUDA and problem identification is prepared and implemented.</p> <p>2.2 Causes and effects of MUDA are discussed.</p> <p>2.3 All possible problems related to the process /Kaizen elements are listed using statistical tools and techniques.</p> <p>2.4 All possible problems related to kaizen elements are identified and listed on Visual Management Board/Kaizen Board.</p> <p>2.5 Tools and techniques are used to draw and analyze current situation of the work place.</p> <p>2.6 Wastes/MUDA are identified and measured based on relevant procedures.</p> <p>2.7 Identified and measured wastes are reported to relevant personnel.</p>
3. Analyze causes of a problem.	<p>3.1 All possible causes of a problem are listed.</p> <p>3.2 Cause relationships are analyzed using 4MIE.</p> <p>3.3 Causes of the problems are identified.</p> <p>3.4 The root cause which is most directly related to the problem is selected.</p> <p>3.5 All possible ways are listed using creative idea generation to eliminate the most critical root cause.</p> <p>3.6 The suggested solutions are carefully tested and evaluated for</p>

	<p>potential complications.</p> <p>3.7 Detailed summaries of the action plan are prepared to implement the suggested solution.</p>
4. Eliminate MUDA and Assess effectiveness of the solution.	<p>4.1. Plan of MUDA elimination is prepared and implemented by medium KPT members.</p> <p>4.2. Necessary attitude and the ten basic principles for improvement are adopted to eliminate waste/MUDA.</p> <p>4.3. Tools and techniques are used to eliminate wastes/MUDA based on the procedures and OHS.</p> <p>4.4. Wastes/MUDA are reduced and eliminated in accordance with OHS and organizational requirements.</p> <p>4.5. Tangible and intangible results are identified.</p> <p>4.6. Tangible results are compared with targets using various types of diagrams.</p> <p>4.7. Improvements gained by elimination of waste/MUDA are reported to relevant bodies.</p>
5. Prevent occurrence of wastes and sustain operation.	<p>5.1. Plan of MUDA prevention is prepared and implemented.</p> <p>5.2. Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement are discussed and prepared.</p> <p>5.3. Occurrences of wastes/MUDA are prevented by using visual and auditory control methods.</p> <p>5.4. Waste-free workplace is created using 5W and 1H sheet.</p> <p>5.5. The completion of required operation is done in accordance with standard procedures and practices.</p> <p>5.6. The updating of standard procedures and practices is facilitated.</p> <p>5.7. The capability of the work team that aligns with the requirements of the procedure is ensured and trained on the new Standard Operating Procedures (SOPs).</p>

Variable	Range
OHS requirements	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Are to be in accordance with legislation/ regulations/codes of practice and enterprise safety policies and procedures. This may include protective clothing and equipment, use of tooling and equipment, workplace environment and safety, handling of material, use of firefighting equipment, enterprise first aid, hazard control and hazardous materials and substances. • PPE are to include that prescribed under legislation/regulations/codes of practice and workplace policies and practices. • Safe operating procedures are to include, but are not limited to the conduct of operational risk assessment and treatments associated

	<p>with workplace organization.</p> <ul style="list-style-type: none"> • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping of equipment, extinguishing fires, enterprise first aid requirements and site evacuation.
Safety equipment and tools	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Dust masks/goggles • Glove • Working cloth • First aid and • Safety shoes
Statistical tools and techniques	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • 7 QC tools May include, but not limited to: <ul style="list-style-type: none"> ➤ Stratification ➤ Pareto Diagram ➤ Cause and Effect Diagram ➤ Check Sheet ➤ Control Chart/Graph ➤ Histogram and Scatter Diagram • QC techniques May include, but not limited to: <ul style="list-style-type: none"> ➤ Brain storming ➤ Why analysis ➤ What if analysis ➤ 5W1H
Tools and techniques	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Plant Layout • Process flow • Other Analysis tools • Do time study by work element • Measure Travel distance • Take a photo of workplace • Measure Total steps • Make list of items/products, who produces them and who uses them & those in warehouses, storages etc. • Focal points to Check and find out existing problems • 5S • Layout improvement • Brainstorming • Andon • U-line • In-lining • Unification

	<ul style="list-style-type: none"> • Multi-process handling & Multi-skilled operators • A.B. control (Two point control) • Cell production line • TPM (Total Productive Maintenance)
Relevant procedures	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Make waste visible • Be conscious of the waste • Be accountable for the waste and measure the waste.
4M1E	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Man • Machine • Method <p>Material and Environment</p>
Creative idea generation	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Brainstorming • Exploring and examining ideas in varied ways • Elaborating and extrapolating • Conceptualizing
Medium KPT	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • 5S • 4M (Machine, Method, Material and Man) • 4p (Policy, Procedures, People and Plant) • PDCA cycle <p>Basics of IE tools and techniques</p>
The ten basic principles for improvement	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Throw out all of your fixed ideas about how to do things. • Think of how the new method will work- not how it won. • Don't accept excuses. Totally deny the status quo. • Don't seek perfection. A 50 percent implementation rate is fine as long as it's done on the spot. • Correct mistakes the moment they are found. • Don't spend a lot of money on improvements. • Problems give you a chance to use your brain. • Ask "why?" At least five times until you find the ultimate cause. • Ten people's ideas are better than one person's. • Improvement knows no limits.
Tangible and intangible results	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Tangible result may include quantifiable data • Intangible result may include qualitative data
Various types of diagrams.	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Line graph • Bar graph

	<ul style="list-style-type: none"> • Pie-chart • Scatter diagrams • Affinity diagrams
Visual and auditory control methods	May include, but not limited to: <ul style="list-style-type: none"> • Red Tagging • Sign boards • Outlining • Add ones • Kanban, etc.
5W and 1H	May include, but not limited to: <ul style="list-style-type: none"> • Who • What • Where • When • Why and • How
Standard Operating Procedures (SOPs).	May include, but not limited to: <ul style="list-style-type: none"> • The customer demands • The most efficient work routine (steps) • The cycle times required to complete work elements • All process quality checks required to minimize defects/errors • The exact amount of work in process required

Evidence Guide

Critical Aspects of Competence	Demonstrate knowledge and skills to: <ul style="list-style-type: none"> • Discuss why wastes occur in the workplace • Discuss causes and effects of wastes/MUDA in the workplace • Analyze the current situation of the workplace by using appropriate tools and techniques • Identify, measure, eliminate and prevent occurrence of wastes by using appropriate tools and techniques • Use 5W and 1H sheet to prevent • Detect non-conforming products/services in the work area • Apply effective problem-solving approaches/strategies. • Implement and monitor improved practices and procedures • Apply statistical quality control tools and techniques.
Underpinning Knowledge and Attitude	Demonstrate knowledge of: <ul style="list-style-type: none"> • Targets of customers and manufacturer/service provider • Traditional and kaizen thinking of price setting • Kaizen thinking in relation to targets of manufacturer/service provider and customer • value

	<ul style="list-style-type: none"> • The three categories of operations • the 3“MU” • wastes occur in the workplace • The 7 types of MUDA • QC story/PDCA cycle/ • QC story/ Problem solving steps • QCC techniques • 7 QC tools • The Benefits of identifying and eliminating waste • Causes and effects of 7 MUDA • Procedures to identify MUDA • Necessary attitude and the ten basic principles for improvement • Procedures to eliminate MUDA • Prevention of wastes • Methods of waste prevention • Definition and purpose of standardization • Standards required for machines, operations, defining normal and abnormal conditions, clerical procedures and procurement • Methods of visual and auditory control • TPM concept and its pillars. • Relevant OHS and environment requirements • Method and Lines of communication • Methods of making/recommending improvements. • Reporting procedures • Workplace procedures associated with the candidate's regular technical duties • organizational structure of the enterprise
Underpinning Skills	<p>Demonstrate skills to:</p> <ul style="list-style-type: none"> • Draw & analyze current situation of the work place • Use measurement apparatus (stop watch, tape, etc.) • Calculate volume and area • Apply statistical analysis tools • Use and follow checklists to identify, measure and eliminate wastes/MUDA • Identify and measure wastes/MUDA in accordance with OHS and procedures • Use tools and techniques to eliminate wastes/MUDA in accordance with OHS procedure. • Apply 5W and 1H sheet • Update and use standard procedures for completion of required operation

	<ul style="list-style-type: none"> • Apply Visual Management Board/Kaizen Board. • Detect non-conforming products or services in the work area • Work with others • Read and interpret documents • Observe situations • Solve problems • Communicate information • Gather evidence by using different means • Report activities and results using report formats • Implement and monitor improved practices and procedures
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: <ul style="list-style-type: none"> • Interview/Written Test • Observation/Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

NTQF Level III

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Occupational Standard: Footwear Production Level III	
Unit Title	Perform Manual Footwear Design and Pattern Making
Unit Code	IND FWP3 01 1121
Unit Descriptor	This unit covers the knowledge, skills and attitude to manually perform mean form and standards, and to prepare upper, lining, toe puff and stiffeners patterns for a specified shoe design.

Elements	Performance Criteria
1. Identify and use tools, materials and equipment	1.1 Materials , hand tools and equipment which are consistent with manual design and pattern making are identified. 1.2 Tools are checked for serviceability and safety and faults. 1.3 Work area is cleared, and hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and OHS practices
2. Develop understanding of design	2.1 Basic elements of designs and style features, and their principles are explained. 2.2 Basic constructions types of the footwear are explained. 2.3 Components of the footwear and their purpose are explained. 2.4 Materials used for the footwear is explained. 2.5 Last features of the footwear are explained.
3. Perform sketching of design	3.1 The sketch of the footwear is explained and performed. 3.2 The development of the styling lines on the sketches are performed with various combinations. 3.3 Proportions of the various sketched components on the design are verified. 3.4 Color combination and textures are explained and performed.
4. Develop mean forms and standard patterns	4.1 The last is masked according to work specification. 4.2 The inside and outside forms are made as per the standard. 4.3 The mean form for the selected last is developed. 4.4 Upper standard is developed as per established standard. 4.5 Lining standard is developed as per established standard. 4.6 Toe puff and stiffener standard is developed. 4.7 Bottom profile for the last is developed from last.
5. Prepare working patterns /extract pieces/	5.1 Upper patterns are developed as per the specification. 5.2 Lining patterns are developed as per the specification. 5.3 Toe puff and stiffener patterns are developed according to standard. 5.4 Bottom components pattern for the last is developed according to standard.
6. Check working patterns	6.1 Proper fitting of the developed pattern is checked on stitching operation. 6.2 Proper fitting of the developed pattern is checked on lasting operation.

	6.3 Conformity of the final prototype is checked against customers demand.
7. Perform record keeping	7.1 Costumer requests are recorded according to costumer requirement. 7.2 Working patterns are coded for identification of shoe model. 7.3 Working patterns are filed / documented for future reference.

Variable	Range
Materials	May include, but not be limited to: <ul style="list-style-type: none"> • Upper leather • Lining leather • Synthetic leather • Fabrics • Sole, Insole
Manual design	<ul style="list-style-type: none"> • Copying the style lines, points and other features on the last/ standard manually.
OHS (Occupational Health and Safety)	<ul style="list-style-type: none"> • Safe working practices include day-to-day observation of safety policies, and procedures, legislative and professional requirements • Specific hazard policies and procedures • Occupational health and safety information • Hazard, accident or incident reports as required by procedures • Occupational health and safety record keeping
Extract pieces	<ul style="list-style-type: none"> • Taking out individual patterns from the standard.
Upper patterns	May include, but not be limited to: <ul style="list-style-type: none"> • Vamp • Quarter • Counter • Tongue
Lining patterns	May include, but not be limited to: <ul style="list-style-type: none"> • Vamp lining • Quarter lining • Heel grip • Tongue lining

Evidence Guide	
Critical aspects of Competence	<p>Demonstrates skills and knowledge in</p> <ul style="list-style-type: none"> • making proper adjustment and add appropriate allowances for the model • extract pieces from the standard • apply OHS practices in work operations • maintain accurate records
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • manual design and pattern making • OHS practices, including hazard identification and control measures • workplace practices • Sizing and fitting standard's

	<ul style="list-style-type: none"> • recording and reporting practices
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • making proper adjustment and add appropriate allowances for the model • extract pieces of upper and lining from the standard • apply OHS practices in work operations • maintain accurate records
Tools and Equipment's	<ul style="list-style-type: none"> • Pattern paper Ruler • Pencil • Cutting mat • Nails • Ruler
Resources Implication	<ul style="list-style-type: none"> • Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	<ul style="list-style-type: none"> • Competence may be assessed through: • Interview / Written Test ,practical • Observation / Demonstration
Context of Assessment	<ul style="list-style-type: none"> • Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Footwear Production Level III	
Unit Title	Perform Pattern Grading and Engineering
Unit Code	<u>IND FWP3 01 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude to perform upper, lining, toe puff and stiffeners pattern grading by hand or by using pantograph machine. It also includes knowledge, skills and attitude to engineer the prepared patterns.

Elements	Performance Criteria
1. Identify and use tools, materials and equipment	<p>1.1 Upper patterns, lining patterns, toe puff and stiffener patterns and bottom component patterns which are prepared while performing manual design and pattern making are identified and made ready.</p> <p>1.2 Hand tools and equipment which are consistent with pattern grading are identified.</p> <p>1.3 Tools are checked for serviceability and safety and faults.</p> <p>1.4 Work area is cleared, and hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and <i>OHS</i> practices</p>
2. Grade the extracted pieces of patterns manually	<p>2.1 Size basis grading system is explained.</p> <p>2.2 Method of carrying out manual grading system is explained and performed.</p> <p>2.3 Graded patterns are checked by alignment.</p>
3. Make base pattern and fix on machine	<p>3.1 Grading by <i>Pantograph</i> method is explained.</p> <p>3.2 Cardboard is inserted in the machine according to standard procedures.</p> <p>3.3 Patterns are attached on a thick cardboard based on size of pattern.</p> <p>3.4 <i>Pantograph adjustment</i> is done as per the grading requirement.</p> <p>3.5 Card board is attached on the grading machine matching its length and width with that of the table of the machine.</p> <p>3.6 Cardboard is sheared either by hand or by a shearing machine according to work procedure.</p> <p>3.7 <i>Marking slots</i> and <i>perforations</i> are cut out from the card board according to given base pattern.</p>
4. Grade the extracted pieces of patterns by machine	<p>4.1 Upper patterns are graded by machine based on base pattern.</p> <p>4.2 Lining patterns are graded by machine based on base pattern.</p> <p>4.3 Bottom components' patterns are graded by machine according to base pattern.</p>

5. Nest and calculate consumption of the model	<p>5.1 Graded patterns are <i>nested</i> to have the minimum waste following working guideline.</p> <p>5.2 Material consumption of the pattern is calculated based on working guideline.</p> <p>5.3 Allowance for wastage of material is calculated based on working guideline.</p>
6. Perform pattern engineering	<p>6.1 Patterns are verified.</p> <p>6.2 Nesting and production problems are evaluated against the requirement.</p> <p>6.3 Patterns are modified as per the specification and requirement.</p> <p>6.4 Trial production is carried out and benefits determined.</p>

Variable	Range
OHS (Occupational Health and Safety)	<ul style="list-style-type: none"> • Safe working practices include day-to-day observation of safety policies, and procedures, legislative and professional requirements • Specific hazard policies and procedures • Occupational health and safety information • Hazard, accident or incident reports as required by procedures • Occupational health and safety record keeping
Pantographs	<ul style="list-style-type: none"> • Machine used for the enlarging or reducing the size of the pattern.
Pantograph adjustment	<ul style="list-style-type: none"> • Overall dimension of the standard in length and width is measured and adjusted on the grading machine. • The length adjustment for the grading machine is set in line with last. • The width adjustment for the grading machine is set as per the last.
Nest	<ul style="list-style-type: none"> • Arranging the patterns of the model with the least amount of interlocking wastage.
Marking slot	<ul style="list-style-type: none"> • A cut out within the pattern which is used to apply marking on the components for different purposes as required.
Perforation	<ul style="list-style-type: none"> • A hole within the pattern which is used to apply marking for punching for different purposes.

Evidence Guide	
Critical aspects of Competence	<p>Demonstrates skills and knowledge in –</p> <ul style="list-style-type: none"> • making proper adjustment and add appropriate allowances for the model • grade patterns to the proper design specification • nest and calculate the consumption of the model • demonstrate grading by manual method (hand grading) • cut patterns by a Pantograph machine • apply OHS practices in work operations • maintain accurate records
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • OHS practices, including hazard identification and control measures • workplace practices • Sizing and fitting standard's

	<ul style="list-style-type: none"> • recording and reporting practices
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • grade patterns to the proper design specification • nest and calculate the consumption of the model • cut patterns by a pantograph and hand grading system • apply OHS practices in work operations • maintain accurate records
Tools and Equipment	<ul style="list-style-type: none"> • Pattern paper Ruler • Pencil • Cutting mat • Nails • Hammer • Pantograph • Ruler
Resources Implication	<ul style="list-style-type: none"> • Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	<ul style="list-style-type: none"> • Competence may be assessed through: • Interview / Written Test ,practical • Observation / Demonstration
Context of Assessment	<ul style="list-style-type: none"> • Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Footwear Production Level III	
Unit Title	Perform Mechanized Lasting
Unit Code	IND FWP3 03 1121
Unit Descriptor	This unit covers knowledge, skills and attitude required in performing toe lasting, seat and side lasting of a flat lasted construction shoe using machine.

Elements	Performance Criteria
1. Prepare tools, materials and machines	1.1 Materials, tools and equipment which are consistent with lasting machines are identified. 1.2 Tools are checked for serviceability and safety and faults. 1.3 Work area is cleared, and hand tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and work standard practices 1.4 Work instructions, specifications and operation details related to lasting machines are obtained 1.5 Safety with regard to tools, equipment, machine, operator and workplace is identified.
2. Adjust machine setting to meet requirements	2.1 Product specifications are interpreted in relation to machine setting requirements 2.2 Machines for footwear manufacturing are identified and set in accordance with product specifications, machine manufacturer's instructions and company procedures 2.3 Materials to be used for sampling is obtained 2.4 Machine is operated in accordance with manufacturer's and company instructions to produce a specified sample 2.5 Machine outputs are tested and organized in accordance with company procedures to ensure required standards of quality are met. 2.6 Test results are interpreted to determine machine adjustment requirements 2.7 Adjustment changes are assessed in accordance with product and machine specifications 2.8 Appropriate production personnel are informed of the availability of the newly set up machine in accordance with workplace procedures
3. Mould the counter and attach insole to the last	3.1 The counter is moulded on counter molding machine 3.2 Insole is attached to the last and extra parts are trimmed as required in accordance with job specification. 3.3 Insole attaching machine is operated in accordance with manufacturer's procedural manual. 3.4 Attached insoles are checked according to company standards.

4. Perform toe lasting	<p>4.1 Humidify the toe puff material on humidifier machine</p> <p>4.2 Toe lasting is performed in accordance with work ticket and with no excess adhesive and no crease at toe feather edge</p>
5. Carry out seat and side lasting	<p>5.1 Adhesive is applied to the seat and side lasting margin of lasted upper without excess (no extrusion).</p> <p>5.2 Manual side lasting is performed.</p> <p>5.3 Seat lasting is carried out on seat lasting machine within required time in accordance with work ticket and standard operating procedures</p> <p>5.4 Seat of lasted upper is flattened and evened without damage.</p> <p>5.5 Seat and side lasting are checked as per standard quality procedures</p>
6. Remove tacks, mark and inspect quality of lasted upper	<p>6.1 Tacks are removed from the lasted upper as per standard operating procedures.</p> <p>6.2 Bonding of lasting margin to the insole is kept intact</p> <p>6.3 Outsoles and lasted uppers are matched according to style and size.</p> <p>6.4 Bottom profile of upper is marked according to the area of sole to be used.</p> <p>6.5 Lasted uppers are inspected according to standard operating procedures</p> <p>6.6 Reports and documentation on team or section performance and outcomes are provided to line supervisor and management, as required.</p>
7. Perform roughing and scouring	<p>7.1 Scouring and roughing is performed in accordance with standard operating procedures.</p> <p>7.2 Grains and finish of the lasting margin are removed without damage to upper.</p> <p>7.3 Remove dusts in accordance with work procedures.</p> <p>7.4 Top surface of the outsole is scoured without damage and free from plasticizers.</p>
8. Perform upper and sole preparation	<p>8.1 Bottom cementing of upper is performed in accordance with work specification.</p> <p>8.2 Filler is attached on the bottom profile of the lasted upper in accordance with the thickness of upper material.</p> <p>8.3 Sole is wiped and /or roughed, and primed according to material type.</p> <p>8.4 Upper and sole cementing is performed in accordance with standard operating procedures.</p>
9. Perform sole attaching and pressing	<p>9.1 Adhesives are reactivated on reactivation machine in accordance with manufacturer's requirements.</p> <p>9.2 Sole spotting is performed.</p> <p>9.3 Sole press machine is set up in accordance with manufacturer's manual.</p>

	9.4 Sole Pressing is performed on sole pressing machine according to standard operating procedures and without causing damage to the materials.
10. Perform chilling operation	<p>8.1 Chilling machine is set in accordance with factory standards/requirements of upper and sole material, and adjusted in accordance with the work ticket</p> <p>8.2 Footwear is positioned on the conveyor, retrieved from chiller and grouped together according to the work ticket</p> <p>8.3 Footwear for chilling is monitored according to standard operating procedures</p>
9 Perform edge cleaning, Delasting and inspection operations	<p>9.1 Sole and upper are cleaned and free from excess adhesive and without harming the bond.</p> <p>9.2 Tools for edge cleaning are used in accordance with the type of upper material.</p> <p>9.3 Delasted shoe is inspected and dispatched in accordance with quality standard procedures.</p>

Variable	Range
Machine setting	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Temperature • Cycle Dwell timer • Air Pressure • Wiper Temperature Regulator • Thermoplastic Rod Temperature Regulator • Pincer Pull Pressure Regulator • Heater Switch • Positioning of lasted upper
Machines	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Lasting machines (toe lasting machine, seat and side lasting machine, mulling machine, chillier, heat setting machine, sole attaching machine, etc.) • Finishing machine (buffing machine, etc.) • Biochemical and physical protection means
Machine output	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Product sample • Service samples • Machine operation
Machine adjustments	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Air Pressure • Temperature • Speed • Time delay • Motor and Needle timing (for sewing machines)
Adhesives	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Neoprene • Polyurethane

	<ul style="list-style-type: none"> • Water based • Solvent based • Rubber cement • Hot melt adhesive • Latex • Graft adhesives
Damage	May include, but not limited to: <ul style="list-style-type: none"> • Damage to lining • Damage to upper • Straining of lining • Burst seam of lining • Burst seam of upper • Twisted lining

Evidence Guide

Critical aspects of Competence	Demonstrates skills and knowledge in: <ul style="list-style-type: none"> • prepared machine settings • test run machine • performed toe lasting • carried out seat and side lasting
Underpinning Knowledge and Attitudes	Demonstrates knowledge of: <ul style="list-style-type: none"> • Safe work practices and first aid • Safe handling of tools and materials • Upper size/fit and color system • Kinds of damages/defects in lasting upper • Machine lasting operations • Quality standards procedures • Types and Characteristics of Adhesive • Positive work values (orderliness and being organize, cost, quality and safety consciousness, patience, etc.)
Underpinning Skills	Demonstrates skills to: <ul style="list-style-type: none"> • Perform machine settings • Carry out seat and side lasting • Attach insole to the last
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: <ul style="list-style-type: none"> • Interview / Written Test / Oral Questioning • Observation / Demonstration
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Footwear Production Level III	
Unit Title	Perform Advanced Footwear Lasting Techniques
Unit Code	<u>IND FWP3 04 1121</u>
Unit Descriptor	This unit covers knowledge, skills and attitude required for performing advanced footwear lasting techniques (Moccasin, Flange out, Good year welt, California, DIM and Vulcanization).

Elements	Performance Criteria
1. Identify and prepare tools, materials and machines	1.1 Materials, tools and equipment which are consistent with lasting machines are identified. 1.2 Tools are checked for serviceability and safety and faults. 1.3 Work area is cleared, and tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers' specifications and work standard practices 1.4 Work instructions, specifications and operation details related to lasting machines are obtained 1.5 Safety with regard to tools, equipment, machine, operator and workplace is identified as per <i>OHS practices</i> .
2. Set up / prepare machines	2.1 Workstation and <i>Machine</i> is set up according to job specifications. 2.2 Check for the appropriateness of the setup and adjust lasting <i>machines setting</i> to meet requirements 2.3 Machine is routinely cleaned and maintained. 2.4 Records are maintained
3. Identify various footwear constructions	3.1 Moccasin shoes construction methods are explained. 3.2 Flange out shoes construction methods are described. 3.3 Good year welt shoes construction methods are explained 3.4 California shoes construction methods are explained 3.5 Sancripino shoes construction methods are explained 3.6 Direct Injection Molding shoes construction methods are explained. 3.7 Vulcanization shoes construction methods are explained
4. Perform moccasin lasting operations	4.1 Upper is humidified and hammered on Aluminum last using ironing equipment 4.2 Delasting and lasting of upper is carried out 4.3 The rest lasting operations are performed.
5. Perform Flanged out lasting operations	5.1 Upper preparation and insole/runner attaching 5.2 Counter molding operation is performed 5.3 <i>Adhesive</i> application on upper and runner is carried out

	<p>5.4 Toe lasting is carried out (by machine)</p> <p>5.5 Seat and side lasting of upper is performed (manual)</p> <p>5.6 Edge crowning is carried out (which is also carried out after flange out stitching)</p> <p>5.7 Flange out stitching is performed (manual /machine)</p> <p>5.8 Roughing of edge is performed.</p> <p>5.9 The rest lasting operations are performed.</p>
6. Perform Good year welt operations	<p>6.1 Upper preparation and ribbed insole attaching is performed</p> <p>6.2 Counter molding operation is performed</p> <p>6.3 Adhesive is applied on ribbed insole, upper and welt (which is also applied on upper and sole after filler is attached)</p> <p>6.4 Ribbed insole, upper and welt are attached and stitched</p> <p>6.5 Filler is attached with upper.</p> <p>6.6 Upper and sole are attached and stitched together</p> <p>6.7 Delasting and finishing operations are performed.</p>
7. Perform other advanced lasting operations	<p>7.1 California lasting operations are performed</p> <p>7.2 Sancrispino lasting operations are performed</p> <p>7.3 DIM lasting operations are performed</p> <p>7.4 Vulcanization lasting operations are performed</p>
8. Inspect quality of lasted shoe	<p>10.1 Bonding of lasting margin to the <i>insole</i> is kept intact</p> <p>10.2 Outsoles and lasted uppers are matched according to style and size.</p> <p>10.3 Bottom profile of upper is marked according to the area of sole to be used.</p> <p>10.4 Lasted uppers are inspected according to standard operating procedures</p> <p>10.5 Reports and documentation on team or section performance and outcomes are provided to line supervisor and management, as required.</p>

Variable	Range
Machine setting	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Temperature • Cycle Dwell timer • Air Pressure • Wiper Temperature Regulator • Thermoplastic Rod Temperature Regulator • Pincer Pull Pressure Regulator • Heater Switch • Positioning of lasted upper

Machines	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Lasting machines (toe lasting machine, seat and side lasting machine, mulling machine, chillier, heat setting machine, sole attaching machine, etc.) • Finishing machine (buffing machine, etc.) • Biochemical and physical protection means
OHS practices (Occupational Health and Safety)	<ul style="list-style-type: none"> • OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the • tasks described by this unit, and may relate to:
Adhesives	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Neoprene • Polyurethane • Water based • Solvent based • Rubber cement • Hot melt adhesive • Latex • Graft adhesives

Evidence Guide

Critical aspects of Competence	<p>Demonstrates skills and knowledge in:</p> <ul style="list-style-type: none"> • Preparing machine settings. • Testing run machine. • Performing advanced footwear lasting techniques including Moccasin, Flange out, Good year welt, California, Sancrispino, DIM and Vulcanization.
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • Safe work practices and first aid • Safe handling of tools and materials • Upper size/fit and color system • Kinds of damages/defects in lasting upper • Advanced machine lasting operations • Quality standards procedures • Types and Characteristics of Adhesive • Positive work values (orderliness and being organize, cost, quality and safety consciousness, patience, etc.)
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • Perform machine settings • Carry out advanced footwear lasting techniques
Resources Implication	<p>Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.</p>
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview / Written Test / Oral Questioning • Observation / Demonstration

Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.
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Occupational Standard: Footwear Production Level III	
Unit Title	Apply Polymers in Footwear
Unit Code	<u>IND FWP3 05 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude of polymers and aspect of making components (mainly soling components) by using different types of polymeric materials.

Elements	Performance Criteria
1. Identify polymer materials and its processes	1.1 Basics of polymers are identified. 1.2 Classification of polymeric <i>materials</i> is identified. 1.3 Basic <i>characteristics</i> and properties of polymeric materials are identified 1.4 Basics of various polymer processes is explained 1.5 Characteristics of each process on the polymeric material is explained 1.6 Sequence of operation of each process is explained 1.7 Safety measures of each process are identified
2. Identify basics of polymer compounding	2.1 Identification and importance of the various ingredients/ chemicals/ polymers based on their need necessary for a polymer compound is explained. 2.2 Prepare the Polymer formulation as per required properties in the component. 2.3 Mix the various ingredients as per the required rubber compound is explained. 2.4 Importance of the mixing cycle for attaining the various properties of the final product is described
3. Demonstrate basic of compression and DVP moldings	3.1 Importance of compression molding and direct vulcanization (DVP) process is described. 3.2 Sequence of operation and standard operating procedure of the process is explained. 3.3 Quality parameters of the final product is identified and explained. 3.4 Safety parameters of the machines are discussed as per <i>OHS practices</i>
4. Demonstrate basics of injection molding and direct injection molding	4.1 Importance of injection molding and direct injection molding process is explained 4.2 Sequence of operation and standard operating procedure of the process is explained. 4.3 Quality parameters of the final product are identified.

	4.4 Safety parameters of the machines is identified and explained.
5. Explain basics of reaction injection molding (RIM)	5.1 Importance of reaction injection molding process is explained. 5.2 Sequence of operation and standard operating procedure of the process is identified and explained. 5.3 Quality parameters of the final product is identified 5.4 Safety parameters of the machines are identified.

Variable	Range
Materials	May include but not limited to: Various Polymers such as: <ul style="list-style-type: none"> • Rubbers (Various types eg Natural, Synthetic rubbers etc) • Chemicals for compounding • PVC compound • TPR Compound
OHS practices	May include but not limited to: OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to: <ul style="list-style-type: none"> • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • environmental practices
Characteristics	May include but not limited to: <ul style="list-style-type: none"> • Strength • flexibility • Abrasion • Durability • Shrinkage and dimensional stability • properties and uses of different types of materials

Evidence Guide	
Critical Aspects of Competence	Demonstrates skills and knowledge in: <ul style="list-style-type: none"> • identify polymeric materials • identify characteristics of Polymeric materials

	<ul style="list-style-type: none"> • determine performance of Polymeric materials • identify common faults, problems and surface defects of polymeric materials
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • read, interpret and follow information on work specifications, and work instructions, and other reference material • communicate in the workplace • sequence operations • meet specifications • carry out work according to OHS practices
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • safety and environmental aspects of relevant production and assembly processes • quality standards and practices • OHS practices, including hazard identification and control measures • workplace practices
Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> • Interview / Written Test , practical • Observation/ Demonstration with Oral Questioning
Context of Assessment	Competency may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Footwear Production Level III	
Unit Title	Perform Sole Operation
Unit Code	<u>IND FWP3 06 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude required to identify sole ingredients, perform different types of sole operations and sole machines.

Element	Performance Criteria
1. Identify materials, tools and machines	1.1 Physical properties of sole making <i>materials</i> are identified. 1.2 Qualities of materials are identified as per standard. 1.3 Tools and <i>Machines</i> are identified and arranged for specified products. 1.4 Sole mould size, type and date of stamp are checked. 1.5 Handling and care requirements for materials are identified as per OHS practices. 1.6 Common problems and faults of materials are identified. 1.7 <i>OHS practices</i> relevant to materials uses are identified. 1.8 Materials are stored and maintained as per the supplier's specification.
2. Set machine	2.1 Machine is checked for temperature and pressure. 2.2 Machine injectors are cleaned following OHS procedure. 2.3 The moulds are fit in to the machines. 2.4 The soling material is poured as per the compounding requirement. 2.5 The pre-operation checks are performed. 2.6 The production test is performed. 2.7 Machines are oiled, cleaned and maintained as per OHS practices.
3. Perform molding operation	3.1 Machines setting are adjusted to meet product requirements. 3.2 Mould materials are prepared and checked for production. 3.3 Sole injection machine is operated following OHS practices and measures. 3.4 Molded sole is checked against quality standards. 3.5 Non-conforming materials are sorted and reported as per the quality guidelines.

Variable	Range
Materials	May include, but not limited to: <ul style="list-style-type: none"> • PVC (poly vinyl chloride) ingredients • PU (polyurethane) ingredients • TPR ingredients • E.V.A (Ethylene Vinyl Acetate) ingredients • Solid rubber ingredients

Machines	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Sole injection machine • Vulcanizing machine • RIM • Recycling • Compression • Different kinds of moulds
OHS	<p>Systems and procedures for:</p> <ul style="list-style-type: none"> • Identifying and reporting hazards • Safe lifting, carrying and manual handling • The safe handling and storage of hazardous substances • The appropriate use, maintenance and storage of personal protective equipment. • Working in confined spaces • The protection of people in the workplace • Protection from hazardous noise, organic and other dusts.

Evidence Guide	
Critical Aspects of Competence	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> • identify materials and their uses within footwear molding operation • identify machines and equipment • perform molding operation
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • Types, characteristics and functions of machines and equipments. • Handling of materials • Knowledge about polymers and their ingredients • MSDS of the polymers compound
Underpinning Skills	<ul style="list-style-type: none"> • Load molds • Mix different method of compounds (as applicable) • Handle the chemicals • Operate sole manufacturing machines
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • workplace or fully equipped environment with necessary tools and equipment as well as consumable materials
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview/ Written Exam • Observation/Demonstration with Oral Questioning
Context of Assessment	<p>Competence may be assessed in the work place or in a simulated work place setting.</p>

NTQF Level IV

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Occupational Standard: Footwear Production Level IV	
Unit Title	Apply Fashion and Illustration Techniques
Unit Code	<u>IND FWP4 01 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitudes to perform rendering, identify elements of fashion, and apply illustration techniques and related materials and accessories.

Elements	Performance Criteria
1. Prepare workstation	1.1 Workbench and seating are set up according to <i>OHS practices</i> 1.2 <i>Drawing tools and equipment</i> are selected and prepared. 1.3 Tools and equipment are set out to facilitate effective work practice
2. Perform rendering	2.1 Drawing/sketch of footwear is obtained and observed for rendering operation. 2.2 Appropriate <i>rendering techniques</i> are identified and selected. 2.3 Various <i>rendering mediums</i> are identified and selected. 2.4 Various <i>components</i> are created using rendering techniques and mediums.
3. Identify elements of fashion	3.1 <i>Relevance and context</i> of fashion is identified. 3.2 <i>Terminology</i> and theoretical concepts used in the fashion industry is understood.
4. Identify the fundamentals of fashion figures	4.1 Fundamental of <i>fashion figures</i> are identified and analyzed. 4.2 Fashion figures and basic shapes of footwear are sketched as required.
5. Draw and render materials and accessories	5.1 Various types of <i>materials</i> are drawn and rendered using different rendering medium and rendering technique. 5.2 Various types of <i>accessories</i> are drawn and rendered using different rendering medium and rendering technique.

Variable	Range
OHS practices	May include but not limited to: <ul style="list-style-type: none"> • Manual handling techniques • Standard operating procedures • Personal protective equipment • Safe materials handling • Ergonomic arrangement of workplaces • Reporting accidents and incidents
Drawing tools and equipment	May include but not limited to: <ul style="list-style-type: none"> • A3 layout pad • Pencils with HB leads • Pencil sharpener • Eraser

	<ul style="list-style-type: none"> • Different colors • Brush • Spray • Various types of colors
Rendering techniques	May include, but not limited to: <ul style="list-style-type: none"> • Spraying • Brushing
Rendering mediums	May include, but not limited to: <ul style="list-style-type: none"> • Water color • Pencil color • Oil color
Components	May include, but not limited to: <ul style="list-style-type: none"> • Texture • Volume • Light and shade effects
Relevance and context	May include but not limited to: <ul style="list-style-type: none"> • Arts and crafts movement • Art nouveau • Art deco
Terminology	May include but not limited to: <ul style="list-style-type: none"> • Fashion • Style • Haute – couture • Pret A Porter • Knock offs • Trend cycle
Fashion figures	May include but not limited to: <ul style="list-style-type: none"> • Proportions • Sketching of croquet (10-12 heads)
Materials	May include but not limited to: <ul style="list-style-type: none"> • Leather • Fabric
Accessories	May include but not limited to: <ul style="list-style-type: none"> • Lasts • Materials of various kinds

Evidence Guide

Critical Aspects of Competence	Demonstrates skills and knowledge to: <ul style="list-style-type: none"> • Prepare workstation • Perform rendering • Identify elements of fashion • Identify the fundamentals of fashion figures
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	<ul style="list-style-type: none"> • Draw and render materials and accessories • Apply OHS in work operations • Maintain accurate records
Underpinning Knowledge and Attitudes	<ul style="list-style-type: none"> • Render mediums and techniques • Identify influence of fashion • Identify various terminologies used in designing • Identify materials and accessories used in fashion illustrations
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • Perform rendering using different rendering mediums and techniques • Identify elements of fashion • Identify and deliberate the fashion figures • Draw and render various materials and accessories used
Resource Implications	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • Workplace or fully equipped environment with necessary tools and equipment as well as consumable materials
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	<p>Competence may be assessed in the work place or in a simulated work place setting.</p>

Occupational Standard: Footwear Production Level IV	
Unit Title	Prepare Footwear Design and Patterns Using CAD/CAM
Unit Code	IND FWP4 02 1121
Unit Descriptor	This unit covers the knowledge, skills and attitudes to use personal computers, to make the design and pattern including grading by using CAD/CAM and a development of pair of sample shoe.

Elements	Performance Criteria
1. Operate personal computer	1.1 Computer is started or logged on according to user procedures. 1.2 Basic computer icons and their functions are identified using system information. 1.3 Features are opened, closed and accessed by selecting correct desktop icons. 1.4 Folders/subfolders and files are created with suitable names, renamed, saved to appropriate media and moved using various techniques as required. 1.5 Deleted folder/subfolders and files are restored as necessary. 1.6 Appropriate soft wares are installed where necessary. 1.7 All open applications are closed, and computer is shut-down according to user procedures.
2. Digitize mean form	2.1 Tools and equipment are prepared and ready for work. 2.2 System is started to run CAD/CAM program/software following work procedure. 2.3 Mean form or standard pattern is prepared for digitizing as per the preferred standard pattern. 2.4 Mean form or standard pattern is digitized in line with preferred standard pattern.
3. Standard pattern making	3.1 Style lines are properly adjusted and smoothed based on working pattern. 3.2 Develop the standard pattern as per the required design /style 3.3 Allowances are added according to the design specification. 3.4 Perforations and other features are applied according to the design specification.
4. Extract pieces of pattern	4.1 Upper patterns are extracted from the standard. 4.2 Lining patterns are extracted from the standard. 4.3 Bottom components patterns are extracted from the standard.
5. Grade extracted pieces of pattern	5.1 Grading allowance are identified as per standard 5.2 Patterns are graded by the CAD machine.

	5.3 Graded patterns are checked by alignment.
6. Nest and calculate consumption of the model	6.1 Graded patterns are <i>nested</i> to have the minimum waste following working guideline. 6.2 Material consumption of the pattern is calculated based on working guideline. 6.3 Allowance for wastage of material is calculated based on working guideline.
7. Cut-out graded patterns by CAM machine	7.1 The CAM machine is adjusted according to the work requirement. 7.2 Cardboard is inserted in the machine according to standard. 7.3 The patterns are cut by the machine in line with standard. 7.4 Occupational Health and Safety (OHS) measures are observed throughout the operation.

Variable	Range
Basic computer icons	May include but not limited to icons located on <ul style="list-style-type: none"> • MS Word • MS Excel
Various techniques	May include but not limited to: <ul style="list-style-type: none"> • cut and paste • drag and drop
Tools and equipment	May include but not limited to: <ul style="list-style-type: none"> • All work place documents, procedures associated with the use of tools and equipment shall comply with establishment procedures and manufacturer's instructions • Computer with its full accessory. • CAD and designing software for footwear. • CAM machine for cutting cardboard • 3-D and 2-D digitizer with interface with CAD/CAM software
CAD/CAM Software	Computer aided design software May include but not limited to: <ul style="list-style-type: none"> • Elitron • Shoe cad • Shoe master • CRISPIN
Digitized	<ul style="list-style-type: none"> • Copying the style lines, points and other features on the last/ standard to the computer by using a digitizing machine.
Style lines	<ul style="list-style-type: none"> • Draft lines on the standard/ last which determines the shape of the components of the shoe.
Designs	Designs May include but not limited to <ul style="list-style-type: none"> • Derby • Court Shoes • Oxford • Slip on • Moccasin

Extract pieces	<ul style="list-style-type: none"> • Taking out individual upper , lining or other patterns from the standard.
Nest	<ul style="list-style-type: none"> • Arranging the patterns of the model with the least amount of interlocking wastage.
Occupational Health and Safety (OHS)	<ul style="list-style-type: none"> • Safe working practices include day-to-day observation of safety policies, and procedures, legislative and professional requirements • Specific hazard policies and procedures • Occupational health and safety information • Hazard, accident or incident reports as required by procedures • Occupational health and safety record keeping

Evidence Guide	
Critical Aspects of Competence	<p>Demonstrates skills and knowledge to:</p> <ul style="list-style-type: none"> • Digitize last/ standard by a digitizer • Make proper adjustment and add appropriate allowances for the model • Extract pieces from the standard • Grade patterns to the proper design specification • Nest and calculate the consumption of the model • Cut patterns by a cam machine. • Apply OHS practices in work operations • Maintain accurate records
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • Manual design and pattern making • OHS practices, including hazard identification and control measures • Workplace practices • Recording and reporting practices
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • Digitize last/ standard by a digitizer • Make proper adjustment and add appropriate allowances for the model • Extract pieces from the standard • Grade patterns to the proper design specification • Nest and calculate the consumption of the model • Cut patterns by a CAM machine • Apply OHS practices in work operations • Maintain accurate records
Resources Implication	<ul style="list-style-type: none"> • Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	<ul style="list-style-type: none"> • Competence may be accessed through: • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	<ul style="list-style-type: none"> • Competence may be assessed in the work place or in a simulated work place setting

Occupational Standard: Footwear Production Level IV	
Unit Title	Coordinate Product Development and Processes
Unit Code	<u>IND FWP4 03 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitude required to perform and coordinate tooling, select appropriate production methods and run pilot production operations in a footwear enterprise.

Elements	Performance Criteria
1. Prepare and confirm technical specifications	1.1 Sample specification is prepared or obtained according to customer requirement and standards 1.2 Sample material or product is examined to confirm specification 1.3 Detail technical specification sheet(skill required, machine required, tools, material) is prepared and documented, where required, to use in production planning
2. Identify options for production	2.1 Evaluation of material or product structure is conducted to identify options for product 2.2 Evaluate production volume to select production method.(manual vs mechanized system) 2.3 Select effective and efficient method of production , ensuring highest quality and yield from raw materials, and ease of production 2.4 Line balancing is performed.
3. Prepare and manage tools for production	3.1 Different tools and equipment as per the specified production method are identified and prepared. 3.2 Check the appropriateness of prepared tools and equipment as per the operational procedure.
4. Make samples	4.1 Some shoe designs are selected. 4.2 Materials, tools and machines for sample making is identified and prepared. 4.3 Standard working procedure (SOP) is prepared for a particular shoe. 4.4 Pairs of shoe samples are developed for the selected designs by the trainee end to end as per the standard operating procedure. 4.5 Recording and documentation is carried out.
5. Conduct pilot production	5.1 Existing resources, machines, production techniques and scheduling arrangements are examined in relation to the production requirements 5.2 Pilot production for selected size is carried out as per the specification 5.3 Any potential requirements for change are identified and

	documented in accordance with workplace practices
6. Maintain records	<p>6.1 Records are organized and maintained , where uses as input for production planning</p> <p>6.2 Necessary reports are prepared, where necessary, in accordance with workplace practices</p>

Variable	Range
Method of production	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • JIT • VAM • quick response • quality circles • team processes • benchmarking
End to end	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Design • Cutting • Prefabrication • Stitching • Lasting • Finishing and packing
Documentation	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Prepare bill of materials (BOM) • Product costing • List of used tools, equipment and machines • Standard working procedure (SOP) for each sample made • Quality check points for each stage of the shoe making processes • Skill and number of operator required • Line balancing
Material, tool and machine	<p>Material and tool</p> <ul style="list-style-type: none"> • Upper and lining materials • Bottom component and soling material • tools required for cutting and prefabrication operation • tools required for upper making operation • tools required for lasting and finishing operation <p>Machine</p> <ul style="list-style-type: none"> • machines required for cutting and prefabrication operation • machines required for upper making operation • machines required for lasting and finishing operation
OHS practices	<p>May include, but not limited to:</p> <p>OHS practices must include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may include:</p> <ul style="list-style-type: none"> • manual handling techniques

	<ul style="list-style-type: none"> • standard operating procedures • personal protective equipment • safe materials handling • taking of rest breaks • ergonomic arrangement of workplaces • following marked walkways • safe storage of equipment • housekeeping • reporting accidents and incidents • other OHS practices relevant to the job and enterprise
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Evidence Guide	
Critical aspects of Competence	<p>Demonstrates skills and knowledge in:</p> <ul style="list-style-type: none"> • confirming specifications • assessing options for method of production • establishing potential machine and production changes • estimating costs • applying OHS practices in production operations • maintaining accurate records
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • machines and their capabilities • quality assurance processes; production processes and software • products produced by the workplace and material or fabric structure (techniques) • work and workplace organization systems • safety and environmental aspects of relevant workplace activities • OHS practices, including hazard identification and control measures • quality practices • workplace practices • recording and reporting practices
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • application of method study • determine structure and composition of material or product • make calculations, interpret and use data from various sources • read, interpret and follow information on work specifications, standard operating • procedures and work instructions and other reference material • maintain accurate records • communicate within the workplace • sequence operations • meet specifications • clarify and check task-related information • carry out work according to OHS practices
Resources Implication	<p>Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.</p>

Methods of Assessment	Competence may be assessed through: <ul style="list-style-type: none"> • Interview / Written Test / Oral Questioning • Observation / Demonstration
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting

Occupational Standard: Footwear Production Level IV	
Unit Title	Perform Footwear and Material Testing
Unit Code	IND FWP4 04 1121
Unit Descriptor	This unit covers the knowledge, skills and attitudes to identify the different physical test used in footwear industry and to perform major physical tests for sample footwear materials and shoe as a product.

Elements	Performance Criteria
1. Identify testing of materials and quality	<p>1.1 The fundamentals of the quality of the products are identified according to standard testing manuals.</p> <p>1.2 The purpose and need for the product conformity is identified according to standard testing manuals.</p> <p>1.3 The importance of the raw material testing is described and relationship with the product performance is established.</p> <p>1.4 Types of tests conducted on the different <i>materials</i> related to the footwear are explained.</p> <p>1.5 Importance of the accuracy of the results is explained.</p>
2. Perform sampling of the test pieces	<p>2.1 The test required on the material or the footwear is determined on the basis of the international system requirement.</p> <p>2.2 Numbers of test pieces are determined as per the standard requirement.</p> <p>2.3 The test pieces are selected in accordance with the procedure listed in the international standard.</p> <p>2.4 The pieces are cut from the standard sample test knife with the help of clicking press. The <i>OHS</i> is followed in accordance to the norm.</p> <p>2.5 The test pieces are marked and test numbers are allocated and recorded.</p> <p>2.6 The left out piece of the material is listed and corresponding test number is allocated</p> <p>2.7 The conditioning of the test piece is carried out as per the procedure described in the standard.</p>
3. Determine the condition of the test equipment	<p>3.1 The condition for the testing is determined.</p> <p>3.2 The <i>tools and equipment</i> required for testing are identified as per the requirements.</p> <p>3.3 The <i>machines</i> are verified for the accuracy of the result as per standard procedures.</p> <p>3.4 The least count of the machine checked. The machine is verified for the validity of the calibration of the equipment.</p> <p>3.5 The testing condition of the machines such as temperature and</p>

	humidity is checked.
	3.6 The gauges are checked for the accuracy.
4. Conduct test on the machine	<p>4.1 The test piece is clamped on the machine.</p> <p>4.2 The initial reading of the machine is set on zero or at the initial level.</p> <p>4.3 The procedure for conducting the <i>test</i> under standard condition is determined.</p> <p>4.4 The initial reading related to the test condition is recorded.</p> <p>4.5 The reading variables are recorded during the performance of the test.</p>
5. Record and interpret result	<p>5.1 The results of the tests are recorded. The test piece is removed from the machine.</p> <p>5.2 The condition of the piece is checked against the standard reference material.</p> <p>5.3 The data related to the test is analyzed and mathematical model is used for checking the result.</p> <p>5.4 The limits of the test data against standard are verified and deviations are recorded.</p> <p>5.5 The result of the data is concluded as per the interpretation of the standard.</p>

Variable	Range
OHS practices	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Manual handling techniques • Standard operating procedure for sample selection • Standard operating procedure for conducting the test. • Standard operating procedures handling machine, equipment. • MSDS for handling chemicals • Personal protective equipment • Safe materials handling • Ergonomic arrangement of workplaces • Reporting accidents and incidents • Temperature and humidity as per the test standard

Tools and equipment	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • Work sheets • Eraser • Pen • Stop watch • Calculator • Gauges, fits • Measuring tools such as- Vernier caliper, Screw gauge, weighing balance (electronic), weighing gauges(standards)- calibrated • Grey scale • Holding jaws • Dies for standard samples
Machines	<p>May include, but not limited to:</p> <ul style="list-style-type: none"> • High precision Universal tensile machine • Flex meter- Full shoe • Rubness fastness testing machine • SATRA grain cracking testing machine • Ben vert sole flexing machine
Test	<p>May include but not limited to(types of tests)</p> <ul style="list-style-type: none"> • Tensile test • Tear test • Dry rub fastness • Wet rub fastness • Full shoe flexing • Sole flexing test • Grain crack test • Sole bonding test
Materials	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Leather and lining materials • Different soles such as: <ul style="list-style-type: none"> ○ PVC ○ TPR ○ PU ○ Leather ○ EVA • Full shoe

Evidence Guide

Critical Aspects of Competence	<p>Demonstrates skills and knowledge to –</p> <ul style="list-style-type: none"> • prepare test sample • identify the type of test • carry out test as per the procedure described in the standard • shall be able to verify measuring instruments accuracy • follow safety standard in maintain the limits, gauges and instruments
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge to:</p> <ul style="list-style-type: none"> • Compute the test results as per the testing methods • Interpret the data related to the test results

	<ul style="list-style-type: none"> • Understand the different test methods • Record critical parameters related to the test samples.
Underpinning Skills	Demonstrates skills to: <ul style="list-style-type: none"> • Identify and analyze test results • Carry out the different test methods
Resource Implications	The following resources must be provided: <ul style="list-style-type: none"> • Test lab with the environment as applicable under testing condition
Methods of Assessment	Competence may be assessed through: <ul style="list-style-type: none"> • Interview / Written Test • Observation / Demonstration with Oral Questioning
Context of Assessment	Competence may be assessed in the Lab or in a simulated workplace setting

Occupational Standard: Footwear Production Level IV	
Unit Title	Calculate Product Costing
Unit Code	<u>IND FWP4 05 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitudes required to estimate shoe cost that involves materials, labor, overhead and other related costs in the production of shoe.

Elements	Performance Criteria
1. Gather information	1.1 Details of the product requirements are obtained from information supplied 1.2 Details of products and/or services to be provided are gathered and confirmed 1.3 Delivery point and methods of transportation are determined where necessary 1.4 Details are recorded in accordance with enterprise practice and standards
2. Estimate materials and labor	2.1 Types and quantities of materials required for the production are estimated 2.2 Material requirements and economic batch sizes are identified 2.3 Labor requirements to achieve production outcomes and/or required services are estimated with cost calculation 2.4 Overhead costs are estimated
3. Calculate product costs and document	3.1 Total materials, labor and overhead cost allowances are identified in accordance with enterprise procedures 3.2 Available machine hours are determined and estimates made, when required 3.3 Total job cost including overheads and mark-up percentages is calculated 3.4 Overall cost, related calculations and other details are finalized, recorded and documented in accordance with enterprise practice and standard

Variable	Range
Product	May include but not be limited to - <ul style="list-style-type: none"> • Ladies footwear • Gents footwear • Children's footwear

Information	<p>May include but not be limited to:</p> <ul style="list-style-type: none"> • verbal or written instructions • job order • client's/customer's provided information • manufacturers' specifications and instructions where specified • organization work specifications and requirements • instructions issued by authorized organizational or external personnel
Materials	<p>May include but not be limited to -</p> <ul style="list-style-type: none"> • Upper leather • Lining leather • Synthetic leather • Fabrics • Sole, Insole
Labor requirements	<p>May include but not be limited to -</p> <ul style="list-style-type: none"> • Type of labors • Labor hours, • times and • other statistics

Evidence Guide	
Critical Aspects of Competence	<p>Demonstrates skills and knowledge in:</p> <ul style="list-style-type: none"> • locating, interpreting and applying relevant information, standards and specifications • compliance with organizational policies and procedures • calculating product cost estimate
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge to:</p> <ul style="list-style-type: none"> • location, interpretation and application of relevant information, standards and specifications • document and communicate work related information including work orders, specifications, materials and labor requirements • identify the different costing techniques and procedures • estimate and cost a route sheet for a specified job order or product including: <ul style="list-style-type: none"> ▪ estimate quantities of material required per pair ▪ determine the types and amount of labor required to complete the work ▪ estimate time required to complete the work ▪ estimate overheads associated with the job order
Underpinning Skills	<p>demonstrates skills in:</p> <ul style="list-style-type: none"> • appropriate use of calculator • apply simple arithmetic methods • ability to visualize and perceive an object in different views • read technical drawings related to footwear • interpreting job order, requirements specifications

Resources Implication	Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	Competence may be assessed through: <ul style="list-style-type: none"> • Written Test • Observation/Demonstration
Context of Assessment	Competence may be assessed in the work place or in a simulated work place setting.

Occupational Standard: Footwear Production Level IV	
Unit Title	Coordinate Die Making Operation
Unit Code	<u>IND FWP4 06 1121</u>
Unit Descriptor	This unit covers the knowledge, skills and attitudes required for the how of making die/cutting knife and coordination of related activities.

Elements	Performance Criteria
1. Prepare die making tools, materials and equipment	1.1 The different types die and their methods of arrangement are identified as per manufacturers' guidelines. 1.2 Work instructions, specifications, and operational details relevant to the tasks are obtained. 1.3 Hand tools, equipment, materials and machines are identified, prepared and checked for proper functionality consistent with the needs of the job and work standard practices 1.4 Hand Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer specifications and work standard practices. 1.5 Safety with regards to operator and work place , tools, equipment and machines is identified
2. Prepare workstation and set up the die/cutting knife machines	2.1 Workbench and seating are set up according to OHS practices 2.2 Die making machines is set-up and adjusted for operation according to task requirements 2.3 Die making machines are routinely cleaned and maintained.
3. Bend the die/cutting knife and welding	3.1 The pattern perimeter to determine the required size of the die/knife is measured. 3.2 The steel ruler die is cut based on measurement according to OHS practices 3.3 Die bending operation as per the pattern profile is carried out using foot press bending machine according to OHS practices 3.4 Extra die edge after bending is cut and grind according to OHS practices 3.5 Edge knife is joined together/Punta using welding machine
4. Reinforce the die /cutting knife	4.1 Reinforcement steel for cutting knife is measured and cut according to OHS practices based on measurement 4.2 Bended knife and reinforcement steel are welded together and grinded according to OHS practice
5. Finish the die /cutting knife	5.1 Size of the die is stamped by using notch marking machine or manually 5.2 Sharping and hammering of the edge is carried out 5.3 Welding chips are removed using wire brush and hammer 5.4 Lubrication or antirust painting is carried out
6. Check quality and dispatch	6.1 Die /cutting knives are checked against job specifications and workplace standards. 6.2 Faults or irregularities are addressed or resolved following company standard procedures. 6.3 Necessary records and dispatching are carried out in accordance

	with work procedures and standard format
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Variables	Range
Hand tools, equipment and materials	<p>May include, but not limited to :-</p> <ul style="list-style-type: none"> • Grinding tools • Measuring tape • Marker • Scotch tape • Patterns • Welding rod or Mig welding wire • Steel ruler die • Reinforcement steel • Wire brush • Hammer • Working table • Oxygen and oxyacetylene gases • Personal protective equipment (eye google , glove, halmet, safety apron, safety shoe,..)
Machines	<p>May include, but not limited to:-</p> <ul style="list-style-type: none"> • Foot press bending machine • welding machine • notch marking machine • shearing machine • drilling machine • hacksaw cutting machine, • punching machine
OHS practices	<p>OHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may relate to:</p> <ul style="list-style-type: none"> • manual handling techniques • standard operating procedures • personal protective equipment • safe materials handling • ergonomic arrangement of workplace • safe storage of equipment • reporting accidents and incidents • environmental practices

Evidence Guide

Critical Aspects of Competence	<p>Assessment requires evidence that the candidate:</p> <ul style="list-style-type: none"> • Set up workstation • Identify and use different cutting knife making machines, tools and materials • Get demonstration on bending the steel ruler die by machine • Identify cutting, welding, finishing operations in die making process. • Checked the quality of finished cutting die /knife
Underpinning Knowledge and Attitudes	<p>Demonstrate knowledge to:</p> <ul style="list-style-type: none"> • Identify die /cutting knife types and their purpose • Identify die /cutting knife machines and equipment • Explain procedure and techniques of cutting die/ Knife making operation • Identify quality standards and practices • OHS practices, including safety , hazard identification and control measures • workplace practices • recording and reporting practices
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • plan and coordinate complicated die making operations • check work against work specifications and enterprise standards • prepare tools, equipment, machines and work before commencing the operations • clarify and check task-related information • sequence operations and meet specifications • obtain maximum yield and achieve quality standards of the workplace • apply OHS practices in work operations • maintain accurate records
Resources Implication	<ul style="list-style-type: none"> • Access is required to real or appropriately simulated situations, including work areas, materials and equipment, and to information on workplace practices and OHS practices.
Methods of Assessment	<p>Competency may be assessed through:</p> <ul style="list-style-type: none"> • Interview / Written Test • Demonstration/ Observation with Oral Questioning
Context of Assessment	<ul style="list-style-type: none"> • Competence may be assessed in the work place or in a simulated work place setting.

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Occupational Standard: Footwear Production Level IV	
Unit Title	Manage Footwear Production Operations
Unit Code	<u>IND FWP4 07 1121</u>
Unit Descriptor	This unit describe knowledge skill and attitude related to production operation management that encompass planning, organizing, monitoring, controlling/evaluation of work and resources to create efficient and effective workplace practices within the organization's productivity and profitability plans. The requirement of a strategic level systems and procedures to be developed to facilitate the organization's operational plan is explained.

Elements	Performance Criteria
1. Manage Resource requirements and develop operational plan	<p>1.1 Resource requirements are studied, analyzed and documented in consultation with <i>relevant personnel, colleagues and specialist resource managers</i>.</p> <p>1.2 Operational plan is developed and/or implemented, including the development of <i>key performance</i> indicators, in consultation with relevant personnel, colleagues and specialist resource managers.</p> <p>1.3 <i>Consultation processes</i> are developed and/or implemented as an integral part of the operational planning process</p> <p>1.4 <i>Contingency plans</i> are developed and implemented at appropriate stages of operational planning</p> <p>1.5 The development and presentation of proposals for resource requirements are assisted by a variety of information sources, and specialist advice is sought as required</p>
2. Plan and manage resource acquisition	<p>2.1 Strategies are developed and implemented to ensure that employees are recruited and/or inducted within the organization's human resource management policies and practices</p> <p>2.2 Strategies are developed and implemented to ensure that physical resources and services are acquired in accordance with the <i>organization's policies, practices and procedures</i></p>
3. Monitor and review operations	<p>3.1 Performance systems and processes are developed, monitored and reviewed to assess progress in achieving profit and productivity plans and targets</p> <p>3.2 Budget and actual financial information is analyzed and interpreted to monitor and review profit and productivity performance</p> <p>3.3 Areas of underperformance are identified, solutions recommended, and prompt action is taken to rectify the situation</p> <p>3.4 Systems are planned and implemented to ensure that mentoring and coaching are provided to support individuals and teams to use resources effectively, economically and safely</p>

	<p>3.5 Recommendations for variations to operational plans are negotiated and approved by designated persons/groups</p> <p>3.6 Systems are developed and implemented to ensure that procedures and records associated with documenting performance are managed in accordance with the organization's requirements</p>
4. Review and evaluate work performance	<p>4.1 Work plans, strategies and implementation are reviewed based on accurate, relevant and current information</p> <p>4.2 Review is based on comprehensive consultation with appropriate personnel on outcomes of work plans and reliable feedback</p> <p>4.3 Results of review are provided to concerned parties and formed as the basis for adjustments/simplifications to be made to policies, processes and activities</p> <p>4.4 Performance appraisal is conducted in accordance with organization rules and regulations</p> <p>4.5 Performance appraisal report is prepared and documented regularly as per organization requirements.</p> <p>4.6 Recommendations are prepared and presented to appropriate personnel/authorities</p> <p>4.7 Feedback mechanisms are implemented in line with organization policies.</p>

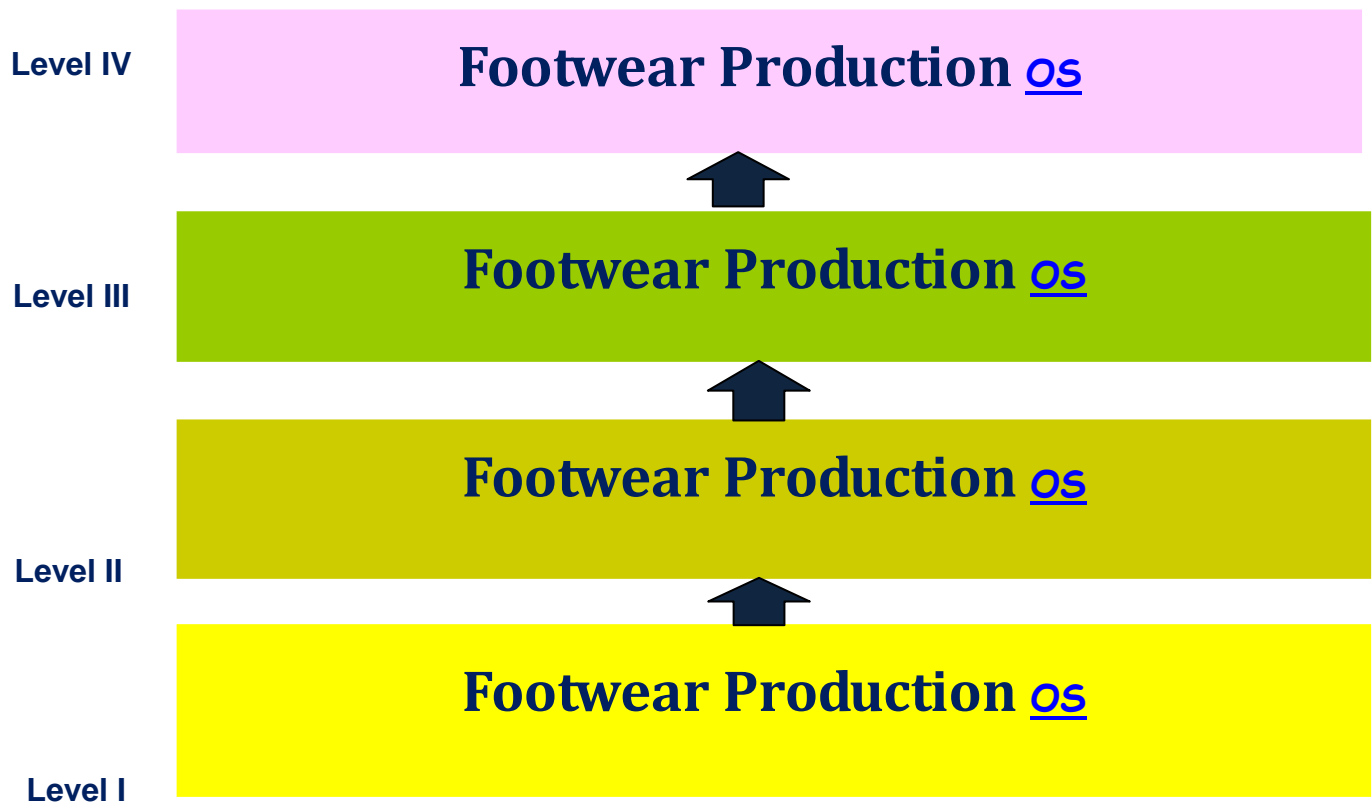
Variable	Range
Relevant personnel, colleagues and specialist resource managers	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • Managers • Supervisors • other employees • OHS committee(s) and other people with specialist responsibilities • union or employee representatives • people at the same level or more senior managers • people from a wide range of social, cultural and ethnic backgrounds
Consultation processes	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • meetings, interviews, brainstorming sessions, email/internet communications, newsletters or other processes and devices which ensure that all employees have the opportunity to contribute to team and individual operational plans • mechanisms used to provide feedback to the work team in relation to outcomes of consultation
Operational plans	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • tactical plans developed by the department or section to detail product and service performance • organizational plans

Key performance indicators	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • measures for monitoring or evaluating the efficiency or effectiveness of a system which may be used to demonstrate accountability and to identify areas for improvements
Contingency plans	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • rental, hire purchase or alternative means of procurement of required materials, equipment and stock • contracting out or outsourcing human resource and other functions or tasks • restructuring of organization to reduce labor costs • strategies for reducing costs, wastage, stock or consumables • diversification of outcomes • recycling and re-use • finding cheaper or lower quality raw materials • seeking further funding • increasing sales or production • risk identification, assessment and management processes • succession planning
Organization's policies and procedures	<p>May include but not limited to:</p> <ul style="list-style-type: none"> • those organizational guidelines which govern and prescribe operational functions, such as the acquisition and management of human and physical resources • standard operating procedures • undocumented practices in line with organizational operations • organizational culture
Designated persons/groups	<ul style="list-style-type: none"> • managers or supervisors whose roles and responsibilities include decision making on operations • other work groups or teams whose work will be affected by recommendations for variations • groups designated in workplace policies and procedures • other stakeholders such as Board members

Evidence Guide			
Critical Aspects of Competence	<p>Demonstrates skills and knowledge in:</p> <ul style="list-style-type: none"> • developing operational plan • planning and managing resource acquisition • monitoring and reviewing operational performance 		
Underpinning Knowledge and Attitudes	<p>Demonstrates knowledge of:</p> <ul style="list-style-type: none"> • relevant legislation from all levels of government that affects business operation, especially in regard to occupational health and safety and environmental issues, equal opportunity, industrial relations and anti-discrimination 		
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	<ul style="list-style-type: none"> • the principles and techniques involved in the management and organization of: • planning and managing operations • consultation and communication • contingency planning • resource planning and acquisition • resource management system • budgeting and financial analysis and interpretation • monitoring and review of performance systems/processes • reporting performance • problem identification and resolution • alternative approaches to improving resource usage and eliminating resource inefficiencies and waste • ways of supporting individuals/teams who have difficulty in performing to the required standard
Underpinning Skills	<p>Demonstrates skills to:</p> <ul style="list-style-type: none"> • relate to people from a range of social, cultural and ethnic backgrounds and physical and mental abilities • to access and use workplace information • monitor and review a safe workplace and environment • access and use feedback to improve operational performance • prepare recommendations to improve operational plans • access and use established systems and processes • coach and mentor skills to provide support to colleagues
Resources Implication	<p>The following resources must be provided:</p> <ul style="list-style-type: none"> • Workplace or fully equipped location with necessary tools and equipment as well as consumable materials
Methods of Assessment	<p>Competence may be assessed through:</p> <ul style="list-style-type: none"> • Interview/Written Test • Observation/Demonstration
Context of Assessment	<p>Competence may be assessed in the workplace or in a simulated workplace setting.</p>

Sector: Industry Development
Sub-Sector: Leather Industry
Sector: Footwear Products



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This occupational standard was finalized on November 2021 at Denbel View International Hotel, Adama, Ethiopia.

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footwear production**

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