



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE

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SCHOOL OF BUILDING AND ENVIRONMENT DEPARTMENT OF FASHION DESIGN

INTERNSHIP REPORT (S105AINT)

2022-2023



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SCHOOL OF BUILDING AND ENVIRONMENT DEPARTMENT OF FAASHION DESIGN

INTERNSHIP REPORT (S105AINT)

2022 - 2023

Name of the Student: ROSHINI.S

Reg No.: 40105007

Semester :V

Batch : 2020-2023



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INTERNSHIP REPORT (S105AINT)

2022 - 2023

VIVA-VOCE EXAMINATION

This is to certify that the Internship Report (S105AINT) is the work of
ROSHINI.S who had undergone training in SCM GARMENTS Industry and
has been monitored by the continuous assessment during May 2022 to Jun 2022.


K.S. RAVI SIDHARTH

Submitted for Viva-voce Examination held on 21/10/2022


Head of the Department

Head of the Department
Fashion Design

Sathyabama Institute of Science and Technology
Chennai-600 119.


Internal Examiner
(C.S. SAUTHIRI)


External Examiner



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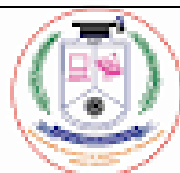
DECLARATION

I ROSHINI hereby declare that this Internship Report (S105AINT) for **28 days from 25th may 2021 to 23rd june 2022** done by me under the guidance of K.S. RAVI SIDHAARTH is submitted in partial fulfillment of the requirements for the completion of the Internship training session.

DATE : 21/10/2022

PLACE : CHENNAI

SIGNATURE OF CANDIDATE



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ACKNOWLEDGEMENT

I am highly indebted to the Board Management of **SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY** for their kind encouragement in doing this internship and for completing it

successfully.

I would like to thank **Head of the Department Ms.S.Krithika M.Sc, M.Phil, SET, Department of fashion design**, school building and environment, for providing me necessary support and details at the right time during the progressive reviews.

I would like to express my sincere and deep sense of gratitude to my mentor **Mr.S. Senthil Kumar, SCM garments, private limited, valayankadu Thirupur** for his valuable guidance, suggestions and constant encouragement which paved way for the successful completion of practical training session.

I would like to thank **Mr.K.S.Ravi sidhaarth** (course coordinator mentor) of the Department of Fashion Design where helpful throughout the completion of the project.

INTERNSHIP DETAILS

1. COMPANY : SCM GARMENTS

Mentor Name : S. SENTHIL KUMAR

Designation of the mentor: FACULTY

Address:: SCM GARMENTS pvt limited,
57, V.O.C Nagar (south),
Valankadu, thirupur,
Tamil Nadu- 641603

2. INSTITUTION: SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

Mentor Name : K.S. RaviI Sidhaarth

Designation of the mentor: Faculty

Student Name : Roshini.S



23.06.2022

TO WHOM SO EVER IT MAY CONCERN

This is to certify that **Miss.ROSHINI.S** Student of **B.Sc-FASHION DESIGN** in **SATHYABAMA INSTITUTE OF SCIENCE & TECHNOLOGY,CHENNAI** has done her Training in our Unit following **Production Process** only from **26.05.2022** to **23.06.2022**.

During the internship, she has closely worked as a part of the administration team and, we found that she is very regular, innovative, hardworking and quick learner.

We wish her all Success in future.

Best regards,


GM - HR



SCM Garments Pvt Limited

57, V.O.C. NAGAR (SOUTH), VALAYANKADU, TIRUPUR - 641 603, INDIA.

PH: 91 - 421 - 4319888, Fax: 91- 421 - 2248889 , CIN No: U18101TZ2006PTC012698

E-Mail: scmcre@scmgroups.com Website : www.scmgarments.com

DAILY REPORT

DATE	DETAILS
MAY 26	Company visit (overview of a production unit)
MAY 27	SOP of company policies, types of machines.
MAY 28	Printing department
MAY 30	Tech pack checking department
MAY 31	IE department checking department
JUNE 1	Quality control department
JUNE 2	SOP department
JUNE 3	Acceptance quality level
JUNE 4	Measurement checking
JUNE 6	Button testing
JUNE 7	Tech pack and ordering processing
JUNE 8	Tech pack
JUNE 9	Accessories
JUNE 10	Accessories
JUNE 11	Label management machine maintenance
JUNE 13	Line production inspection
JUNE 14	Inspection
JUNE 15	AQL
JUNE 16	AQL
JUNE 17	Garment safety measures and laws
JUNE 18	Plan layout
JUNE 20	Sampling merchandising
JUNE 21	Sampling merchandising
JUNE 22	Pattern Making
JUNE 22	Marking pattern



SCM GARMENTS

SCM GARMENTS

COMPANY PROFILE:

SCM was established in 1989, SCM Garments Private Limited is the destination of the superlative that is knitted with bright quality and strong values. It is an export arm of The Chennai Silks (TCS), we exist to create experiences when passion and purpose come together. SCM group of companies is the biggest and most efficacious company.

FOUNDER

SCM Garments sets sight on an even more ambitious goal, remain inspired and guided by the story and philosophy of the founder Shri. A. Kulandaivel Mudaliar. It has adopted converting adversity into opportunity and making the impossible into possible by challenging conventional

MISSION, VISION, AND VALUE

MISSION

Dynamic production resources aligned with sustained work employee satisfaction.

VISION

Referent happy facility creating service excellence.

VALUE

Empowering employees by installing values of pride along with ownership toward a more vibrant company culture with suitable production practices to meet the evolving need of customers.

2.2 MILESTONE

1989- SCM garments was established with its foray into the textile domain.

1993- SCM set up its turnkey knitting unit.

2003- SCM established its textile spinners.

2005- SCM established its textile spinners.

2016- SCM established its textile spinners.

2017- SCM factory international production into Ethiopia.

GROUP

- SCM SPINNING MILLS
- SCM KNITTING MILLS
- SCM PROCESSING
- SCM GARMENTS

SISTERS CONCERN

- SCM Textile Spinners,
- The Chennai Silks,
- SCM Energy Divisions,
- The KTM Jewellery Private Limited,
- Aathava Garments India Private Limited,

2.3 PRODUCTS OFFERED

SCM Garments offers a variety of products like

- Kids wear,
- T- Shirts,
- Winter wears,
- Inner wears,
- Summer wears,
- Sportswear.

2.4 MAJOR CLIENTS:

- Decathlon, France
- Kiabi, France
- George/Asda, UK
- Tesco, UK
- Go Sports, France
- Hanes Brand, USA
- Sears/K-Mart, USA
- Polo Ralph Lauren, USA
- Toys 'R' us, USA
- Carrefour, France
- JD sports, UK
- Lindex, Sweden
- Dunnes, Ireland
- Morrisons, UK

SPINNING

The finest combed cotton yarn is produced by their spinning division. With 28 combing machines, 45 ring frames and 20 Auto Conner machinery, the spinning unit uses of organic cotton to produce high-quality yarn. The state-of-the-art machinery helps in achieving superior quality organic cotton yarn from counts Ne 20's '60se 60's. They also produce yarn blends from counts Ne 20's to Ne'50ss



Figure 1

KNITTING

The hi-tech machineries from Germany and Italy help them create Rib, Interlock, and Fancy designs. Interlock, Drop Interlock, and Auto Stripes are facilitated with highly-automated Spanish machines. Taiwanese machines for Rib and Wheel Jacquard with Lycra, Japanese Collar knitting machines to knit all types of flat knit collars, and machines from Singapore for Jersey with three thread conversion.



Figure 2

DYEING

Completely equipped with a Reverse Osmosis feed tank, their dyeing plant at Erode recycles discharged water makes it suitable for irrigation, thereby justifying to our environment-friendly operations. It houses advanced machinery from This, Germany as well as HTHP machines for polyester dyeing, winch dyeing, soft flow machines, drying machines, and rotary printing.



Figure 3

PROCESSING

They have hi-tech imported compacting machines from USA & Italy for both open-width and tubular fabrics. Taiwanese raising machines enable brushing on all varieties of fabrics wherein our sue-ding division is supported with machines that are imported from Italy. Their in-house washing units feature recyclable water and multiple wash options like silicon/stone and enzyme, bio-polish, etc.



Figure 4

DESIGN STUDIO

The contemporary design studio wherein the latest trends and techniques are deployed for garment design is equipped with the most up-to-date software that facilitates pattern making, 3D imaging, graphics, draping, etc.



Figure 5

CUTTING & SPREADING

The latest Cutting Systems from the USA, with CAD, CAM, CAS, exclusive Plotting facilities, and Band Knife Cutting Machines from Japan, Korea, and Germany are the highlights of this division. Our automatic spreading machines enable the spreading of tubular, open-width, and woven fabrics



Figure 6

STITCHING

It is a process that requires a high degree of dexterity and astute precision. To ensure this, we have a team of skilled personnel who work towards stitching perfection with 2500 imported sewing machines. There are 40 production lines maintained as per the guidance of Kurt Salmon Associates, the renowned global Management Consultancy, which sets us apart.



Figure 7

FINISHING & CHECKING

Oil-fired boilers provide steam at required temperatures for pressing and drying. For shirts, and trousers, a separate pressing facility has been allocated. The garment is then completely checked for defects. Japanese Needle detector machines have been installed for 100% metal-free products.



Figure 8

PACKING

Packing is done with the utmost meticulousness. In-house stuffing is carried out with great care. The highest standards are complied with from expert packing to safe dispatch and delivery.



Figure 9

EMBROIDERY

Enabling intricacy of design, our embroidery division is housed with 24 imported machines from Germany, China & Japan. Equipped with 326 heads, these machines are capable of delivering nearly 11.1 million stitches per day



Figure 10

PRINTING

Our trendy print designs leave impressive impressions that comply with the everchanging trends and needs of the customer. To offer a complete range of print options, we have installed state-of-the-art placement printing machines which facilitate various types of prints like reactive, discharge, pigment, plastisol, high density, flock, rubber, etc.



Figure 11

TYPES OF PRINTING

- Pigment
- Non pvc
- Pvc
- Glitter
- Radiant
- Flock
- Puff
- High density
- Discharge

PIGMENT PRINTING

Pigment printing is one of the essential parts of the textile industry. It refers to the dyeing of clothes and dress materials. There are various types of dyes available in the market which is used for pigment printing.



Figure 12

NON-PVC PRINTING

Non-PVC print can be appropriately applied to cotton, lycra, and polyester fabrics. It can be unanimously applied to natural as well as synthetic fibres; mixed as well as organic fibers. It is apposite for indoor and outdoor markings and graphics.



Figure 13

PVC PRINTING

Polyvinyl Chloride (PVC) is a strong plastic material used in professional ID card printing. This material offers a smooth finished surface, meaning that color and branding details show up vividly.



Figure 14

GLITTER PRINTING

Primitively, glitter printing is a type of a transfer printing process. Glitter print makes use of the glittering granules called the glitter powder that after print are easily visible on the fabric.



Figure 15

HIGH DENSITY

The High-Density Screen-Printing process. The High-Density Screen-Printing Process of printing a T-shirt is the process in which we use a thick layer of emulsion to create a higher print. This is a great method is usually used for special effects²³ on designs and to make your design pop.



Figure 16

DISCHARGE PRINTING

Discharge printing, also called Extract Printing, method of applying a design to dyed fabric by printing a colour-destroying agent, such as chlorine or hydrosulfite, to bleach out a white or light pattern on the darker colored ground



Figure 17

ACCESSORIES

We have sophisticated equipment from Switzerland for manufacturing inner elastics for briefs, jog pants, shorts, etc. that ranges from 3mm to 60mm are produced using the machinery.

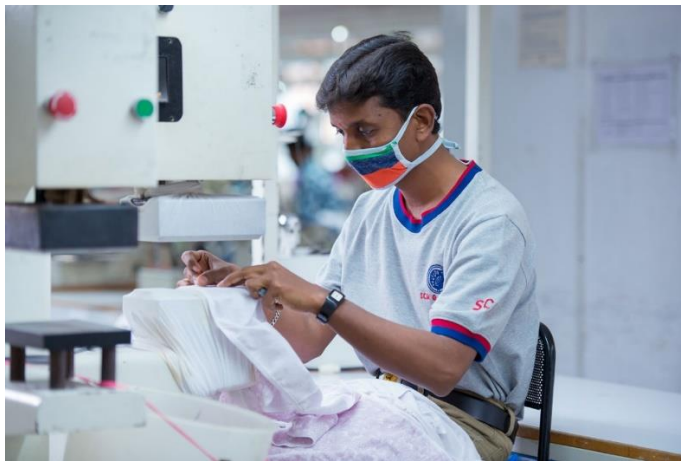


Figure 18

TYPES OF MACHINES:

1. Fabrics inspection machine
2. Plotter printing machine
3. Cutting machine
4. Fusing machine
5. Embroidery machine
6. Sewing machine
7. Thread Trimmer machine
8. Thread sucking machine
9. Iron machine
10. Pull test machine
11. Metal detector machine
12. Bar-code scanning machine
13. Heat seal joining the machine
14. Case label printing machine

15. Moisture checking machine
16. Digital hygrometer
17. Air compressor machine
18. Boiler machine
19. Generator
20. Water pump

FABRIC INSPECTION MACHINE:

Fabric inspection machines are designed to check weaving, knitting defects and shade variations in fabrics. Checking dimensional accuracy in width and length are also possible with these inspection machines. The fabric inspection method allows you to inspect and make necessary markings for quality control in the manufacturing process. There are inspection machines available to detect errors in fabrics that are not easily noticeable to the human eye. Most rejections, during the after manufacturing are due to defects, which have escaped the inspection process.



Figure 19

PLOTTER PRINTING MACHINE:

A plotter printer is a term for printers that are used for printing vector graphics. A computer hardware device that uses stationery writing tools to draw continuous lines on media papers rather than a series of dots like a traditional toner printer. Plotter printers are more sophisticated because they produce high-quality drawings as they print. Best use to print blueprints, maps and diagrams. These printers are used with a computer design application to product line drawings much faster with more accuracy, best for graphic creative businesses such as architecture, engineering designs and other CAD drawings.



Figure 20

CUTTING MACHINE

Cutting is one of the processes in garment manufacturing. In bulk garment manufacturing, multiple fabric layers are cut at a time by means of cutting machines. Different types of cutting machines and equipment are available for cutting fabrics and machines are used as per requirement and production volume. Semi-automatic and automatic improves cutting room productivity and improves cutting accuracy.

Different Types of cutting Machines

Cutting machine and equipment can be categorized as following

1. Manual cutting
2. Semi-automatic cutting machine
3. Fully automatic cutting machine

1. Manual cutting

Hand scissors are used for cutting fabric plies manually. Hand scissors are not machines but very useful cutting equipment. Factories may have semi-automatic and fully automatic machines for fabric cutting, but can't avoid use of hand scissors in cutting section. Scissors are common tool in cutting process and hand scissors have many use in cutting room.

2. Semi-automatic cutting machines

Straight Knife cutting machine:

The straight knife is a common means of cutting lays in conventional cutting rooms because it is versatile, portable, cheaper than a band knife, more accurate on curves than a round knife and relatively reliable and easy to maintain. Even if a band knife is used for the main cutting operation, a straight knife would be used to separate the lay into sections for easier handling.

Band Knife cutting machine:

Band knives are used when a higher standard of cutting accuracy is required than can be obtained with a straight knife. Pieces to be cut are first cut on a block, and then cut exactly on a band knife.

Round knife cutting machine:

A round knife is used only for straight lines or lower no of lays of relatively few plies.

Die cutting machine:

This machine is useful where small motifs with particular shape and pattern and accuracy in cutting are needed.

3. Automatic cutting machines

There are different types of automatic fabric cutting machines.

Computerized cutting machine:

Computerized cutting machines are used where high volume of garments is manufactured. This machine cuts fabric layers as per command given in computer system. Automatic cutting machine is also known as CNC machine. In the automatic cutting room, fabrics are spread on the table by auto spreader and the lay is positioned in the cutting table prior to automatic cutting. Many videos are available on the YouTube for automatic cutting machines.

Rib cutting machine:

Narrow fabric tape of rib is cut from knits fabric. Ribs are used in t-shirts neck finishing or piping operations and many other knits apparel manufacturing

Laser cutting machine:

Instead on blade fabric layer is cut by laser rays. Laser cutting machine is also computer-controlled machine.



Figure 21

FUSING MACHINE:

Fusing Machines are used in the garment industry to fuse a material capable of being fused to a base fabric through the process of pressure, heat, and time. The fused material should have acceptable strength, the ability to stand continuous wash, or any fabric treatment.

This extremely vital process that defines and maintains the quality of the garment involves holding the fabric and interlinking the conveyor belt while heating. This interlinking has adhesives that melt at a certain pressure and temperature to bond with the garment. This process provides the garment strength and support and thus is a highly vital process.

There are a number of fusing presses deployed in the process that makes the entire process of Fusing a quality procedure:

1. Continuous Fusing Press
2. Flatbed Fusing Press
3. High-frequency Fusing
4. Hand Iron

Continuous Fusing Press

In this machine, the parts of the garment and the interlining are placed one upon another properly for stiffening fabrics, among other things. On the endless loop or loop-shaped feed sheet and fed in a flat condition.

The feed sheet carries this part and the interlining to the fusing chamber. In the fusing chamber, the required pressure and heat are given.

To transmission of heat in the interlining, a direct or indirect method is applied. After applying heat, the required pressure is applied to the interlining with the help of a pair of roller irons.

The surface of the roller is generally covered by hard rubber. With the help of spring or pneumatic power, the pressure is created in rollers. And there is an arrangement of increasing or decreasing heat. The preselected time is determined through the control of the speed of the endless feed sheet.

Just after fusing, the fused parts are removed carefully from the delivery sheet and in a flat condition. Because during removal of the fused part in a heated condition., any folds created there may be permanent.

One worker is persistently feeding, and another worker is ceaselessly accepting the fused parts on the conveyance side.

The production of a continuous machine is high, and the quality of the fusing is also good. In some machines, for double fusing, there is an automatic feedback system. This is the most used machine in the garments industry. These are often used to apply the best tape that sticks to the fabric.

Advantages

1. The production of a continuous machine is high.
2. Quality of the fusing is good too.
3. For these reasons, it is mostly used in the garments industry.
4. Very reasonable for stack fabric utilizing
5. There is no plausibility of fabric shrinkage

Disadvantages

1. It is suitable for woven/knitting fabrics
2. Whole role fabric and interlining are fusible because the pressure is applied for a short time on the interlining and the fabric. So, less chance of the plies of fabric being damaged.
3. The pressure is applied for a short time, so there is no chance of fabric shrinking during the application of heat.

Uses/Application

1. High cost.
2. Because of its large area consumption, it's difficult to construct.
3. If the pressure roller is slanted or the surface of the roller is uneven for any reason, or there is a difference of pressure in the full diameter of the roller, the bond strength between the components will be different.
4. Bacteria thrive in cold climates, and washing your laundry machine with cold water will not do much to sanitize the machine, and the garments would still be prone to both odour and germs. So, even though lower temperature fabric washing or machine cleaning can be environmentally friendly, it is not hygienic. This is especially true for garment industrial laundry machines or hospital laundry machines that deploy large-scale fabric cleaning.
5. Therefore, besides using the detergent, make sure you use slightly warm water and disinfectant while garment washing. For machine cleaning, use a laundry cleaner and sanitiser every once in a while, or every two months, depending upon the cycles of machine usage, to make sure the machine is thoroughly clean.
6. There is a myth that surrounds people that the more soap you use, the cleaner and more sanitised your clothes will come out of the washing machine. However, using more suds only builds up as residue in the wash cycle, which is not entirely removed and becomes a breeding ground for bacteria and moulds. This also increases the odour of the garments and brings down the hygienic level of your fabric.

Flatbed Fusing Press

In this machine, there are generally two beds; one bed is static called 'BUCK,' and the other is moveable called 'HEAD.'

The interlining and garment component is positioned first and placed on the BUCK. The top of the BUCK is covered by some soft beads made of fabrics, blankets, or silicone rubbers. The surface buck and head are covered with fabrics having a coating of PTFE. For this coating, the melted resins, dust, or spots can easily be cleaned.

The heating system may be electrical or steam. Application of temperature, pressure, and time could be pre-set in this machine; hence fusing conditions are adequately maintained.

First, the part of the garment, which is for fusing, is placed flatly. Then the resin surface of the interlining is placed carefully on this. Due to switch operation, the HEAD moves downward and comes in contact with BUCK, and pressure is applied on the component (interlining). Temperature is applied through HEAD on the whole surface, and after a specific time, the HEAD moves upward.

After applying pressure and heat up to a specific time, the HEAD is separated from the BUCK. Then for cooling of the fused parts, an air sucking fan in the buck is made operative. For sucking the air within the buck, the fused parts are cooled very swiftly. Going up off the HEAD and sucking of the air within the BUCK for a specific time. These jobs are set in cyclic order in many machines.

Advantages

1. Temperature, pressure, and fusing time can be set again as per will.
2. Except for pile fabrics, mostly for all fabrics, this machine can be used.
3. Low cost.
4. The natural ironing of garments can also be done with this machine.
5. Tends to reduce fabric shrinkage.
6. Easily cleanable.

Disadvantage

1. Not suitable for large-scale production.
2. To get good quality fusing, the temperature, pressure, and fusing time has to be checked.
3. Sometimes, HEADS and BUCKS have to be changed.

High-Frequency Fusing

1. This type of machine is quite different from a continuous fusing machine. Because in this machine, heat is created the same as a microwave cooker.

2. Fabrics and interlining are arranged in stacks and placed between two metal plates of the fusing machine. The upper plate exerts pressure on the plies of the fabrics and the interlining with the help of spring pressure.
3. The material between the plates moves at high speed. So high friction heat is generated within the material. This heat is generated uniformly at the same time on every corner of the fabric and interlining.
4. For the generation of heat, water is a must. The difference between water vapour, the difference in heat may also happen.
5. The required fusing time depends on the electrical power of the machine and the height of the lay of the fabric. But in this type of machine, it takes 1 to 3 minutes for fusing

Advantages

1. Production rate is high

Disadvantages

- Before fusing this type of machine lots of caution has to be taken care of. E.G., the setting, nature of the fiber, the height of the lay of the fabric, amount of water vapour in the fabrics.
- Proper settings of this machine are the main problem. Because of complicated settings, there may be over fusing or under fusing
- This type of machine is minimal
- Bigger risk of defective products.

Hand Iron

The interlining, which is fused comparatively in low temperature and pressure, is fused by using a hand iron. These are mostly used for applying lightweight fusible interfacing for applique.

There are various troubles during fusing; none of the three parameters of temperature, pressure, or fusing time can be adequately controlled. The operator approximates the time in this manner. So, the strength of the bond in this method is weak. For better results after sewing the garment with the fusing, again, the final fusing is done

onto the fusible, covering the region bit by bit, and utilizing steam to enable the warmth to move. During the washing of the garments, the bond between interlining and garments may be separated.

EMBROIDERY MACHINE:

The term “machine embroidery” refers to the process of using a sewing machine or specialist embroidery machine to create a pattern on a textile of your choice. It is most

commonly used commercially, as it's a great tool for branding products or uniforms, but it can also be used to create patterns for purely decorative purposes. There are two main types of machine embroidery: free-motion and computerised.

With free-motion machine embroidery, designs are created using a basic zigzag sewing machine, but this can be quite limiting. It's also labour-intensive and very time-consuming, because the embroiderer is required to develop the design manually using the sewing machine's different settings.

On the other hand, as the name suggests, computerised machine embroidery is controlled by a computer. These industrial and commercial embroidery machines, like the ones we use here at Custom Planet, have a hooping or framing system that holds a fabric's embroidery area taut under the sewing needles. The area is then moved automatically by the machine to create the design from a pre-programmed digital embroidery pattern.

Embroidery machines will vary in their capabilities, and they all require different degrees of user input. Some will require you to change the thread colour during the process, while others will be able to trim and change colours automatically. Also, multi-needle machines can consist of numerous sewing heads, which means they can embroider multiple garments at once.

THREAD TRIMMER MACHINE:

This machine can be used by industries like Garments (t-shirt, shirts, jeans, trousers, sarees, suits, dresses, shorts, top, designer wear, etc.), Footwear (sport shoes upper, sandals upper, leather shoe



Figure 22

THREAD TRIMMING MACHINE:

Thread Sucking Machines are enabled with fully automatic action to ensure clean working area. It can be used for a variety of garments ranging from shirt to skirts of all sizes.

- This machine uses centrifugal ventilation machine negative pressure suction principle to eliminate the dip in the all kinds of shirts, pants, pyjamas, clothing sewing thread, dust and sundries and can ensure the quality of products such as clothing appearance, improve the grade of clothing products.
- Strong suction: Suction, high working efficiency, no need the unlock button, can remove dander and floating hair.
- Safety: Automatic shutdown when suction cloth.
- Simple operation: Easy to use and safely.
- Button pulls test is used to determine the pulling strength of any type of button and snaps used in garments. It is also used to determine the holding or breaking strength of prong ring attached snap fasteners onto garments to ensure the button fixed on the garment's product properly. In this article, you will have an idea of a button pull test SOP (Standard Operating Procedure) used in the apparel industry.
- Consists of an Upper Snap Clamp, a Lower Fabric Clamp, and Force Gauge mounted on a Stand. The snap component is gripped by the Upper Snap Clamp and the garment is fixed to the lower Fabric Clamp and by turning the Top Flywheel an operator can apply a specific force and the holding force. The breaking strength can be recorded. A pull test is mandatory for any type of garment product use button



Figure 23

METAL DETECTOR MACHINE:

A **metal detector** is an instrument that detects the nearby presence of metal. Metal detectors are useful for finding metal inclusions hidden within objects, or metal objects buried underground. They often consist of a handheld unit with a sensor probe which can be swept over the ground or other objects. If the sensor comes near a piece of metal this is indicated by a changing tone in earphones, or a needle moving on an indicator. Usually the device gives



Figure 24

AQL:

AQL (Acceptable Quality Level).

It is the final checking process of the garment before the garment is sent to the Buyer, the checking includes garment quality and thorough inspection, direct inspection of regulations, duties. All procedural and quality requirements are met, the result or result of the final inspection is pass, and the garment is ready to be sent to the Buyer. But if it finds a critical point during the final inspection process, the garment is declared failed.

Inspection Levels									
Lot Batch Size			General Inspection Levels			Special Inspection Levels			
			I	II	III	S-1	S-2	S-3	S-4
2	to	8	A	A	B	A	A	A	A
9	to	15	A	B	C	A	A	A	A
16	to	25	B	C	D	A	A	B	B
26	to	50	C	D	E	A	B	B	C
51	to	90	C	E	F	B	B	C	C
91	to	150	D	F	G	B	B	C	D
151	to	280	E	G	H	B	C	D	E
281	to	500	F	H	J	B	C	D	E
501	to	1,200	G	J	K	C	C	E	F
1,201	to	3,200	H	K	L	C	D	E	G
3,201	to	10,000	J	L	M	C	D	F	G
10,001	to	35,000	K	M	N	C	D	F	H
35,001	to	150,000	L	N	P	D	E	G	J
150,001	to	500,000	M	P	Q	D	E	G	J
500,001	and over		N	Q	R	D	E	H	K

Acceptable Quality Level (Single Sampling Plan for Normal Inspection)															
Sample Size Code Letter	Sample Size	0.4		0.65		1		1.5		2.5		4		6.5	
		Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject	Accept	Reject
A	2	↓	↓	↓	↓									0	1
B	3	↓	↓	↓	↓							0	1	↓	↓
C	5	↓	↓	↓	↓					0	1	↓	↓	↓	↓
D	8	↓	↓	↓	↓	0	1			↓	↓	↓	↓	1	2
E	13	↓	↓	↓	↓	0	1	↓	↓	↓	↓	1	2	2	3
F	20	↓	↓	0	1	↓	↓	↓	↓	1	2	2	3	3	4
G	32	0	1	↓	↓	↓	↓	1	2	2	3	3	4	5	6
H	50	↓	↓	↓	↓	1	2	2	3	3	4	5	6	7	8
J	80	↓	↓	1	2	1	2	3	4	5	6	7	8	10	11
K	125	1	2	2	3	3	4	5	6	7	8	10	11	14	15
L	200	2	3	3	4	5	6	7	8	10	11	14	15	21	22
M	315	3	4	5	6	7	8	10	11	14	15	21	22	↑	↑
N	500	5	6	7	8	10	11	14	15	21	22	↑	↑	↑	↑
P	800	7	8	10	11	14	15	21	22	↑	↑	↑	↑	↑	↑
Q	1250	10	11	14	15	21	22	↑	↑	↑	↑	↑	↑	↑	↑
R	2000	14	15	21	22	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑

Figure 25

TYPES OF INSPECTION

Pre-Production Inspection: this is often done before production starts.

1st line production inspection: This inspection is done at the starting of production once the first production final stage of required style of garments is checked; to differentiate potential variation and to try to do necessary corrections to be created in bulk production. this sort of examination is finished at a preliminary stage of producing of a method covering primarily style detail, general look, craft, measurements, material quality, Trims and elements, Lot color, printing, embellishments and laundry quality.

2nd line Production Inspection: This examination is finished throughout production to confirm initial discrepancies are corrected and corrected. This examination could be a follow-up of the one 1st inline production examination and is usually allotted once first line examination once discrepancies are detected at that point.

Final Random Inspection: This examination is allotted once the assembly of the entire amount of associate degree order or partial delivery is completed. A sample heap are elite from the order and a share of the clothes are inspected, this share typically being stipulated by the client.

GARMENT DEFECTS CLASSIFICATION:

Once the samples are selected , every article is to be singly inspected. Defects detected during associate degree inspection are buyer specific thus so vary from one purchaser to a different. Defects are classified into the subsequent categories:

Important Defect: a serious defect that may cause hurt or injury to the user and/or end in a risky condition.

Major defects:

A defect that falls to fulfill the necessary rules directly moving the usability, safety and price of the merchandise or as such by client buyer are considered as major defects and are typically not repairable as an example material hole, shading among the panel, wrong activity, foreign yarn, dye patches etc. The activity tolerates level could vary from client to client.

Minor Defects:

A defect that doesn't adversely have an effect on the usability of the merchandise however will consists of a deviation from the initial sample, and should have an effect on the sale of the merchandise. a number of these defects are thanks to attainment and a few is serviceable however still will deteriorate the serviceableness of the merchandise as an example stain, skip sew, wavy bottom hem

Single sampling plan – Normal inspection

Assurance as AQL a pair of 5% and loads of 200 cloths and also the sample size is eighty clothes. If the quantity of defective clothes found is five the overall lot is

“acceptable” suppose if the clothes found is six, the overall heap is “reject/ re-check”.

Double sampling plan – normal inspection:

Assurance an AQL 4.0% and lot size is 1200 garments and the sample size is” acceptable” suppose if the defective garments found are 8, the total lot is “reject/re-check”. Today the most of the customer demand for high quality products at low prices. So, they must always maintain the standard from the start stage of the assembly then solely the ultimate product with reach the patron with right quality and that they will get the order continuously from our customers. The garment makers examine their merchandise unceasingly by selected accountable inspectors then solely the correct quality product can reach the shoppers

DEPARTMENTS IN SCM GARMENTS:

There are a variety of departments in the apparel industry with different workings. All the functionality of departments in the industry is different but aligned towards a goal.

MERCHANDISING –

Merchandising is a method by which products are designed, created, implemented and delivered to the consumer. This involves directing and supervising product line development from start to finish. Marketing and **Merchandising Department**-Under ahead of profit control, a team of merchandisers and marketers work together. Merchandisers are competing with foreign buyers. The teams are made according to the directed buyers

A Merchant Main Responsibility

Order Confirmation from the Buyer

- Product Development
- Market and Product Review
- Marketing the Concept
- Booking Orders
- Confirming Distribution
- Design and Sampling
- Costing
- Raw Material
- Manufacturing Follow-up
- Transactions Follow-up

- The merchandising department is responsible for all different types of sampling and approval.

SAMPLING DEPARTMENT

The **sampling department** is one of the most important departments in any export building and plays a vital role in a unit's uplift. The sampling team works directly with the Merchandising and Development department. Sampling is done to see how the product will look when manufactured in bulk and to check if there are any differences in the design that are made according to the requirements of the consumer. Sampling is the stage of development of a drug. It is a process through which a small number of clothes are made to match the buyer's requirement and obtain the buyer's approval to start production. It's different from bulk manufacturing because every tailor is multi-skilled here. This department makes samples based on specifications and requirements sent by the purchaser in the tech pack. Sampling process varies from purchaser to purchaser, and type of style as well, but a particular order of sampling is followed in the industry, the stages and purpose of the sample may be the same but the terminology used may vary and depend entirely on the purchaser.

The typical samples namely described as:

- Design development
- Proto sample
- Fit sample
- Ad or photoshoot sample
- Salesman sample
- Pre-production sample
- GPT sample
- Size set sample
- Red seal sample
- PP sample
- Green seal sample

Such samples are sent one after the other to the retailer for the buyer's approval and to proceed further. In addition to these normal steps, the buyer often recommends improvements to the prepared sample, and then adding such suggestions makes a counter sample and is sent to the buyer for approval. The **sampling department** helps the merchandising department find out about the consumption of fabric per unit of clothing and thus helps in costing the cloth.

FABRIC SOURCING DEPARTMENT

The clothing procurement department is basically interested in deciding how and where to get its products, i.e. cloth. It works in collaboration with the merchandising department and takes care of the delivery of the appropriate items within the scheduled time and cost.

A fabric sourcing team needs to have experience of all forms of fabric to accomplish its function efficiently. **PURCHASE**

The **purchasing department** is similar to the procurement department, but mostly due to its own manufacturing department while the procurement department is working to purchase the accessories and trimmings. However, the purchasing department's operating cycle is close to the department for sourcing fabrics.

FABRIC AUDIT DEPARTMENT

The main goals of the **Fabric Audit Department** are:

- To examine fabric defects using different methods.
- Selection of structures according to AQL 1.5.
- The test takes place on the following grounds: the shade is segregated at 100 percent.
- A 100 percent width separation is done.
- Deficiencies for 15 percent of the fabric are inspected.
- The shrinking check is 10-15 percent lightweight and most of its 100 percent heavyweight.
- Only in full width is the textile tested.
- Whether the roll is correct or not, the amount is checked. The quantity is put to the test.

ACCESSORY STORES DEPARTMENT

Roles of **Accessory Stores Department**

- The shops collect in-house raw materials and after this, the sampling process is conducted and a list of the tests which will be performed for these specific products must be made and then sent to the laboratory.
- The lists of accessories and measures commonly tested are: Coloured lace and tape checks for colour rapidity. The elastic colour speed test is tested for the dimensional consistency of elastic fabrics.

PLANNING DEPARTMENT

The **Department of Planning** has a key role to play in approving the order, which helps merchants to calculate how much the particular style will cost them, telling them if the company is able to produce the particular style within that time frame. Includes fundamental planning in the production of apparel:

- Order receipt.

- Adequate planning is available to check whether enough power is available to deliver the specified date of delivery.
- The availability of cut pieces and panels (eventually cut-brother, print, wash, and pack) in the non-sewing areas is verified.
- Search for ample time to order and collect textiles, trimmings, approval samples, laboratory tests, etc.
- The customer shall be notified of the delivery date.
- Proper coordination between departments to ensure smooth process flow.
- Monitoring of program development.
- If possible, REDO.

LABORATORY DEPARTMENT

The **laboratory department** at the factory is designed to check both the fabric and accessories, with all appropriate equipment and instruments. Nevertheless, there are several tests that the buyer prescribes those machines for such tests cannot be used in the plant and that the plant does not have the correct equipment, therefore they will submit such products or devices, which would need other tests to be performed in the external laboratories, with the permission of the buyer and the dealer.

MACHINE MAINTENANCE

Besides having a quality program and the best practices, "machine repair" is also very necessary to receive goods of "quality."

Unacceptable product quality also results in malfunctioning machines. Breakdown and preventive maintenance are aimed primarily at reducing downtime and rising life, respectively.

Proper maintenance of the machine is also required to avoid damage on the floor.

Functions of Preventive Maintenance

- Care of fittings
- Adjustment of settings
- Oil change
- Graph of repair
- Reports
- Outward / inward
- Needle weekly reports.
- History card

Needle log cards for the system setup table

CAD DEPARTMENT

Most apparel industries have their own **CAD department** for varied style garments made using some specialist software packages.

The CAD department is responsible for the following functions:

- Determining cost-cutting average
- Making the most efficient cutting marker
- Development and alteration of patterns
- Development of size set patterns by grading
- Sticker design

CUTTING ROOM

- The **Cutting department** receives an order from the production manager to cut a fabric style. Cutting order is an authorization to cut a given number of styles from the spreads by the production manager.
- This comes in the form of a box file with the following details: sampling, clothing (fabric and trim fabric), fabric consumption, and other style details.
- CAD Methods sheets the planning-length of lay etc. the scale of the ratio and the colours in which patterns are to be cut is the planning symbol of the CAD Design required sheet.
-

PRODUCTION DEPARTMENT

The production floor produces in two categories,

Pilot Production

Bulk Production

The **production department** may obtain specifics such as, the style of the clothes, the number of operators needed, the batch for which the style has to be mounted, any specific types of machines to be used for the particular style, aim for each day Breakup of the production quantity.

Production managers help the planning department to schedule or assign a specific line to the style by telling them the line's potential and informing them about the operators ' skills as well.

IE DEPARTMENT

The **IE department** has to work with many other departments as this department provide the whole idea of the construction of the garment and the thread and trim usage requirements, skill level categorization of the operators and other relevant aspects, therefore they play a vital role in deciding the cost of producing a single piece of the garment and also determine the factory costs for that particular style by calculating the SAM value.

EMBROIDERY DEPARTMENT

The section on embroidery is a department that only comes into the picture when demands of the particular style. From the sewing floor or from the cutting department, the embroidery section receives the garments and then they start their embroidery.

WASHING DEPARTMENT

The garment is sent to the **washing department** until complete with all the operations and is then finished in line with the buyer's requirements for that particular style and thus plays an important part in the final look and texture of the garment, which must be faithful to the buyer's specifications 100%.

There are various types of washing procedures involved and they are categorized as follows: standard washing/water, washing/drying, softener washing, desire washing, enzyme washing, stone enzyme washing, rubber ball washing, denim washing, bleach washing, tinting / T-staining

QUALITY ASSURANCE DEPARTMENT

Performance is the most important criteria for any product and the same concept applies also to the garment industry.

The **quality assurance** teams have split their work into different manufacturing stages in order to maintain consistency and are grouped into four major groups that are as follows.

- Pre-production audit
- Sewing audit
- End-line audit

FINISHING DEPARTMENT

The finishing department is the department that comes after all the departments and plays an equally important roll.

Most of the following steps in the region are found in the department, Trimming Inspection Semi-Packaging Solid Packaging Mixed Packaging Pressing Tagging.

PRODUCT AND COMPONENT SAFETY REQUIREMENT:

RISK

RISK A probability or threat of damage, injury, harm, liability, loss, or any other negative occurrence that is caused by external or internal vulnerabilities, and that may be avoided through preventive action.

RISK ASSESSMENT

The identification, evaluation, and estimation of the levels of risks involved in a situation, their comparison against benchmarks or standards, and determination of an acceptable level of risk.

Foreseeable Use- Children

- Mouthing Object
- Rotating Objects
- Banging Objects
- Throwing Objects
- Inserting (Object into body cavity)
- Combining the Objects
- Using inappropriately
- Representational Play
- Using Imaginatively
- Testing the limits

The Risk Equation:

$$\text{RISK} = \text{Hazard X Probability}$$

Hazard: Potential for the product to cause harm

Probability: Possibility

PRODUCT COMPONENT AND SAFETY

MATERIAL SAFETY

Metal Components/Trims should be,

- Nickel free
- Non-ferrous
- Free from sharp/rough edges
- Sourced from a nominated supplier
- Should not conduct Heat
- Should Pass through Metal Detector Plastic Components

Trims should be

- Phthalate free
- Free from sharp/rough edges
- Not able to break (not brittle)

Coloured/Painted/Coated should be

- Lead free
- Phthalate free

All components general requirements –

Must not be made of

- Glass
- natural wood
- rubber
- seashell
- real or waxed pearl
- other limited natural resource like
- Horn
- Coconut shell
- Feathers
- Down, etc.,

- All grip able components must with stand

90 Newton/10 Sec pull Test for babies

/ Toddler and children, & 70 Newton

10 Sec for adults –

All non-grip able components must with stand appearance after 5 washes

AGE GROUP

- Up to 12 months Toddler
- Up to 36 months / 3Years Young Children
- Up to 7 years Older Children
- Up to 14 years Over 14 years
- Adult 12

CONCLUSION

SCM Garment private limited, Tirupur. Is one of the Export Company that has units for production and processing. In my conclusion SCM Garments running Tirupur in successfully, but their losing percentage is 3 kindly reduce the loss percentage. In some units are follow the standard production strategy to increase the production. But majority units are have not a strategy. Implement the 6-sigma strategy to avoid the rejection and rework to increase our production status and our goodwill. To change the all units in systematically to avoid the stock in the line, to provide a scanning system to easily identify the pieces in our units, where it is stock. If the company take activity to increase our production and export

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TYPES OF INSPECTION

GARMENT DEFECTS CLASSIFICATION -

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