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SHOE TECHNICIAN

CBT Curriculum

National Vocational Certificate Level 3

Version 1 - 2018

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Introduction

Some sectors of Pakistan economy have shown a good performance in terms of production and exports. Footwear is one such industry which has increased its exports at large extent. This sector has pivotal importance in terms of providing and creating jobs, earning of foreign exchange with the help of exports and fulfilling the local consumption requirements.

Both in Pakistan and around the globe, the demand for footwear is increasing. Pakistan is one of the most populous countries in the World signalling the growing demand for footwear in Pakistan. The population of Pakistan is about 200 million and having average of 2 pairs per person per year, the total production potential comes to 400 million pairs per year.

It is also estimated that about 60% of the World's total consumption consists of simple footwear made entirely of non-leather materials and that for the remaining 40% only the upper part of the shoe is made of leather. In the manufacturing of footwear, most frequently used material consists upon leather, manmade materials, rubber / canvas / synthetic and textile along accessories. Different type of shoes are being produced by the local industry e.g. sportsmen, army, disabled persons and safety shoes for the industrial workers etc.

The industry is predominantly located in and around Lahore, where almost 80 percent of the documented sector of the country is located. Other regions where shoe making activities are good include Karachi, Faisalabad and Multan. The productivity of Lahore based workers is higher than the rest of the country.

Footwear manufacturing industry lacks technology and skilled labour and even those that have skills have low productivity. The Chinese shoemakers for instance are twice more productive than the Pakistanis. Foregoing in view, in order to meet the demand of industry there is a need to strength and promote productive working relationship between the training provider and the industry in order to enhance quality of training delivery, enterprise competitiveness and access to decent employment.

Purpose of the training program

The purpose of these qualifications is to standardized competency standard across the globe for TVET practitioners who will serve as key elements in enhancing quality of training and assessment. Moreover, the purpose of this training program is to set and identify duties and tasks for the purpose of earning.

The specific objectives of developing these qualifications are as under:

- To set a high profile standard professions for the industry to generate standard outputs.
- To validate individual skills, knowledge and understanding regarding relevant occupations.
- In a Competency-Based Training (CBT), these qualifications provide overall course guidelines in relation to teaching and learning and act as the key instrument in supporting standardized formal, non-formal and informal training.
- Improve the professional competence of TVET practitioners/instructional to fulfilled Job market demand.
- Capacitate the instructional staff in modern CBT&A tools, methodologies and processes as envisaged under NVQF.
- Provide flexible pathways and progressions in training and assessment field.
- Enable the TVET practitioners/instructional staff to perform their duties in efficient manner.

Overall Objective of the Training Program.

The overall objective of this program is to set professional standards for shoe technician, who will serve as key elements enhancing quality of Pakistan's footwear manufacturing industry. The specific objectives of developing these qualifications are as under:

- Improve the professional competence of footwear manufacturing industry
- Capacitate the local community and trainers in modern CBT trainings, methodologies and processes as envisaged under NVQF

- Provide flexible pathways and progressions in footwear manufacturing industry
- Enable the trainees to perform their duties in efficient manner
- Establish a standardized and sustainable system of training in footwear manufacturing industry in Pakistan

Competencies gained after completion of the course:

At the end of the course, you must have attained the following competencies:

- ✓ Apply Occupational Health & Safety Procedures at Workplace
- ✓ Perform Hand Cutting of Shoe Components
- ✓ Carry Out Die Cutting of Shoe Components
- ✓ Perform Machine Cutting of Shoe Components
- ✓ Perform Manipulation of Shoe Components
- ✓ Perform Fitting/Folding
- ✓ Perform Sewing / Stitching
- ✓ Perform Insole making
- ✓ Prepare leather/sheet outsole
- ✓ Prepare Moulded outsole
- ✓ Perform Flat Lasting by Hand
- ✓ Perform Flat Lasting by Machine
- ✓ Perform Mould Lasting
- ✓ Perform shoe finishing and packing
- ✓ Develop Professionalism

Possible available Job opportunities available immediately and later in the future

After completion of this course trainees can be employed in government / semi-government / private organizations or can be self-employ as a freelancer. Experienced resources may advance through promotions with the same employer or by moving to more advanced positions with other employers. They can become:

- Shoe Technicians
- CNC Setter/Operator
- Assembly Technician
- Shoe Laster
- Footwear Product Manager

Entry level for trainees

- Minimum qualification for level-2 is Matriculation with some working knowledge of civil/electrical/Mechanical technology
- Minimum qualification for level-3 and Level-4 is Matriculation with some hands on practice on level-2.
- More preferably DAE level.

Minimum Teaching Qualification

Teaching staff should have at least two (2) years' experience related to the application of the CAD. Beside this the incumbent also holds a bachelor's degree (16 years) in relevant fields or DAE in relevant field. They should also hold or be working towards a formal teaching qualification or experience.

Recommended trainer: trainee ratio

Recommended trainer: trainee rations **1:25**, but can be vary as per the capacity of Institute.

Medium of instruction

Instructions will be provided in Urdu and English languages. For employment in the different demographic regions, orientations to specific linguistic expression with language conversion tools are recommended.

Duration of the course (Total time, Theory & Practical time)

This curriculum comprises of 6 modules. The recommended delivery time is 1240 hours.

- Delivery of the course can therefore be full time (4 hours a business day), 6 days a week, for 12 months (on average 26 business days a month). Training providers are at liberty to develop other models of delivery, including part-time and evening delivery.

OR

- Delivery of the course can therefore be full time (5 hours a business day), 5 days a week, for 12 months (on average 22 business days a month). Training providers are at liberty to develop other models of delivery, including part-time and evening delivery.

The full structure of the course is as follows:

Module	Theory	Practical	Total hours
A- Apply Occupational Health & Safety Procedures at Workplace			
B- Perform Hand Cutting of Shoe Components	48	192	240
C- Carry Out Die Cutting of Shoe Components	24	96	120
D- Perform Machine Cutting of Shoe Components	24	96	120
E- Perform Manipulation of Shoe Components	48	192	240
F- Perform Fitting/Folding	68	292	360
G- Perform Sewing / Stitching	68	292	360
H- Perform Insole making	24	96	120
I- Prepare leather/sheet sole	48	192	240

J- Perform Moulding	24	96	120
K- Perform Flat Lasting by Hand	48	192	240
L- Perform Flat Lasting by Machine	68	292	360
M- Perform Mould Lasting	48	192	240
N- Perform shoe finishing and packing	68	292	360
O- Develop Professionalism			

Sequence of the modules

1. Apply Occupational Health & Safety Procedures at Workplace
2. Perform Hand Cutting of Shoe Components
3. Carry Out Die Cutting of Shoe Components
4. Perform Machine Cutting of Shoe Components
5. Perform Manipulation of Shoe Components
6. Perform Fitting/Folding
7. Perform Sewing/Stitching
8. Perform Insole Making
9. Prepare Leather/Sheet Sole
10. Perform Moulding
11. Perform Flat Lasting by Hand
12. Perform Flat Lasting by Machine
13. Perform Mould Lasting
14. Perform Shoe Finishing and Packing
15. Develop Professionalism

OVERVIEW OF THE CURRICULUM

Module Title and Aim	Learning Units	Theory Days/hours	Workplace Days/hours	Timeframe of modules
Module-B **Perform Hand Cutting of Shoe Components** **Aim :** This Module is designed to provide skills and knowledge related to demonstrate hand cutting Operations using different tools and equipment in accordance with approved procedures.	**LU1:** Performing hand cutting exercises **LU2:** Preparing Cutting Templates **LU3:** Performing Material cutting	48	192	240
Module-C **Carry Out Die Cutting of Shoe Components** **Aim :** This Module is designed to provide skills and knowledge related to perform machine cutting operations of shoe components using different tools and equipment in accordance with approved procedures.	**LU1:** Performing pre-cutting operations **LU2:** Performing Press Upper Cutting **LU3:** Performing Press bottom Cutting	24	96	120

Module-D **Perform Machine Cutting of Shoe Components** **Aim :** This Module is designed to provide skills and knowledge related to machine cutting operations of shoe components using different tools and equipment in accordance with approved procedures.	**LU1.** Preparing CNC Laser cutting Machine **LU2.** Performing CNC Laser cutting of shoe Components **LU3.** Preparing CNC Plotter cutting Machine **LU4.** Perform CNC Plotter cutting of shoe Components	24	96	120
Module-E **Perform Manipulation of Shoe Components** **Aim :** This Module is designed to provide skills and knowledge related to manipulation of shoe components operations using different tools and equipment in accordance with approved procedures.	**LU1.** Performing quality assurance **LU2.** Performing Skiving **LU3.** Performing Splitting **LU4.** Performing stamping / embossing **LU5.** Performing screen printing	48	192	240
Module-F **Perform Fitting/Folding**	**LU1.** Arranging appropriate material for upper stitching **LU2.** Performing interlining with fusing press on upper components	68	292	360

Aim : This Module is designed to provide skills and knowledge related to Guide and Control of Stitching Machines operations of shoe components using different tools and equipment in accordance with approved procedures.	**LU3.** Performing folding of components **LU4.** Performing fitting and punching of components **LU5.** Performing Eyeleting **LU6.** Performing upper completion operations **LU7.** Performing Shape forming of shoe upper **LU8.** Performing upper sealing			
Module-G **Perform Sewing / Stitching** This Module is designed to provide skills and knowledge related to Sewing / Stitching operations of shoe components using different tools and equipment in accordance with approved procedures.	**LU1.** Setting Tools and Equipment for Stitching **LU2.** Operating the Stitching Machines **LU3.** Stitching seams with machine **LU4.** Performing Machine Stitch **LU5.** Performing Hand Stitch	68	292	360
Module-H **Perform Insole Making** This Module is designed to provide skills and knowledge related to insole making operations using different tools and equipment in accordance with approved procedures.	**LU1.** Preparing Insole by hand **LU2.** Cutting the insole by Press **LU3.** Performing insole covering **LU4.** Prepare Insole by Machine	24	96	120
Module-I **Prepare Leather/sheet Sole** This Module is designed to provide skills and	**LU1.** Performing cutting of outsole material **LU2.** Performing sole splitting	48	192	240

knowledge related to prepare leather outsole operations using different tools and equipment in accordance with approved procedures.	**LU3.** Performing sole snuffing **LU4.** Performing roughing of heel part of outsole **LU5.** Performing grooving / channel making of Outsole **LU6.** Joining of welt with sole **LU7.** Embossing of Outsole **LU8.** Preparing heel **LU9.** Performing Heel shaping **LU10.** Performing sole and heel assembling **LU11.** Performing sole Finishing			
Module-J **Perform Moulding** This Module is designed to provide skills and knowledge related to prepare Moulded outsole operations using different tools and equipment in accordance with approved procedures.	**LU1.** Preparing Moulded Shoe Components **LU2.** Preparing Moulded rubber shoe components	24	96	120
Module-K **Perform Flat Lasting by Hand** This Module is designed to provide skills and knowledge related to perform flat lasting with	**LU1.** Applying Adhesive to Insole and Upper **LU2.** Performing Upper lasting **LU3.** Performing Roughing of lasted Upper,	48	192	240

hand operations using different tools and equipment in accordance with approved procedures.	& Sole **LU4.** Performing Sole Attaching and de-lasting **LU5.** Performing Sole Stitching			
Module-L **Perform Flat Lasting by Machine** This Module is designed to provide skills and knowledge related to perform flat lasting with machine operations using different tools and equipment in accordance with approved procedures.	**LU1.** Performing Back Counter Moulding **LU2.** Performing Machine Lasting **LU3.** Performing Sole Attaching **LU4.** Performing Sole Stitching	68	292	360
Module-M **Perform Mould Lasting** This Module is designed to provide skills and knowledge related to perform mould lasting operations using different tools and equipment in accordance with approved procedures.	**LU1.** Performing Pre-forming **LU2.** Performing Pre-formed upper Lasting **LU3.** Performing lasted upper Roughing **LU4.** Performing Direct sole Moulding	**48**	**192**	**240**
Module-N **Perform Shoe Finishing and Packing** This Module is designed to provide skills and knowledge related to shoe finishing and packing operations.	**LU1.** Performing Shoe Finishing **LU2.** Performing Shoe Packing	**68**	**292**	**360**

Modules

Teaching and Learning Guide for Shoe Technician

The aim of this training program is to enabling trainees to perform independently and responsibly in their work environment, by following an educational program where this is part of the overall methodological concept. Different methodologies can therefore contribute to achieve the objective.
Methods that directly promote capacity-building for the student are particularly suitable and therefore should be included appropriately in the teaching approach. Theory methodologies should be supported by appropriate resources. Practical methodologies should be a set in an appropriate environment and supported by appropriate resources like multimedia, printer, scanner, computers. All technical equipment has to be in good working condition.

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Module-B

Module B: Perform Hand Cutting of Shoe Components

Objective of the Module: The objective of this module is to provide skills and knowledge related to demonstrate hand cutting operations using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills to perform Cutting Exercises, Cutting Templates and Material cutting as per industry standards.

Duration: 240hrs. **Theory: 48hrs.** **Practice: 192hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Performing hand cutting exercises	***You must be able to:*** **1.** Draw and cut the different cutting exercises on paper sheet according to given specification. **2.** Draw and Cut the different Shoe components pairwise on paper sheet according to given specification. **3.** Draw and Cut the different Shoe components pairwise on paper skin sheet according to given specification.	• Types of shoes (Derby, Oxford, etc.) • Parts of shoes (Toe, vamp, quarter, counter, tongue, sole, insole, single/pairwise, etc.) • Handling of Cutting materials / components (Paper, etc.) • Uses and Handling of cutting tools (Knives, files, templates, scissors, etc.) • Interlocking the layout • Directions for material		• Cutting pads • Cutting knives • Sharpening tools • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter • Cutting pattern • PPE equipment • Paper skin • Paper hide • Box-board • Offset Paper	**Theory:** Class/Workshop **Practical:** Workshop

	4. Draw and Cut the different Shoe components pairwise on paper hide sheets according to given specification. **5.** Draw and cut the different shoe upper and lining components on synthetic / Rexene material. **6.** Draw and cut the different shoe upper and lining components on leather material	• Defects of leather (scratches, butcher cuts, grain and shades variations, etc.) • Marking techniques (skin, chalk, etc.) • Types of cutting Sheets (zinc, thunit, etc.) • Different sizes and sizing system • Different cutting methods (hand, press, plotter, laser cutting, etc.)		• Different types of leather & Synthetic materials	

		<u>Practice 1:</u> ▪ Cut the Oxford shoe upper on paper skin **<u>Practice 2:</u>** ▪ Cut the Derby shoe upper on paper hide			
LU2. **Preparing Cutting Templates**	***You must be able to:*** **1.** Combine the shoe components with metal sheet according to the given pattern	• Types and uses of cutting files • Uses of different types of adhesives (Cementing substances, chloroprene, Polyurethane, etc.)		• Cutting Patterns • Template sheets • Filing set • Adhesives • Adhesives container	**Theory:** Class/Workshop

	2. Cut the template according to the given pattern **3.** File the final template according to the given pattern	**Practice 1:** ▪ Prepare the template for toe and quarter **Practice 2:** ▪ Prepare the template for vamp		• Adhesive brush • Pattern share • Pattern vice • Iron cutting scissor • Wooden hammer • Iron hammer • Lubricant oil • PPE equipment	**Practical:** Workshop
LU3. Performing Material cutting	***You must be able to:*** **1.** Carry out single layer cutting **2.** Set layers **3.** Carry out multilayer cutting	• Interpret Work ticket • Quality assurance of Cutting templates • Knowledge of layers • Handling of Cutting materials / components (leather, synthetic, leather board, etc.) • Uses and Handling of cutting tools (Knives, scissors, etc.) • Pattern interlocking • Directions for material • Identification of leather defects		• Hand Knife • Knife blades • Cutting templates/patterns • Leather/Synthetic • Silver Refill • Cutting sheets • Cutting table • Sharpening tools • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter	**Theory:** Class/Workshop **Practical:** Workshop

		<u>Practice 1:</u> ▪ Cut the Oxford shoe upper on leather. **<u>Practice 2:</u>** ▪ Cut the Derby shoe upper on synthetic material.		• PPE equipment	

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Module-C

Module C: Carry Out Die Cutting of Shoe Components

Objective of the Module: The objective of this module is to provide skills and knowledge related to perform machine cutting operations of shoe components using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills to perform the Press cutting of upper Components, press and die for cutting, and Perform Press cutting of Bottom Components.

Duration: 120hrs. **Theory: 24hrs.** **Practice: 96hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	• Material/Tools Required	Learning Place
LU1. Performing pre-cutting operations	***You must be able to:*** **1.** Prepare Press for cutting according to the requirement **2.** Prepare Die for cutting according to the requirement	• Types of cutting press • Knowledge of different knives as per pattern • Measurement of punch • Adjustment of press beam height • Adjustment of press strokes **<u>Practice 1:</u>** ▪ Adjust height and stroke of press according to cutting knife/die.		• Cutting pads • Cutting knives • Sharpening tools • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter • Cutting pattern • PPE equipment • Paper skin • Paper hide	**Theory:** Class/Workshop **Practical:** Workshop

				• Box-board • Offset Paper • Different types of leather & Synthetic materials	
LU2. Performing Press Upper Cutting	***You must be able to:*** **1.** Carry out single layer cutting of upper and lining components on leather material as per given specification **2.** Set layers of synthetic materials for upper components as per given specification **3.** Carry out multilayer cutting of upper and lining components on synthetic material as per given specification	• Interpret work ticket • Different sizes and sizing system (French, English, mondo point, etc.) • Knowledge of size cuts (6, 7, 8, 9, 10, etc.) • Types and uses of cutting machines (Swing beam, travel head, clicking beam, fix head, etc.) • Parts of cutting press (on/off switch, swing beam, cutting pad, electric motor, etc.) • Leather handling: • Prevention from Breaking, Scratches and wrinkles		• Cutting boards • Cutting press • Cutting dies • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter • PPE equipment	**Theory:** Class/Workshop **Practical:** Workshop

		• Maintain temperature and Humidity • Keep the standard Pile height (maximum 1 meter) • Cover with polythene • Synthetic material handling: • Prevention from Breaking, scratches and wrinkles • Reserve in roll form • Material directions for leather and synthetic • Types and uses of cutting dies (height, width, etc) • Material defect handling for cutting value (Use defected piece in lasting allowance, under allowance, etc.) • Preparation of Layers **<u>Practice 1:</u>** ▪ Perform press leather upper cutting			

LU3. Performing Press bottom Cutting	***You must be able to:*** **1.** Carry out single layer cutting of bottom components on leather material as per given specification **2.** Set layers of synthetic materials for bottom components as per given specification **3.** Carry out multilayer cutting of bottom components on synthetic material as per given specification	• Interpret work ticket • Types of bottom components (sole, insole, filler, socks, socks padding, heel, heel top piece, • Different sizes and sizing system (French, English, mondo point, etc.) • Types and uses of cutting machines (Swing beam, travel head, clicking beam, fix head, etc.) • Types and uses of cutting dies (height, width, etc) • Material defect handling for cutting value (Use defected piece in lasting allowance, under allowance, etc.) • Preparation of Layers **<u>Practice 1:</u>** ▪		• Cutting boards • Cutting press • Cutting dies • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter • PPE equipment • Swing beam machine • Travel head machine • Clicking beam machine • Fix head machine	**Theory:** Class/Workshop **Practical:** Workshop

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Module-D

Module D: Perform Machine Cutting of Shoe Components

Objective of the Module: The objective of this module is to provide skills and knowledge related to machine cutting operations of shoe components using different tools and equipment in accordance with approved procedures. You will be able to demonstrate CNC Laser cutting Machine, CNC Laser cutting of shoe Components, CNC Plotter cutting Machine and CNC Plotter cutting of shoe Components to prove your skills.

Duration: 120hrs. **Theory: 24hrs.** **Practice: 96hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Preparing CNC Laser cutting Machine	**You will be able to:** **1.** Collect required Material as per approved sample **2.** Adjust movement of Laser gun in order to assure capacity of laser gun **3.** Adjust sucker / blower as per given task	• Interpret work ticket • Parts of shoes (Toe, vamp, quarter, counter, tongue, sole, insole, single/pairwise, etc.) • Handling of Cutting materials / components (leather, synthetic, etc.) • Interlocking the layout • Directions for material • Defects of leather (scratches, butcher cuts, grain and shades variations, etc.)		• Cutting pads • Cutting knives • Sharpening tools • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter • Cutting pattern • PPE equipment • Paper skin • Paper hide	Theory: Class/Workshop Practical: Workshop

		• Types of cutting machines (Press, Laser, Plotter) • Main parts of laser cutting machine (Power supply, sucker, laser gun, blower etc.) • Different sizes and sizing system • Different cutting methods (hand, press, plotter, laser cutting, etc.) **<u>Practice 1:</u>** ▪ Prepare CNC laser machine for oxford shoe components		• Box-board • Offset Paper • Different types of leather & Synthetic materials	
LU 2. **Performing CNC Laser cutting of shoe Components**	**You will be able to:** **1.** Perform scanning of shoe components as required **2.** Adjust interlocking of shoe components in order to avoid wastage	• Methods of scanning the shoe components • Knowledge of interlocking the shoe components • Information about required voltage and its adjustment • Methods of engraving		• Cutting Patterns • Template sheets • Filing set • Adhesives • Adhesives container • Adhesive brush • Pattern share • Pattern vice	Theory: Class/Workshop Practical: Workshop

	3. Adjust laser power according to the requirement **4.** Carry out single layer cutting of upper and lining components on leather/ Synthetic material according to pattern **5.** Carry out single layer cutting of bottom components on leather/ Synthetic material according to pattern **6.** Carry out the decoration engraving on shoe components as per requirements	**Practice 1:** ▪ Perform laser cutting of gents sandal components in leather material **Practice 2:** ▪ Engrave the ladies shoe components on synthetic material		• Iron cutting scissor • Wooden hammer • Iron hammer • Lubricant oil • PPE equipment	

LU 3. **Preparing CNC Plotter cutting Machine**	**You will be able to:** **1.** Collect required Material as per approved sample **2.** Ensure movement of knife head, knife thickness and sharpness for smooth plotter cutting **3.** Adjust sucker / blower as per given task	• Types of cutting machines (Press, Laser, Plotter) • Main parts of plotter cutting machine (Power supply, sucker, knife head, blower etc.) **<u>Practice 1:</u>** Prepare CNC plotter machine for oxford shoe components		• Hand Knife • Knife blades • Cutting templates/patterns • Leather/Synthetic • Silver Refill • Cutting sheets • Cutting table • Sharpening tools • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter • PPE equipment	**Theory:** Class/Workshop **Practical:** Workshop

LU 4. Performing CNC Plotter cutting of shoe Components	***You must be able to:*** **1.** Adjust interlocking of shoe components in order to avoid wastage **2.** Adjust plotter cutting pin / knife according to given specification **3.** Install the design program for plotter cutting as approved sample **4.** Carry out single layer cutting of upper and lining components on leather/ Synthetic material according to pattern **5.** Carry out single layer cutting of bottom components on leather/ Synthetic material according to pattern	• Knowledge of interlocking the shoe components • Adjustment of knife and pin according to different patterns • Installation ofp design program **<u>Practice 1:</u>** ▪ Perform plotter cutting of gents sandal components in leather material **<u>Practice 2:</u>** ▪ Perform plotter cutting of ladies shoe components in synthetic material		• Plotter • Scanner • Measuring instrument • Plotter knives • Computer system • Leather/synthetics etc. • Box board sheet • Baskets • PPE • Printer	**Theory:** Class/Workshop **Practical:** Workshop

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Module-E

Module E: Perform Manipulation of Shoe Components

Objective of the Module: The objective of this module is to provide skills and knowledge related to manipulation of shoe components operations using different tools and equipment in accordance with approved procedures. You will be able to prove your Skiving, Splitting, Stamping / Embossing, KPU Embossing, Screen Printing, Laser Engraving, Marking, Edge Coloring, Crimping Operation, Quality Assurance, and Finalize Plan Quantity skills.

Duration: 240hrs. **Theory: 48hrs.** **Practice: 192hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Performing Quality Assurance	***You must be able to:*** **1.** Verify compliance as per the standard of given sample **2.** Identify defects according to quality standards **3.** Report to concerned person with respect to hierarchy	• Check the quality of given sample o Thickness o Color o Embossing o Stamping o Printing o Cutting edges o Short cutting o Material defects (butcher cut, vein mark, scratch, chicken pox, shades variation, etc.) o Material directions (tight to toe) o Tools of Marking (Silver Refill and Marking patterns		• Measuring gauge • Cotton • Magnifier glass • Skiving, splitting, marking charts • Clipper • Scissor • QC sticker • PPE	**Theory:** Class/Workshop **Practical:** Workshop
LU2. Performing	***You must be able to:***	• Procedures of edge Skiving • Skiving machine adjustment procedures according to the		• Skiving machine • Skiving chart	Theory:

Skiving	**1.** Perform edge coloring of upper components according to the top surface of material **2.** Perform marking of shoe components as per design pattern **3.** Perform edge skiving of upper components as per skiving chart	requirement: o Sharp the blade o Adjust thickness (0.7mm, 0.9mm, etc.) o Adjust width (0.5mm, 0.7mm, 0.8mm, etc.) o Angles (flat angle and 45 degree) **<u>Practice 1:</u>** ▪ Perform Edge Skiving of quarter and vamp of upper according to Skiving chart. **<u>Practice 2:</u>** ▪ Perform Edge Skiving of apran and vamp on 45 degree		• Skiver blade • Oil cane • Water cane • Grinding stone • PPE • Marking chart • Marking refill • Marking pattern	Class/Workshop Practical: Workshop
LU3. Performing Splitting	***You must be able to:*** **1.** Adjust split machine as per given specification **2.** Perform splitting of Shoe components as per given specifications	• Procedures of Splitting • Splitting machine adjustment procedures according to the requirement: o Sharp the blade o Adjust thickness (0.7mm, 0.9mm, etc.) **<u>Practice 1:</u>** • Perform splitting of toe and vamp of upper according to requirement..		• Gauge meter • Splitting machines • Basket • PPE	**Theory:** Class/Workshop **Practical:** Workshop

LU4. Performing stamping / embossing	***You must be able to:*** **1.** Adjust stamping / embossing machine as per given specification **2.** Perform stamping / embossing as per given specification	• Procedures of Stamping/embossing • Knowledge of different stamping/embossing techniques like KPU embossing, etc • Stamping / embossing material (foil, stamp, colours, etc.) • Stamping / embossing adjustment procedures according to the requirement: o Pressure adjustment according to the requirement **<u>Practice 1:</u>** ▪ Perform foil printing on Insocks according to the requirement		• Stamping machine • Embossing machine • Embossing dye • Foil • PPE	Theory: Class/Workshop Practical: Workshop
LU5. Performing screen printing	***You must be able to:*** **1.** Adjust Screen as per given Pattern **2.** Perform screen printing as per given Pattern	• Procedures of **screen printing** • Printing material (Ink, chemicals, squeegee, scotch tape, etc) **<u>Practice 1:</u>** ▪ Perform screen printing on insocks according to the requirement		• Screen • Colours • Screen Wiper squeegees • Bnzyle • Botyle • Cotton • PPE • Engraving design • Laser machine • Laser Engraving gun • Lather/synthetic	**Theory:** Class/Workshop **Practical:** Workshop

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Module-F

Module F: Perform Fitting/Folding

Objective of the Module: The objective of this module is to provide skills and knowledge related to Guide and Control of Stitching Machines operations of shoe components using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills of Maintenance of Tools and Equipment for Stitching Operate the Stitching Machines and Perform Seams with Machine.

Duration: 360hrs. **Theory: 68hrs.** **Practice: 292hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Arranging appropriate material for upper stitching	***You must be able to:*** **1.** Check approved sample for stitching according to work ticket **2.** Arrange upper, lining and interlining cutting components as required **3.** Arrange required materials as per	• Types of shoe (Oxford, Derby, etc.) • Stitching material (reinforcement tape, thread, etc.) • Identification of Design / sample • Uses of show board • Upper, lining and interlining components (leather, synthetic, baker etc.) • Types and uses of threads and needles • Types and uses of reinforcement tape		• Threads • Adhesive • Reinforcement Tape • Adhesive container • PPE	Theory: Class/Workshop Practical: Workshop

	components	**<u>Practice 1:</u>** ▪ Arrange upper and lining material for school shoes			
LU2. Performing interlining with fusing press on upper components	***You must be able to:*** **1.** Adjust Fusing press for interlining as per requirement **2.** Attach interlining on upper components as per requirement	• Adjustment of fusing press (temperature, pressure, time) • Types and uses of reinforcement material (Baker, bukram etc. • functions of fusing press machine • Knowledge of interlocking the shoe components **<u>Practice 1:</u>** ▪ Perform interlining by using fusing press of derby shoe components		• Fusing material • Fusing press • Scissor • Clipper • Adhesive container • Adhesive • Brush • PPE	Theory: Class/Workshop Practical: Workshop
LU3.	***You must be able to:***	• Types and uses of adhesives • Techniques of fitting and folding of		• Hand Knife • Knife blades	**Theory:**

Performing folding of components	**1.** Prepare components for fitting and folding as per design **2.** Fold components by hand as per requirement **3.** Fold components by machine as per requirement	components (by hand , by machine) • Types and uses of folding machine **Practice 1:** • Perform folding by hand of quarter and counter **Practice 2:** • Perform folding by machine of quarter and counter		• Cutting templates/patterns • Leather/Synthetic • Silver Refill • Cutting sheets • Cutting table • Sharpening tools • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter • PPE equipment	Class/Workshop **Practical:** Workshop
LU4. Performing fitting and punching of components	***You must be able to:*** **1.** Fit specific shoe components as per set standard **2.** Attach foam with components as per design	• Techniques of fitting (vamp and toe, quarters with back counter, lining with the upper, quarters and vamp, tongue piece with upper, lining quarters with heel grip etc.) • Decorative materials • Punching techniques		• Hand Knife • Knife blades • Cutting templates/patterns • Leather/Synthetic • Silver Refill • Cutting sheets	**Theory:** Class/Workshop **Practical:** Workshop

	3. Fit decorative material as per given specification **4.** Punch on upper material as per given specification	**Practice 1:** ▪ Perform fitting of vamp and toe **Practice 2:** ▪ Perform Punching on vamp component		• Cutting table • Sharpening tools • Marking tools • Magnifier glass • Measuring instruments • Thickness gauge meter • PPE equipment	
LU5. Performing Eyeleting	***You must be able to:*** **1.** Adjust machine as per requirement **2.** Perform eyeleting by machine **3.** Perform eyeleting by hand	• Types of eyelets (D-ring, Hooks, Ring Eyelets, Blind Eyelets etc.) • Methods of Eyeleting (by hand and by machine) **Practice 1:** ▪ Perform Eyeleting on leather upper by Machine **Practice 2:** ▪ Perform Eyeleting on leather upper by Hand **Practice 3:** ▪ Perform Eyeleting on synthetic upper by Machine		• Eyelet machine • Hooking machine • Eyelets • Hooks • Punch • Hammer • L-key set • Plyer • Oil cane • Screw drive • Cloth • Leather/synthetic • Steel plate • PPE	Theory: Class/Workshop Practical: Workshop

		<u>Practice 4:</u> ▪ Perform Eyeleting on synthetic upper by Hand			
LU6. Performing upper completion operations	***You must be able to:*** **1.** Perform Trimming **2.** Perform Thread Cleaning **3.** Perform Edge Colouring	• Trimming Methods (Hand and Machine) • Thread Cleaning Methods (Burning and Cutting) • Edge Colouring Methods (by foam, by brush, by roller, by spray, etc.) **<u>Practice 1:</u>** ▪ Perform Trimming of synthetic upper by Hand **<u>Practice 2:</u>** ▪ Perform Trimming of Leather upper by Machine **<u>Practice 3:</u>** ▪ Perform Thread burning of leather upper by Hand **<u>Practice 4:</u>** ▪ Perform Edge colouring of leather		• Upper sealing machine • Sealing material • Trimming machine • Trimming blades • Adhesive • Adhesive container • Tapes • Cloth • PPE • Plyer • Oil cane • Screw drive • Cloth • Leather/synthetic	Theory: Class/Workshop Practical: Workshop

		upper by foam			
LU7. Performing Shape forming of shoe upper	***You must be able to:*** **1.** Place stiffener on back counter as per requirement **2.** Perform back forming/shaping as per requirement **3.** Apply toe puff as per requirement **4.** Perform toe shaping	• Toe puff and stiffener materials (Thermo plastic sheet, chemical sheet, steel toe, etc) • Toe Shaping and back forming Machine adjustment (Temperature, pressure, time, etc.) **Practice 1:** ▪ Perform back shaping of synthetic upper by Hand **Practice 2:** ▪ Perform back counter shaping of leather upper by Machine **Practice 3:** ▪ Perform toe shaping on synthetic upper by hand **Practice 1:** ▪ Perform toe shaping on leather		• Toe puff material • Methyl Ethyl Ketone • Toe cement • Toe puff machine • L-key set • Plyer • Oil cane • Screw drive • Cloth • Leather/synthetic • PPE	Theory: Class/Workshop Practical: Workshop

		upper by Machine			
LU8. Performing upper sealing	***You must be able to:*** **1.** Arrange sealing material **2.** Arrange components for sealing **3.** Adjust machine temperature **4.** Adjust machine pressure	• Requirements of sealing/water proof shoes • Sealing Material (Poly sheet, Poly tape, etc.) • Water proofing test		• Upper sealing machine • Sealing material • Adhesive • Adhesive container • Tapes • Cloth • PPE	Theory: Class/Workshop Practical: Workshop

	5. Apply the sealing tape on components				

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Module-G

Module G: Perform Sewing / Stitching

Objective of the Module: The objective of this module is to provide skills and knowledge related to Sewing / Stitching operations of shoe components using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills of Zigzag Stitching, Perform General Stitching with Machine, Perform Binding Stitching, Perform String Stitching, and Perform Insole Sock Stroble with Upper, Perform Cording Stitching and Perform Hand Stitching.

Duration: 360hrs. **Theory: 68hrs.** **Practice: 292hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU 1. Setting Tools and Equipment for Stitching	***You must be able to:*** **1.** Arrange stitching tools for specific machine **2.** Perform oiling and cleaning the stitching machines **3.** Adjust the needle for specific material	○ Interpret work ticket ○ Fitting of Shoe components (Toe, vamp, quarter, counter, tongue, sole, insole, single/pairwise, etc.) ○ Types of Stitching Machines: ○ General ○ Binding ○ String ○ Cording ○ Stroble ○ Post bed		• L-key set • Plyer • Wrench • Stitch guide • Oil cane • Cloth • Needles • Clipper • Scissor • Bobbin case • Stitch standard chart • PPE	Theory: Class/Workshop Practical: Workshop

		○ Cylinder arm ○ Flat bed ○ Single needle ○ Double needle, etc.) • Maintenance process of stitching machines before and after stitching : ○ Cleaning ○ Oiling (Types of lubricants, etc.) ○ Threading the machine ○ Testing functionality of machine on rough material, etc. ○ Types of needles (Leather point needle Synthetic point needle, Colorless point needle, etc) • Handling of Stitching materials / components (leather, synthetic, etc.) ○ Different sizes and sizing system ○ Parts of Stitching machines (Needle, bobbin, Belt, wheel, motor, knee foot, foot pedal etc.)			

		• Types of stitching (Lock stitch, chain stitch) • Types of needle • Parts of needles (eye, groove, shank etc.) • Types of seams (close, lapped, zigzag etc.) • Types and uses of threads (polyester, nylon, cotton etc.) • Thickness of thread • Thread tension during stitching • Bobbin and bobbin case • Types of lubricants • Methods of lubrication			
		Practice 1: ▪ Perform oiling and cleaning of flatbed machine. **Practice 2:** ▪		•	

LU2. **Operating the Stitching Machines**	***You must be able to:*** **1.** Adjust the stitching machine according to material **2.** Stitch the leather / synthetic material as per given specification	• Adjustment of stitching machine (Threading, bobbin filling) • Types of stitching machines (Post bed, cylinder arm, flat bed, single needle, double needle etc.) • Parts of Stitching machines (Needle, bobbin, Belt, wheel, motor, knee foot, foot pedal etc.)		• Seam machine • Rough materials • Threads • Tape • Small plastic hammer • L-key set • Plair • Stitch guide • Oil cane • Screw drive • Cloth • Needles • Clipper • Scissor • Bobbin case • Stitch standard chart • PPE	**Theory:** Class/Workshop **Practical:** Workshop

		Practice 1: ▪ Perform stitching exercises on paper cards (1 to 10) **Practice 2:** ▪ Perform stitching without thread on synthetic material **Practice 3:** ▪ Perform stitching without thread on leather material		•	
LU3. Performing Machine Stitching	**You will be able to:** **1.** Collect work ticket **2.** Adjust the specific machine as per given specification **3.** Perform General stitching as per given specification **4.** Perform Binding stitching as per given specification **5.** Perform String stitching as per given	• Types of seems (Back Seam, Close seam, Decorative seam, etc) • Types of Binding stitching (U-binding, French binding, piping, etc.) • Binding materials (Synthetic, Cloth, etc) **Practice 1:** ▪ Stitch toe and vamp components as per given specification. **Practice 2:** ▪ Perform Stroble stitching on insole socks and upper as per given		• Stitching machine • L-key set • Binding machine • Binders • Binding material • String stitching machine • Strobel machine • Insocks material • Cording machine • Cording thread • • Plyer • Stitch guide	**Theory:** Class/Workshop **Practical:** Workshop

	specification **6.** Perform Cording stitching as per given specification **7.** Perform Stroble stitching as per given specification	specification.		• Oil cane • Screw drive • Cloth • Needles • Clipper • Scissor • Bobbin case • Threads • Leather/synthetic etc • PPE	
LU4. Performing Hand Stitch	**You will be able to:** **1.** Collect work ticket **2.** Arrange material for hand stitching as per given specification **3.** Perform Hand stitching as per given specification **4.** Perform decorative stitching as per given specification	• Understanding of Shoe size and sizing system (French, English, Mondo point) • Sizing Notches according to shoe size • Types of threads (Cotton, Nylon, Polyester, waxed, non-waxed, single ply, double ply thread, etc.) • Types of Hand stitching (45^{O}, roll top, etc.)		• Zigzag machine • L-key set • Plyer • Oil cane • Screw drive • Cloth • Threads • Needles • Clipper • Scissor • Bobbin case	Theory: Class/Workshop Practical: Workshop

		<u>Practice 1:</u> ▪ Perform Roll top stitch on Moccasin as per given specification. **<u>Practice 2:</u>** ▪ Perform 45^{O} stitch on Moccasin as per given specification.		• Lather/synthetic • PPE	

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Module-H

Module H: Perform Insole Making

Objective of the Module: The objective of this module is to provide skills and knowledge related to insole making operations using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills for Preparation of Insole by Hand, Perform Cutting of Insole by Machine, Perform Stamping and Perform Insole Covering.

Duration: 120hrs. **Theory: 24hrs.** **Practice: 96hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Preparing Insole by Hand	***You must be able to:*** **1.** Interpret work ticket **2.** Draw the insole pattern with cutting direction as per given specification **3.** Apply Skiving as per given specification **4.** Prepare the insole as per given	• Types of insole (full, half, etc.) • Area of shank attachment • Controlling the waste of material • Cutting materials / components • Sizing assortment • Direction of cutting from Tight to Toe • Insole material (Cellulose board) • Tools & equipment (Knife, blade, scissor, etc) • Quality checking of insole material		• Leather/synthetics • Cutting knife • Cutting blade • Skiver • Rambi • Adhesive • Adhesive container • Brush • Steel shank • PPE • Hard board	Theory: Class/Workshop Practical: Workshop

	specification **5.** Make bundles size wise	**Practice 1:** • Prepare handmade insole of ladies shoe with cellulose board **Practice 2:** • Prepare handmade insole of gents shoe with non-Woven board		• Shank board • Duralight • Leather board • Non-woven board	
LU2. Cutting the insole by Press	***You must be able to:*** **1.** Perform cutting of insole by machine as per given specification **2.** Stamp the insole as per given specification	• Insole Materials (cellulose board, hard board, non-Woven board, vegetable tanned leather, PVC Insole etc.) • Adjustment of Insole cutting press: o Stroke Adjustment o Beam height o Thickness/hardness according to material **Practice 1:** ▪ Perform insole cutting of shank board **Practice 2:** ▪		• Cutting press • Leather/synthetics • Cutting knife • Cutting blade • Cutting dyes • Splitting machine • Skiver • Adhesive • Adhesive container • Brush • Steel shank • Revit machine • Insole shaping machine • PPE	Theory: Class/Workshop Practical: Workshop

				• Hard board • Shank board • Dura light • Leather board • Non-woven board	
LU3. **Performing insole covering**	***You must be able to:*** **1.** Collect the work ticket **2.** Cover the insole as per given specification	• Knowledge of insole covering • Covering materials (cloth, Leather, synthetic, etc) • Procedures of Insole covering • Joining of components • Folding of covering by hand/machine **<u>Practice 1:</u>** ▪ Perform insole covering with Rexene. **<u>Practice 2:</u>** ▪ Perform insole covering with Leather.		• Insole cover folding machine • Adhesive • Adhesive container • Brush • Hammer • Stone • PPE	Theory: Class/Workshop Practical: Workshop

LU4. Preparing Insole by Machine	***You must be able to:*** **1.** Perform Shank Board reducing as per given specification **2.** Carry out grooving of shank board as per given specification **3.** Attach insole with shank board as per given specification **4.** Carry out insole moulding /shaping as per given specification **5.** Carry out beveling as per given specification	• Knowledge of Reducing (Skiving) • Knowledge of Grooving • Knowledge of Insole joining • Isole/Moulding/shaping • Perform Beveling **<u>Practice 1:</u>** ▪ Perform reducing of ladies insole shank board as per given specification **<u>Practice 2:</u>** ▪ Perform reducing of gents insole shank board as per given specification		• Reducing machine • Cut of shank board insole • Thickness meter • Density meter • Grooving Machine • Vernier Caliper • Shank Model • Steel Ruler • Measuring tape • Adhesive • Adhesive container • Brush • Leather/synthetic Back part press • PPE • Beveling machine • • Leather/synthetic	Theory: Class/Workshop Practical: Workshop

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Module-I

Module I: Prepare Leather/sheet Sole

Objective of the Module: The objective of this module is to provide skills and knowledge related to prepare leather outsole operations using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills to perform cutting of outsole material, sole splitting, sole buffing / snuffing, roughing of heel part of outsole, grooving / channel making of outsole, join welt on sole, embossing of outsole, pre-finishing of outsole, heel, heel shaping, pre-finishing of heel, assembly of heel and sole and perform sole finishing.

Duration: 240hrs. **Theory: 48hrs.** **Practice: 192hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Performing cutting of outsole material	***You must be able to:*** **1.** Arrange sole materials as per requirement **2.** Adjust cutting press as per cutting knives **3.** Cut outsole, heel top and heel lifts as per given specification **4.** Cut welt as per given specification	• Material thickness • Material Defects (Natural faults, scratches, design faults, etc.) • Cutting press adjustment • Cutting Directions **Practice 1:** ▪ Perform one pair leather sole cutting		• Cutting press • Cutting die • Cutting knife • Rambi • Cutting board • Sole material (synthetic & leather etc.) • PPE	Theory: Class/Workshop Practical: Workshop

LU2. Performing sole splitting	***You must be able to:*** **1.** Adjust splitting machine as per given specification **2.** Split the sole as per given specification	• Thickness as per given specification • Blade sharpening method **<u>Practice 1:</u>** ▪ Perform one pair leather sole splitting as per given specification		• Splitting machine • Guage meter • Leather/synthetic etc	
LU3. Performing sole snuffing	***You must be able to:*** **1.** Adjust snuffing machine **2.** Buff the grain area of outsole	• Snuffing Materials (Sand paper, belt, etc.) • Importance of Snuffing **<u>Practice 1:</u>** ▪ Perform one pair leather sole snuffing as per given specification		• Grinding machine • Buffing & snuffing papers • L-key set • Plyer • Oil cane • Screw drive • Adhesive • Adhesive container • Brush • Cloth • Leather/synthetic • PPE	**Theory:** Class/Workshop **Practical:** Workshop

LU4. Performing roughing of heel part of outsole	***You must be able to:*** **1.** Fix the sand paper in machine as per given specification **2.** Mark the heel area with patterns on sole machine as per given specification **3.** Rough the heel area with machine as per given specification	• Adjustment of sand paper as per given specification • Purpose of roughing **<u>Practice 1:</u>** ▪ Perform one pair roughing leather sole heel part as per marking		• Roughing machine • Roughing paper • L-key set • Plyer • Oil cane • Screw drive • Adhesive • Adhesive container • Brush • Cloth • Leather/synthetic • PPE	**Theory:** Class/Workshop **Practical:** Workshop
LU5. Performing grooving / channel	***You must be able to:*** **1.** Adjust grooving machine as per	• Grooving machine adjustment (Knife sharpness, depth, width, etc.) • Importance of Grooving		• Grooving Channel machine • Blade • L-key set • Plyer	**Theory:** Class/Workshop

making of Outsole	requirement **2.** Groove outsole as per given sample	**<u>Practice 1:</u>** ▪ Perform one pair grooving on leather sole as per given sample		• Oil cane • Screw drive • Cloth • Leather/synthetic • PPE	**Practical:** Workshop
LU6. Joining of welt with sole	***You must be able to:*** **1.** Apply primer on welt after welting as required **2.** Apply adhesives on sole and welt as per set standard **3.** Join welt with sole and press after reactivation as per required temperature	• Grooving machine adjustment (Knife sharpness, depth, width, etc.) • Surface preparation for bonding • Types of primer o TPR o PVC o PU o EVA o Rubber, etc • Roughing of velt • Application of adhesives **<u>Practice 1:</u>** ▪ Perform the welt attachment with sole as per given sample		• Welt • Sole • Adhesive • Adhesive container • Welt press • Brush • PPE	**Theory:** Class/Workshop **Practical:** Workshop

LU7. Embossing of Outsole	***You must be able to:*** **1.** Adjust the embossing machine as per given specification **2.** Emboss logo, size and design as per requirement	• Adjustment of embossing machine as per given specification (Heat, pressure, timer) • Knowledge of logo, size, design **<u>Practice 1:</u>** ▪ Perform logo embossing on leather sole as per given specification **<u>Practice 2:</u>** ▪ Finish the leather sole with cream or waxes **<u>Practice 3:</u>** ▪ Finish the leather sole with spray finish		• Embossing machine • Embossing die • Embossing stamp	**Theory:** Class/Workshop **Practical:** Workshop
LU8. Preparing heel	***You must be able to:*** **1.** Join the heel lifts as per required height after reactivation of adhesives **2.** Join the heel top with heel as per set standard	• Bonding of heel lifts • Procedures of heel preparation **<u>Practice 1:</u>** ▪ Prepare heel of 20mm height		• Adhesive • Adhesive container • Brush • Heel press • Different types of heels • Leather/synthetic	**Theory:** Class/Workshop **Practical:** Workshop

				• PPE	
LU9. Performing Heel shaping	***You must be able to:*** **1.** Adjust the inclination machine according to the requirement **2.** Adjust the arch machine according to the requirement **3.** Make the arc of the heel according to the given pattern **4.** Perform heel rounding according to the given pattern	• Shapes of heel (Inclination, arch and rounding) • Adjustment of machines (Inclination, arch, rounding) • Procedures of heel preparation **<u>Practice 1:</u>** ▪ Prepare the final heel of 25mm height		• Adhesive • Adhesive container • Brush • Heel press • Different types of heels • Leather/synthetic • PPE	**Theory:** Class/Workshop **Practical:** Workshop

LU10. Performing sole and heel assembling	**1.** Join heel with sole after reactivation of the adhesives according to the requirement **2.** Apply nailing / stapling according to the requirement **3.** Side wall-Roughing on sole according to the given Pattern	• Knowledge of soul and heel assembling • Knowledge of nailing / stapling • Knowledge of side wall roughing **<u>Practice 1:</u>** ▪ Assemble the sole and heel **<u>Practice :</u>** ▪ Perform side wall sole-roughing		• Adhesive • Adhesive container • Brush • Heel press • Different types of heels • Leather/synthetic • PPE	**Theory:** Class/Workshop **Practical:** Workshop
LU11. Performing sole Finishing	***You must be able to:*** **1.** Perform Pre-finishing of the out sole and heel as per given specification **2.** Perform Final finishing of the sole as per given specification	• Finishing Dyes (pigmented, solvent base, etc.) • Finishing Material (Cream, waxes, etc.) • Finishing tools (Cotton brush, woollen brush, etc.) • Importance of Finishing (Pre Finishing and Final Finishing)		• Foam • Cleaning brush • Crabe sheet • Cloth • Finishing colours • Spray gun • Buffing machine • Buffing waxes	**Theory:** Class/Workshop **Practical:** Workshop

		Practice 1: ▪ Perform Pre-Finishing of the leather out sole with cream **Practice 2:** ▪ Perform Pre-Finishing of the leather out sole with waxes **Practice 3:** ▪ Perform Final-Finishing of the leather sole as per requirement **Practice 4:** ▪ Perform Final-Finishing of the sheet sole as per requirement		• Finishing cream • PPE	

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Module-J

Module J: Performing Moulding

Objective of the Module: The objective of this module is to provide skills and knowledge related to Moulding operations using different tools and equipment in accordance with approved procedures. You will be able to demonstrate the preparation of Thermo Plastic Rubber (TPR) / Poly Vinyl Chloride (PVC) outsole of shoe, Thermo Plastic Polyurethane (TPU) Shoe Components, Polyurethane (PU) outsole of shoe and rubber outsole of shoe.

Duration: 120hrs. **Theory: 24hrs.** **Practice: 96hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Preparing Moulded Shoe Components	***You must be able to:*** **1.** Adjust moulds on machine as per requirement **2.** Insert required material in the Moulding machine **3.** Clean the mould with respective cleaning agent	• Interpret work ticket • Types and uses of mould cleaner (TPR, PVC) • Types and uses of injection moulding machine (Rotary machine, Semi machine, Horizontal injection machine) • Types and uses (adjustment) of moulding machines (Manual pouring and Auto injection machines etc.) • Understanding the material into the		• PVC moulding machine • TPR moulding machine • TPR Outsole mould • PVC outsole mould • PVC material • TPR material • Cleaning cloth	Theory: Class/Workshop Practical: Workshop

	4. Trim the extracted mould as per set standard	machine hopper • Remove excess material / Spew **Practice 1:** • Mould a pair of sole TPR **Practice 2:** • Mould a pair of sole PVC **Practice 3:** ▪ Adjust the mould on TPU injection machine **Practice 4:** ▪ Mould a pair of TPU component		• Scale • Mixer • Sole puller • Spray gun • Mould cleaner • PPE	
LU2. Preparing Moulded rubber shoe components	***You must be able to:*** **1.** Collect rubber material as per work ticket **2.** Prepare rubber blanks for rubber sole moulding as per	• Types and uses of rubber materials (Synthetic, natural) • Use of Bemri machine for mixing • Use of roll machine • Knowledge of Rubber sheet Guage • Measuring balance • Mould cleaning knowledge • Knowledge regarding pull out the		• Mixer • Scale • Rubber outsole mould • Rubber press • Release agent • Sole puller • PPE	

	requirements **3.** Adjust moulds on machine as per requirement **4.** Trim the Moulded piece as per Design	component from the mould • Remove excess material / Spew **<u>Practice 1:</u>** • Mixing of rubber sole material as per specification **<u>Practice 1:</u>** • Make a rubber sole as per mould design			

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Module-K

Module K: Perform Flat Lasting by Hand

Objective of the Module: The objective of this module is to provide skills and knowledge related to perform flat lasting with hand operations using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills to attach Insole with Last, apply Adhesive to Insole and Upper, toe puff & Stiffener, perform toe/forepart lasting, perform Side Lasting as per design, perform heel /back part lasting, perform Wrinkle Chasing as per requirement, perform lasted Upper & sole roughing and priming, perform Sole attaching, perform De-lasting and perform sole stitching.

Duration: 240hrs. **Theory: 48hrs.** **Practice: 192hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Applying Adhesive to Insole and Upper	***You must be able to:*** **1.** Apply the primer on upper as per set standards **2.** Apply the adhesive on insole and upper as per set standards **3.** Apply toe puff and stiffener as per set	• Techniques of skiving / roughing (upper side, insole etc.) • Knowledge about types of adhesive (contact, yellow paste, latex etc.) • Identification of area for application of adhesives (lasting allowance etc.) • Techniques of applying primer		•	**Theory:** Class/Workshop **Practical:** Workshop

	standards.	**<u>Practice 1:</u>** ▪ Apply adhesive by using upper primer **<u>Practice 2:</u>** ▪ Insert Toe puff and stiffener in leather / synthetic upper			
LU2. Perform Upper lasting	***Trainee must be able to:*** **1.** Attach insole with last as per feather line **2.** Perform toe/forepart lasting as per set standards **3.** Perform side lasting as per set standards **4.** Perform heel lasting as per set standards **5.** Perform wrinkle chasing as per requirement	• Identification of right and left side insole • Importance of proper nailing • Back height of the last • Upper alignment • Technique of lasting back height and upper placing • Knowledge of wrinkle controlling • Areas of upper (fore part, back part etc.) • Material analysis • Procedure of softener using • Knowledge of direct upper heating on heater • Application the iron at wrinkle area		• Toe lasting machine • Toe lasting adhesive • Cloth • Leather softener • PPE • Wrinkle chaser machine • Steamer • Heat setter • Dryer • PPE	**Theory:** Class/Workshop **Practical:** Workshop

		for wrinkle removing			
		Practice 1: ▪ Perform Toe lasting of upper **Practice 2:** ▪ Perform side lasting of upper **Practice 3:** ▪ Perform heel lasting of upper			
LU3. Perform Roughing of lasted Upper, &	***Trainee must be able to:*** **1.** Remove the temporary nails from insole as per set standards **2.** Attach the filler	• Uses of roughing tools (grinding stone, sand paper, etc.) • Identification of sole materials (PVC, PU, Leather, TPR, Rubber) • Proper use of primer		• Roughing machine • Priming container • Priming brush • Steel brush	**Theory:** Class/Workshop **Practical:**

Sole	according to design and requirement **3.** Perform roughing on lasted upper and soul as per requirement **4.** Apply primer at upper and sole materials as per requirement	**Practice 1:** ▪ Perform roughing on bottom side of leather upper **Practice 2:** ▪ Perform scouring of leather upper		• Marking refill • PPE	Workshop
LU4. Performing Sole Attaching and de-lasting	***Trainee must be able to:*** **1.** Apply the Poly Urethane (PU)/graft adhesive at the surface of upper bottom and sole cavity **2.** Press the sole by hand hammer / machine as per requirement	• Procedure of hardener using • Effect of temperature • Importance of covering the gap between sole and lasted upper • Drying times for shoe plasticity • Last and its types (v-cut, solid, sliding, wood, metal, plastic etc.) • Knowledge about the proper method of de-lasting • Parts of last (peg hole, feather line, etc.)		• Adhesive • Adhesive container • Applicator (brush etc.) • PPE	**Theory:** Class/Workshop **Practical:** Workshop

		<u>Practical 1:</u> ▪ Attach the PU Sole with leather upper **<u>Practical 2:</u>** ▪ Attach the TPR Sole with leather upper			
LU5. Performing Sole Stitching	***Trainee must be able to:*** **1.** Apply the wax on thread for softening **2.** Stitch the chain stitch with awl as per set standards	● Use of wax material (Abrasive wax, polishing wax) ● Using the Sand and awl ● Knowledge about types of stitch (chain stitch, lock stitch) ● Knowledge about threads **<u>Practical 1:</u>** ▪ Stitch the leather sole **<u>Practical 2:</u>** ▪ Stitch the TPR sole		• Sole stitching machine • Wax • Thread • Awl • PPE	**Theory:** Class/Workshop **Practical:** Workshop

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Module-L

Module L: Perform Flat Lasting by Machine

Objective of the Module: The objective of this module is to provide skills and knowledge related to perform flat lasting with machine operations using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills to perform back counter moulding, Machine lasting, sole attaching and sole stitching.

Duration: 360hrs. **Theory: 68hrs.** **Practice: 292hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Performing Back Counter Moulding	***Trainee must be able to:*** **1.** Adjust the selected back mould at machine for shaping as per design **2.** Insert stiffener on back counter between upper and lining as per standard	• Knowledge about types of stiffener materials (Thermoplastic, TP1, TP2 etc.) • Methods for placement stiffeners		• Back moulding machine • Mould • Back counter mould hot & cold	**Theory:** Class/Workshop **Practical:** Workshop

	3. Mould the upper on hot mould after adjusting the temperature of Mould as per set standard **4.** Mould the upper on cold mould after adjusting the temperature of Mould as per set standard	**<u>Practice 1:</u>** ▪ Perform back counter moulding on leather upper **<u>Practice 2:</u>** ▪ Perform back counter moulding on synthetic upper			
LU2. Performing Machine	***Trainee must be able to:*** **1.** Attach Insole with last as per given specification	• Uses of softener • Positioning of upper align • Information of back height • Knowledge about the toe lasting		• Side lasting machine • Side lasting adhesive	**Theory:** Class/Workshop

Lasting	**2.** Perform toe/forepart lasting as per given specification **3.** Perform upper toe activation as per given specification **4.** Perform side lasting as per given specification **5.** Perform heel lasting as per given specification **6.** Perform wrinkle chasing as per set standards **7.** Perform roughing as required	machine operations • Knowledge about vapour plate / pincers heat of heel lasting machine • **Practice 1:** ▪ Perform toe lasting by machine **Practice 2:** ▪ Perform heel lasting by machine **Practice 3:** ▪ Perform roughing of shoe components		• Adhesive container • Brush • PPE	**Practical:** Workshop

LU3. Performing Sole Attaching	**Trainee must be able to:** **1.** Attach the sole with lasted upper as per set standards **2.** De-last the shoe as per given specification	• Identification of sole material (PVC, PU, TPR, Rubber, Leather etc.) • Knowledge of Mixing ratio / percentage for adhesive and hardener • Process of nail removing • De-lasting process **<u>Practice 1:</u>** ▪ Attach the TPR sole with lasted upper **<u>Practice 2:</u>** ▪ Attach the PU sole with lasted upper **<u>Practice 3:</u>** ▪ Attach the PVC sole with lasted upper **<u>Practice 3:</u>** ▪ Perform de-lasting of shoe		• Sole press • Adhesive • Adhesive container • Brush • PPE	**Theory:** Class/Workshop **Practical:** Workshop

LU4. Performing Sole Stitching	***Trainee must be able to:*** **1.** Prepare the sole stitching machine for stitching as per standard **2.** Stitch the chain stitch with machine at insole inside at set standards	• Types of stitch (Lock stitch, chain stitch) • Uses of oils on thread • Types of needles • Sole stitching machine (Parts, function, types etc.) **<u>Practice 1:</u>** ▪ Stitch the TPR sole **<u>Practice 2:</u>** ▪ Stitch the Leather sole		• Sole stitching machine • Wax • Thread • Awl • PPE	**Theory:** Class/Workshop **Practical:** Workshop

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Module-M

Module M: Perform Mould Lasting

Objective of the Module: The objective of this module is to provide skills and knowledge related to perform mould lasting operations using different tools and equipment in accordance with approved procedures. You will be able to demonstrate your skills to perform pre-forming, insert The last/mold as required, perform side lasting as required, perform heel lasting as required, perform bottom roughing, perform sole direct molding, perform de-lasting.

Duration: 120hrs. **Theory: 24hrs.** **Practice: 96hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Performing Pre-forming	***Trainee must be able to:*** **1.** Adjust the mould as per design **2.** Set the upper at hot mould according to size for shaping / pre-forming **3.** Perform hammering on wrinkle for shaping of upper as per specification	• Uses of softeners • Knowledge about setting the upper at hot mould • Using lever for 45° angle for apron shaping		• Pre-forming mould • Pre-forming standard pattern • Plastic hammer • Steel hammer • Adhesive • Adhesive cane • Shaping lever	**Theory:** Class/Workshop **Practical:** Workshop

		<u>Practice 1:</u> ▪ Perform preforming of leather upper **<u>Practice 2:</u>** ▪ Perform preforming of synthetic upper			
LU2. Perform Pre-formed upper Lasting	***Trainee must be able to:*** **1.** Insert the last/mould in pre-formed upper **2.** Perform side/heel lasting of preformed upper **3.** Perform heel lasting **4.** Perform Bottom roughing	• Information about back height • Uses of shoe horn • Importance of alignment of upper **<u>Practical 1:</u>** ▪ Perform side lasting of shoe upper **<u>Practical 1:</u>** Perform heel lasting of shoe upper		• Last inserting machine • Lasting stand • Side lasting machine • Side lasting adhesive • Adhesive container • Plastic hammer Brush • PPE • Heel lasting machine • Adhesive • Adhesive	**Theory:** Class/Workshop **Practical:** Workshop

				container • Brush • Grinding machine • Grinding paper	
LU3. Performing lasted upper Roughing	***Trainee must be able to:*** **1.** Perform roughing by using roughing machine as per set standards **2.** Scour bottom using wire brush as per requirement	• Procedure of roughing (by sand paper, by grinding, roughing machine) • Importance of scouring **<u>Practical 1:</u>** ▪ Perform bottom roughing of leather shoe upper **<u>Practical 2:</u>** ▪ Perform scouring of leather shoe upper		• Roughing machine • Priming container • Priming brush • Steel brush • Marking refill • PPE	
LU4. Performing Direct sole Moulding	***Trainee must be able to:*** **1.** Inject sole material as required **2.** Perform De-lasting as per given specification	• Knowledge about pouring the PU sole material at bottom mould • Information about injection moulding machines (PU injection, Rubber injection, PVC injection etc.)		• Moulding machine • Mould • Adhesive container • Outsole mould	**Theory:** Class/Workshop **Practical:**

		Practical 1: • Inject the PU sole material on mould lasted upper **Practical 2:** • Pour the PU sole material on mould lasted upper		• Mixing tank • Spray gun • Sole puller • Cleaning cloth • Mould cleaners • Chillers • Cup test • Scale • Density meter • Hardness meter • Release agent • PPE • De-Laster • De-lasting machine De-lasting stand	Workshop

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Module-N

Module N: Perform Shoe Finishing and Packing

Objective of the Module: The objective of this module is to provide skills and knowledge related to shoe finishing and packing operations. You will be able to demonstrate your skills in leather aniline / two tones finishing, perform suede / nubuck / synthetic finishing, insert socks, perform lacing, perform stuffing, perform brand tagging / stickers and perform shoe packing.

Duration: 360hrs. **Theory: 68hrs.** **Practice: 292hrs.**

Learning Unit	Learning Outcomes	Learning Elements	Duration	Material/Tools Required	Learning Place
LU1. Performing Shoe Finishing	***Trainee must be able to:*** **1.** Insert shoe-tree as per shoe size **2.** Perform finishing of different types of leather/synthetic material as per given specification **3.** Insert insocks as per given specification **4.** Perform lacing as per	• Importance of inserting shoe tree • Finishing operations (Hand finishing/machine finishing) • Finishing materials (Polish finish, cream finish, sprays finish, etc.) • Types of dyes (water base, pigmented, etc.) • Importance of over adhesives Cleaning using (Crape, cloth, brush, surf, chemicals, petrol, etc.) • Finishing procedures: o Leather edge colouring		• Finishing Machine • Polish • Cream • Sprays • Dyes	Theory: Class/Workshop Practical: Workshop

	given specification	○ Shoe cream application ○ Buffing ○ Polishing ○ Spray ○ Cleaning ○ Insocks inserting ○ Lacing **Practice 1:** ▪ Perform Synthetic Shoe finishing **Practice 2:** ▪ Perform Aniline Shoe finishing **Practice 3:** ▪ Perform Nubuck Shoe finishing **Practice 4:** ▪ Perform Suede Shoe finishing			

LU2. Performing Shoe Packing	***Trainee must be able to:***
	1. Perform shoe stuffing in order to maintain shape of shoe
	2. Perform brand tagging as per given specification
	3. Perform shoe packing as per given specification
		• Stuffing material (shoe card, tissue, plastic stick, etc.)
		• Types of Shoe Tagging (Hand tag, price tag, pictogram, leather tag, etc.)
		• Packing procedures:
		  ○ Shoe wrapping with wrapping paper
		  ○ Shoe box
		  ○ Master Carton
		  ○ Silica Gel insertion in box
		  ○ Bar code, article, colour, size sticker pasting
		  ○ Master carton packing
		  ○ Storing of master carton for delivery/shipping
		<u>Practice 1:</u>
		▪
				• Stuffing Materials
				• Shoe tags
				• Master Carton
				• Shoe boxes
					Theory:
					Class/Workshop
					Practical:
					Workshop

Assessment guidance

Good practice in Pakistan makes use of sessional and final assessments, the basis of which is described below. Good practice by vocational training providers in Pakistan is to use a combination of these sessional and final assessments, combined to produce the final qualification result. **Sessional assessment / Formative assessment** goes on all the time. Its purpose is to provide feedback on learning:

- To the student: to identify achievement and areas for further work
- To the teacher: to evaluate the effectiveness of teaching to date, and to focus on future plans.

Assessors need to devise sessional assessments for both theoretical and practical work. Guidance is provided in the assessment strategy.

Final assessment / integrated assessment is usually taken on completion of a course or module, which says whether or not the student has "passed". It is – or should be – undertaken with reference to all the objectives or outcomes of the course, and is usually fairly formal. Considerations of security – ensuring that the student who gets the credit is the person who did the work – assume considerable importance in final assessment.

Methods of assessment

For lessons with a high quantity of theory, written or oral tests related to learning outcomes and/ or learning content can be conducted. For workplace lessons, assessment can focus on the quality of planning the related process, the quality of executing the process, the quality of the product and/or evaluation of the process.

Methods include direct assessment, which is the most desirable form of assessment. For this method, evidence is obtained by direct observation of the student's performance.

Examples for direct assessment include:

- surprise quizzes, for example conduct small test on the fly
- Work performances, for example supervising the task given in the computer lab
- Demonstrations, for example demonstrating the use of a particular training tool in preparation for staff development

- Direct questioning, where the assessor will ask the student from the syllabus taught in the class room or lab
- Paper-based tests, such as multiple choice or short answer questions form taught material

Indirect assessment is the method used where the performance cannot be watched and evidence is gained indirectly.

Examples for indirect assessment include:

- Home Work, such as assignments are given to be completed from home
- Final project, at the end of each module; a project is given to check the progress of the trainee

Resource required for Assessment

All resources for formative assessments as well as summative / integrated assessment will be provided by the QAB.

Principles of assessment

All assessments should be valid, reliable, fair and flexible:

Fairness means that there should be no advantages or disadvantages for any person assessed. For example, it should not happen that one student gets prior information about the type of work performance that will be assessed, while another candidate does not get any prior information.

Validity means that the assessment assesses what it claims to assess.

Flexibility means that the assessor has to be flexible concerning the assessment approach. For example, if there is a power failure during the assessment, the assessor should modify the arrangements to accommodate the student's needs.

Laws and Regulations

AutoCAD work may govern by the specific applicable territorial laws, imposed from competent authorities; mentor should abide by the laws.

LIST OF TOOLS AND EQUIPMENT
1. 45° lever
2. Adhesive
3. Adhesive applicator
4. Adhesive applicator machine
5. Adhesive container
6. Adhesives machine
7. Adjustment tools
8. Alky set
9. Apron
10. Arc machine
11. Awl
12. Back forming machine
13. Basket
14. Beveling machine
15. Binding machine
16. Blocking machine
17. Books
18. Bottom roughing machine
19. Brush for adhesive

20. Buffing machine
21. Card board / rubber sheets
22. Casting die
23. Casting pattern
24. Chiller
25. Chiller box
26. Clipper
27. Computer
28. Cording stitching machine
29. Coupling machine
30. Covering machine
31. Crape sheet
32. Crimping machine
33. Cut insole
34. Cutting and marking templates
35. Cutting boards
36. Cutting dies
37. Cutting knives
38. Cutting pads
39. Cutting pattern
40. Cutting press

41. De-lasting machine/stand
42. De-lasting stand
43. Density meter
44. Different types of hot and cold molds
45. Dipping pot
46. Direct molding machine
47. Drying conveyer machine
48. Electric Heater
49. Electric roughing machine
50. Embossing die
51. Embossing machine
52. Eyelet presser
53. Eyeleting dies
54. Eyeleting machine
55. Flat-bed stitching machine double needle
56. Flat-bed stitching machine single needle
57. Folding machine
58. Frame with screen
59. Fusing press machine
60. Gloves
61. Goggles

62. Grooving machine
63. Hammer
64. Hammering machine
65. Hand pincers
66. Hand punch
67. Hand scoring machine
68. Hardness gauge
69. Heat setting machine
70. Heating chamber
71. Heel
72. Heel Edge rounding machine
73. Heel lasting machine
74. Hood
75. Inclination machine
76. Insole sample
77. Inverted stapler machine
78. Iron
79. Knives
80. Last
81. Last inserting machine
82. Last length standard

83. Lasting jack stand
84. Lasting Pincer
85. Lasting stand
86. Lasting Teflon hammer
87. Lubricants
88. Machine for string
89. Magazines books
90. Magnifier glass
91. Magnifying glass
92. Marble sheet
93. Marble stone
94. Marking machine
95. Marking patterns
96. Marking template of heel
97. Marking tools
98. Masks
99. Measuring instruments
100. Measuring tools
101. Molding machine
102. Molding press
103. Molds

104.	Nail remover
105.	Nail removing lever
106.	Nailing machine
107.	Oil can
108.	Oil cane
109.	Punches
110.	Peg stand
111.	Per-forming machine
112.	Plastic basket / bag
113.	Plier
114.	Portable grinding machine
115.	Post bed stitching machine double needle
116.	Post bed stitching machine single needle
117.	Pot
118.	PPEs
119.	Press
120.	Press machine
121.	Prickle punch
122.	Printing pads
123.	PU molding machine
124.	Pulling tools

125.	Punch
126.	Rack
127.	Riveting machine
128.	Roughing machine
129.	Round hammer
130.	Rounding machine
131.	Rubber hammer
132.	Rubber mixing machine
133.	Rubber molding press
134.	Safety Shoes
135.	Sand paper
136.	Scale
137.	Scissors
138.	Sealing machine
139.	Sharpening tools
140.	Shoe horn
141.	Shoe sample
142.	Shoe tree last
143.	Show board
144.	Shower
145.	Side lasting machine

146.	Skiver
147.	Skiving and marking charts
148.	Skiving chart
149.	Skiving machine
150.	Sole
151.	Sole activator
152.	Sole pressing machine
153.	Sole roughing machine
154.	SOPs
155.	Splitting machine
156.	Spray booth
157.	Spray gun
158.	Spray guns
159.	Stamping and embossing machine
160.	Stamping dies
161.	Stamping machine
162.	Stamping pads
163.	Stapler Gun & pins
164.	Steam chamber
165.	Steel wire brush
166.	Stitching machine

167.	Strapping machine
168.	Stroble machine
169.	Tagging machine
170.	Tape attaching machine
171.	Tape dispenser
172.	Teflon sheet
173.	Telephone
174.	Temperature gun
175.	Template pattern
176.	Templates
177.	Thickness gauge
178.	Thickness gauge meter
179.	Thread burning equipment
180.	Thread clipper
181.	Thread pole
182.	Toe activation machine
183.	Toe lasting machine
184.	Toe puff machine
185.	Toe shaping machine
186.	Tools kit
187.	Trimming machine

188.	Trolley
189.	Weighing balance
190.	Wooden hammer
191.	Wrinkle chasing machine
192.	Zigzag stitching machine

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