

INTERNSHIP REPORT

**SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR
THE AWARD OF
BACHELOR OF SCIENCE – FASHION DESIGN**

by

NANDHINI.S (41105010)



**DEPARTMENT OF FASHION DESIGN
SCHOOL OF BUILDING AND ENVIRONMENT**

SATHYABAMA

**INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)**

Accredited with “A++” by NAAC

JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI – 600119

JULY 2023

SCHOOL OF BUILDING AND ENVIRONMENT
DEPARTMENT OF FASHION DESIGN

INTERNSHIP REPORT (S105AINT)
2023 -2024

Name of the student : Nandhini.S
Reg No : 41105010
Semester : V
Batch : 2021-2024



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**INSTITUTE OF SCIENCE AND TECHNOLOGY
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SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF FASHION DESIGN

INTERSHIP REPORT (S105AINT)

2023-2024

VIVA – VOCE EXAMINATION

This to certify that the Internship (S105AINT) is the work of NANDHINI.S – 41105010 during semester V, is a student of Fashion Design department had undergone training in WHITE HOUSE has been monitored by the continuous assessment from 11/05/2023 to 04/06/2023

Submitted for Viva voce examination help on: 06/09/2023

Mentor

Class Coordinator

Internal Examiner

External Examiner

Head of the Department

**Head of the Department
Fashion Design
Sathyabama Institute of Science and Technology
Chennai-600 119.**



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DECLARATION

I NANDHINI.S, hereby to declare that the Internship (S105AINT) for 21days from 11/05/2023 to 04/06/2023 done by me under the guidance of Ms. R. PRIYADHARSHINI, is my original work and is prepared based upon the data and information collected during my internship period is submitted in partial fulfillment of the requirements for the completion of practical training session.

Date: 06/09/2023

Place: CHENNAI

S. Nandhini
SIGNATURE OF THE CANDIDATE:

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to Board of Management of **SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY** for their kind encouragement in doing this and completing it successfully. I am grateful to them.

I convey my thanks to **Ms.Dr. DEVYANI GANGOPADHYAY** Dean, School of Building and Environment for providing me necessary support and details at the right time during the Internship period.

I express my deep sense of gratitude to **Ms. S. KRITHIKA**, Head of the Department, Department of Fashion Design, School of Building and Environment, for providing me the assistance and knowledge at the right time during the progressive reviews.

I admire, the great opportunity that has provided to us and all the elements that made a contribution toward my understanding throughout this period I would like to extend my sincere gratitude to **SENIOR DESIGNER MS. SARANYA OF WHITE HOUSE** for giving me this wonderful opportunity of an industry internship program.

I would like express my sincere and deep sense of gratitude TO **Ms. R. PRIYA DHARSHINI** for her valuable guidance, suggestions and constant encouragement. Paved way for the successful completion of my Training.

Last but not the least, I would also like to thank all my **FAMILY MEMBERS, FRIENDS AND RELATIVES** who shared their support to me during the internship period.

BONAFIDE CERTIFICATE FROM COLLEGE



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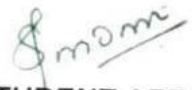
Ref: SHD/2023/04/24/54

24 April, 2023

BONAFIDE CERTIFICATE

This is to certify that **Ms. NANDHINI S**, Register Number **41105010** is a Bonafide student of our Institution pursuing 2nd year **BACHELOR OF SCIENCE** in **FASHION DESIGN** during the academic year **2022-2023**. She will be completing the course in the year **2024**.

This certificate is issued for the purpose of **Applying INTERNSHIP**.


DEAN (STUDENT AFFAIRS)

Dr. G. SUNDARI, M.E., Ph.D.,
DEAN (STUDENT AFFAIRS)

SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Jeppiaar Nagar, Rajiv Gandhi Salai
Chennai - 600 119.

MAIL REQUEST FROM DEPARTMENT TO COMPANT



Nandhini Srinivasan <nandhusrini3332@gmail.com>

Internship of our students regarding

1 message

GAYATHRI N <gayathri.design@sathyabama.ac.in>
To: ahila@whitehouseindia.com
Cc: FASHION HOD <fashionhod@sathyabama.ac.in>
Bcc: nandhusrini3332@gmail.com

27 April 2023 at 10:06

Dear Sir,
I am N. Gayathri, working as Assistant Professor in the Fashion Design department of Sathyabama Institute of Science and Technology. Students pursuing B.Sc. Fashion Design degree from our department needs to complete their internship for 21 days in their Second year as a part of their curriculum. We request you to kindly permit our students for their internship in your esteemed organization for 21 days from 11th May to 3rd June 2023. Kindly confirm your acceptance by mail.

please find attached students name list with their register number.
Nandhini.G - 41105008
Saloni.M - 41105013
Nandhini.S - 41105010
Dharshini.L - 41105020

Best Regards

N. Gayathri
Assistant Professor
Department of Fashion Design
Sathyabama Institute of Science & Technology
Chennai - 600119

MAIL ACCEPTANCE FROM COMPANT



GAYATHRI N 27 Apr

Dear Sir/Madam, I am N. Gayathri, working as Assistant Professor in the Fashion Design



GAYATHRI N 28 Apr

to me, nandhinigajendran693



Best Regards

N.Gayathri
Assistant professor
Department of Fashion Design
Sathyabama Institute of Science and Technology
Chennai - 600119

----- Forwarded message -----

From: Whitehouse India <ahila@whitehouseindia.com>
Date: 27 Apr 2023, 10:06 am
Subject Re: internship of our students regarding
To: GAYATHRI N <gayathri.design@sathyabama.ac.in>
Cc: FASHION HOD <fashionhod@sathyabama.ac.in>

Hello Gayathri,

Good to hear from you on internship program and thank you for approaching us.

We encourage new generation and support them to learn new aspects of current market fashion and trends.

Will surely support your student to pursue new learning opportunities and their dreams.

Thanks & Regards
Ahila
Whitehouse India

PERFORMANCE REPORT

DEPARTMENT OF FASHION DESIGNING

PROFESSIONAL TRAINING REPORT 2023

(continuous progress report of the fashion design trainee for the period of 21 days in the Industry to be submitted to HOD by the trainee in charge the organisation

1. **Name of the industry :** White House India Pvt Ltd
2. **Address and contact Number:** No:6, GST road village, Nandhivaram, Nandhivaram, Guduvanchery, Tamil Nadu -603202
3. **Name of the student:** S.Nandhini
4. **Duration:** 11.05.2023 - 03.06.2023
5. **Total no of days:** 21 days
6. **Evaluation of performance criteria shall be on**
* Note: kindly grade the student as per her overall performance in the office during the assessment days, which will be converted to the allotted 40 marks by the department.

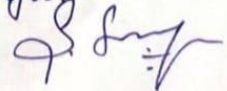
Description of works	Excellent	Good	Fair	NA
Understanding of the departments	✓			
Participation in the industry	✓			
Handling the given work	✓			
punctuality		✓		
Coordination with other workers	✓			
Attitude	✓			
Overall performance	100%. Good Job done			

All the best for Nandhini. S. good in Managing the team and Co-ordinate with friends

Compliments & suggestions:

S. Nandhini worked as an Intern with White House in the period of 11/5 to 3/6. At the time of Intern. she really worked in a good manner. and also Capable of Managing the team in future.

Signature of the head of the office:



CERTIFICATE

White House
6 GST Road, Guduvanchery,
Chennai 603202, India

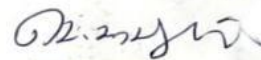
08/06/2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **MS.S.NANDHINI (41105010)** Studying B.sc Fashion Design in Sathyabama Institute of Science and Technology, have successfully completed her “ **Internship Training** ” at our organization during the period from 11-05-2023 to 03-06-2023.

During the period her conduct and character was found satisfactory.

For white house
For WHITE HOUSE


Authorised Signatory

(AGM-HR)

WHITE HOUSE
No. 6, G.S.T. ROAD,
NANDHIVARAM VILLAGE,
GUDUVANCHERY-603 202,
TIN : 33160520457

Two Star Export House Certified by the Govt. of India • Approved by the Govt of India for Projects contributing to Sustainable Development in India

Tel : +91 44 25619000
info@whitehouseindia.com
www.whindia.in



INTERNSHIP DETAILS

1. INDUSTRY / ORGANIZATION: WHITE HOUSE

Mentor Name : **Ms. Saranya**

Designation of the mentor : **Sr. Designer (Design Det. Incharge)**

Contact Number : **91760 25810**

Address : **No: 6, GST Road, Guduvancheri**
Chennai-603202.

2. INSTITUTION: SATHYABAMA INSTITUTE OF SCIENCE AND TECHNOLOGY

Mentor Name : **Ms. R. Priya Dharshini**

Designation of the mentor : **Assistant Professor**

Student Name : **Nandhini.S**

Department : **Department of Fashion Design**

Address : **Jeppiaar Nagar, Rajiv Gandhi Salai, OMR,**
Chennai – 600 119. Tamil Nadu, India

DAILY REPORT

DATE	REPORT
11/05/2023	Visiting a company's showrooms
12/05/2023	Sample department
15/05/2023	Cutting department
16/05/2023	Printing unit
17/05/2023	Design department
19/05/2023	Packing development
20/05/2023	Costing department
22/05/2023	Design department
23/05/2023	Surplus department
24/05/2023	Fabric/trims
25/05/2023	Stitching department
26/05/2023	Yarn store
27/05/2023	Quality checking
29/05/2023	Dyeing unit
30/05/2023	Embroidery unit
31/05/2023	Cad unit
01/06/2023	Merchandising department
02/06/2023	Design department /store room
03/06/2023	Production department

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REPORT ON WHITE HOUSE IN PRODUCTION UNIT



1.COMPANY PROFILE:

White House India Exports Private Limited is a Private incorporated on 17 April 2008. It is classified as non-govt company and is registered at Registrar of Companies, Chennai. Its authorized share capital is Rs. 1,000,000 and its paid-up capital is Rs. 100,000. It is involved in other wholesale [Includes specialized wholesale not covered in any one of the previous categories and wholesale in a variety of goods without any particular specialization.]

White House India Exports Private Limited's Annual General Meeting (AGM) was last held on 30 September 2014 and as per records from Ministry of Corporate Affairs (MCA), its balance sheet was last filed on 31 March 2014.

Directors of White House India Exports Private Limited are Abdul Bari Abdul Hai, Abdul Wajeed, Abdul Thahir, Mohammed Idris, Mohammed Mukthar and Mohamed Elyas.



Figure 1

Adapt to new Innovations, Processes, Systems, Technologies and Sustainable practices to exceed Customer Expectations with focus on Ethical Approach, Employee Engagement and Responsibility towards our Environment and Society.

Clients and Customers:

- Gant
- Polo Ralph Lauren
- Decathlon
- Wrangler lee
- RB Sellers
- Children Worldwide Fashion (CWF)
- Asmora

BRANDS:

- Little marc Jacobs
- Gant
- Dickies
- Ben Sherman
- Billabong
- Aigle
- Oxbow
- Campus
- Dkny
- Decathlon
- Huge Boss
- Lee
- Timberland
- TBS

Our vision:

Adapt to new Innovations, Processes, Systems, Technologies and Sustainable practices to exceed Customer Expectations with focus on Ethical Approach, Employee Engagement and Responsibility towards our Environment and Society

Certification:



Figure 2



Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8



Figure 9



Figure 10

QUALITY MANAGEMENT

White House endeavours to exceed Customer's expectation on Quality Standards.

White House has exclusive Internal Quality Audit Team (IQAT), of headed by a Quality Manager independent to the Factory Quality Team and reports to the Top Management.

Their goal is to ensure that excellence is inherent in every step of the Garment Manufacturing from Fabric to Garment finishing stage.

All Fabric and Finished Garment inspections are verified and authorised by the IQAT. This Team is nominated by some of our customers to conduct final garment inspection.



Figure 11



Figure 12



Figure 13

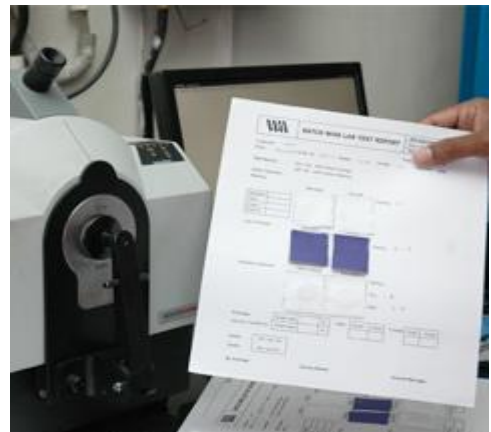


Figure 14



Figure 15



Figure 16



Figure 17



Figure 18

GARMENTS:

White House is a manufacturer and exporter of Cotton and Blended Knit garments, since 1985 to the European, UK, US and Australian markets. Currently we supply to world-wide reputed brands, who have their outlets in over 36 countries.

They have a vertically integrated set up and all the operation required for making Knit Garments are in-house.

They produce wide range of products for Men, Women, & Children Garments, based on Customer specification

Some of the product types they produce for our customers are:

- T-shirts
- Polo
- Sweat Shirts
- Sweat hood
- Sweat Zip
- Cardigans

- Pants
- Shorts
- Boxer Shorts
- Tank Top
- Leggings
- Yoga Pants

SUSTAINABLE PRODUCTS:

Since 2014 They have laid a lot of emphasis on sustainable fabrics, trims and packing materials for our garment production.

They source following yarns with stringent quality specification to knit various type of fabrics.

- Organic Cotton
- Organic Cotton / Recycle Cotton Blends
- Organic Cotton / Recycle Polyester Blends
- Organic Cotton / Hemp Blends
- Organic Cotton / Bamboo Blends
- Organic Cotton / Tencel Blends

They have taken steps on Sustainability through various measures including

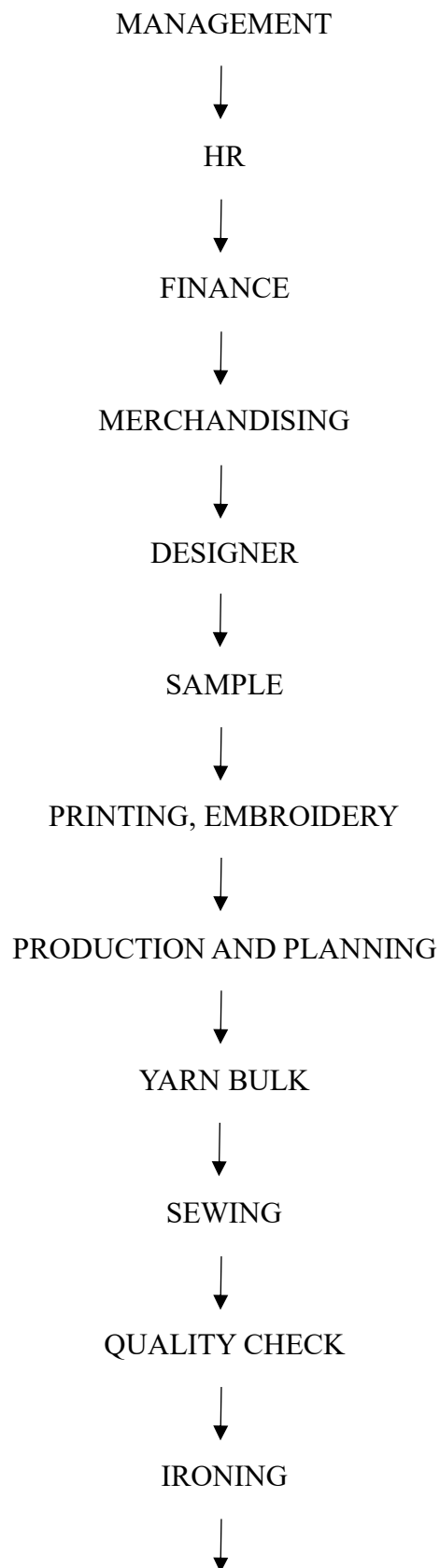
- Waste Minimization
- In-process Control
- Adoption of Clean Technologies

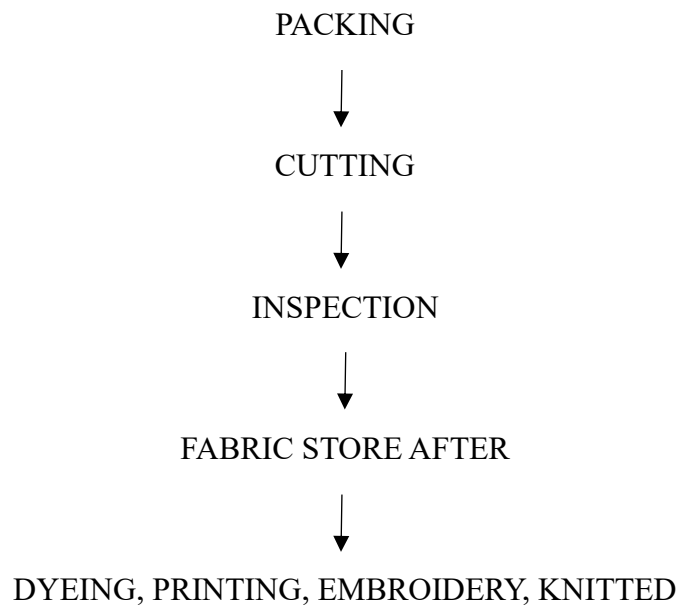
They focus on the processes that identify and eliminate waste in various operations involved through continuous improvement

PRODUCTS CATEGORIES:

- Women's wear
- Kids wear
- Men's wear

2.DEPARTMENT:





3.SAMPLING:

Sampling is one of key elements of the pre-production in a garment industry. Before a manufacturer produces bulk orders, a prior sampling of styles is done to get approvals and jumpstart the fabrication of garments.

Sampling process covers garment fit checking fabric and trims quality checking, approval value-added processes and approval of complete finished garment. Most of the buyer have a standard requirement for garment samples for the product for sourcing the bulk garment.

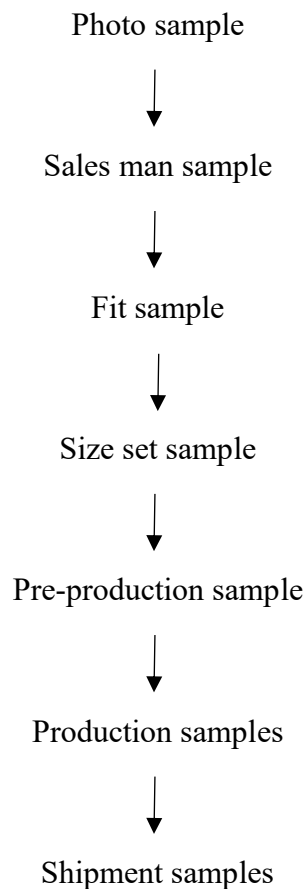
In the Sampling Department work is done to see how the product will look when manufactured in bulk and to check if there are any differences in the design that are made according to the requirements of the consumer.

The Sampling Department in the garment industry is one of the most important departments in any export building and plays a vital role in a unit's uplift.

Garment samples are inevitably important and are developed tested before starting the bulk production. It means making a sample of the garment /fabric which requires to be sold. Sampling is one of the main process in Garment Industry and it has a vital role in attracting buyers. Because the buyers generally place the order after they are satisfied with the quality of the samples.

The samples decide the ability of an exporter. The buyer will access the exporter and his organization only by the samples. If the samples are of good quality and with reasonable price naturally the buyers will be forced to place the order. So, it is essential that the samples should be innovative and of optimum quality.

FLOW PROCESS OF SAMPLE MERCHANDISING:



PROTO SAMPLES:

These samples are a prototype of a new design created by designers. This is the first sample in product development stage. Proto sample is made to communicate the design of a style or a line or to present garment structure. In proto samples fit and fabric detailing is not been considered.

SALES MAN SAMPLE:

Sales man sample are made to put on display in the retail showroom. salesman sample (SMS) are displayed for assessing customers response, buyer forecast demand of a particular style. Sales samples are made with actual fabric and trims and accessories. Buyer pays for salesman samples to the developer.

FIT SAMPLE:

Once the proto sample is approved, fit sample is being made with the actual measurement. Modification of the pattern is done to get the desired fit the garment. fit is one of the most important factors to be considered during sample development. A fit sample is being tested on a live model or on a Dress form for verify garment fit and fall.

SIZE SET SAMPLE:

The purpose of the size set to check the fit of the garment in different sizes. In this stage, factory develops samples in multiple sizes. Generally, buyers ask size set sample in jump size, like S, M, L, XL, XXL. Buyer check size set sample and give feedback to factory if anything needs to be corrected.

PRE -PRODUCTION SAMPLE:

All the above sample are made in sampling department. A buyer wants pre-production sample (PP sample) to be made in the actual production line so that operators know what are they going to make. This sample is made with actual fabric, trims and accessories and made by sewing in tailors. PP sample must be approved by the buyer or buying house merchants (technical persons) prior to proceeding actual production.

Production sample:

Once bulk production is started, few garment pieces are taken out in the middle of the production. Production pieces are sent to buyer as the TOP sample. All buyers do not ask for the TOP sample. The purpose of the TOP sample is to cross-check whether the factory is following PP sample specification or not.

SHIPMENT SAMPLE:

When style is being finished and packed for shipment, 2-3 finished and packed pieces with all packing detail are kept for future reference. Shipment sample is kept by factory merchant and buyer's merchant. The approved shipment is sent directly to ware house and merchants at the buyer do not get garment out of the shipment. That is why keep shipment sample for future reference.

4.PRINTING UNIT:

- Pigment print
- HD print
- Puff print
- Non-PVC print
- Glitter print
- Foil sticker
- Discharged print
- Flock print
- Screen print
- Digital print
- 3D effect print
- CMYV print
- Mould print
- Oil base print
- Dip print

- Photochromic print

PIGMENT PRINT:



Figure 19

Pigment printing is the process of transferring pigment dyestuffs to the fabric by direct printing and abrasion printing method, which is generally applied to polyester knitted and woven fabrics, but can also be applied to natural fibers.

Although pigment dyestuffs are a very important type of dyestuff for printing on cotton fabrics, they are insoluble in water and organic solvents. They have no affinity for textile fibers, so they are attached to the fiber with resin-based adhesives called binders. They are then subjected to a high temperature condensation process.

ADVANTAGES:

- The fact that there is no need for washing after printing allows printing with minimum cost and machinery
- The absence of colour changes before and after printing makes it possible to see the final colours at the time of printing. This is very important for detecting errors.
- In printing with pigments, the risk of color difference is very low with factors such as printing speed and stripper pressure in the same variation.
- The process is essentially simple and stable.
- Pigments cover the absorption irregularities on the fabric and can be used in fabrics with different fibre ratios since both fibres are covered equally by the pigment.
- Prints show sharp contours and the colour possibilities are endless.
- It is possible to print very sensitive materials since they do not require any washing.

- Printing costs are low.

DISADVANTAGES:

- Not controllable for the binder film.
- Use of solvent like kerosene, spirit etc., can produce problems like flammability, odor, pollution etc.
- The jamming up of equipment and air and water pollution is observed.
- Wet and rubbing fastness is average.
- The handle of the printed goods is often unduly hard because of the large amounts of external cross-linking agents.
- Are sensitive to crushing during roller printing and pigment printing needs shallow engravings on screen printing.
- The original surface of the textile material is covered by the binder film. This is occasionally aesthetically effective but usually undesirable.

HD PRINTING:



Figure 20

High-density printing is all the rage in the world of t-shirts these days. More and more businesses are willing to spend extra bucks on custom high-density print t-shirts to help their brand shine and leave a lasting impression on the wearer.

It is a screen-printing method that adds texture & depth to the artwork. Plastisol ink gets printed using a special screen that holds the ink within a limited area. It creates a print that rises up to 1/8" above the surface of the fabric. Such an effect has a limit of one ink per garment and we cannot combine it with Foil or Discharge ink due to the heat needed to execute each of these methods.

PUFF PRINTING:



Figure 21

Puff printing on fabric is one of the oldest specialty effects in screen printing. It is a plastisol ink that modifies with the addition of a heat-reactive foaming agent. The ink expands when exposed to high temperatures during the garment curing process, leaving you with a unique puffy dimension to your design.

It is also known as Rubber printing – an economical alternative to High Density or Super Gel print. However, it has a much softer marshmallow-like quality. The Puffing process tends to change the color of the ink, making it slightly lighter after puffing, making it difficult to match the perfect color.

NON-PVC PRINTING:



Figure 22

Achieving a balance between technical performance and health, safety and environmental concerns is a continuing challenge for ink makers. Dr. Daniele Uboldi, Research & Development Manager, and Flavio Ronchini, Technical Marketing Manager, examine the different factors involved and explain Kian Specialty Inks' solution.

Traditional plastisol inks (containing PVC) have been the inks of choice for screen printing on pre-cut textile applications for decades. The major advantages of plastisol inks are their ease of use for textile printers and high productivity rates, combined with good color opacity and attractive pricing.

Previous environmental concerns about the presence of heavy metals and phthalates in these inks have been overcome through substitution with other pigments and non-toxic plasticisers. What remains is the growing concern about polyvinyl chloride (PVC), the base resin of all conventional plastisol inks, especially when in direct contact with infants. Pressure from textile brand-owners, retailers and NGOs to remove PVC from textile products has, therefore, been increasing.

GLITTER PRINT:



Figure 23

In order to print, it is first necessary to prepare glitter paste. The technicians add glitter powder to the glitter ink and stir it slowly so that no lumps are formed into a homogeneous blend. This glitter ink is made up of acrylic co-polymer.

Once the fabric is pre-treated, textile printing technicians commence the printing process on a table.

Screen printing process is used for applying glitter paste on the fabric which is then left for 15 minutes to set in and dry.

Once the glitter dries, the printed fabric is polymerized at a very high temperature – almost 160 degrees Celsius. Generally, the glitter powder resists up to 170 degrees Celsius and is alkaline and acid proof.

ADVANTAGES:

- Glitter printing allows to add sparkle to the fabric
- This printed technique can be applied to fabric of any color.
- Glitter printed fabrics resist high temperature and are strong pH solvents
- Glitter printing is ideal for fashion wear and party wear too.

DISADVANTAGES

- Material not breathable.
- Medium durability
- Can not achieve gradient designs.

DISCHARGE PRINT:



Figure 24

Discharge printing, also called **Extract Printing**, method of applying a design to dyed fabric by printing a colour-destroying agent, such as chlorine or hydrosulphite, to bleach out a white or light pattern on the darker coloured ground. In colour-discharge printing, a dye impervious to the bleaching agent is combined with it, producing a coloured design instead of white on the dyed ground. *See also* resist printing; roller printing.

roller printing, also called direct printing, method of applying a coloured pattern to cloth, invented by Thomas Bell of Scotland in 1783. A separate dye paste for each colour is applied to the fabric from a metal roller that is intaglio engraved according to the design. The technique can be used with almost any textile fabric. *See also* discharge printing; resist printing

ADVANTAGES

- Large areas of ground color are possible.
- Delicate colors and intricate patterns possible on deep ground color, excellent depth and clarity possible.

- Very cool technique that removes the dye from the shirt.
- Little to no feeling of the print on the shirt.
- Vibrant colors.
- The best way to print on dark shirts with non-traditional inks.
- Something different from screen printing “norms”.
- Still able to do a great amount of detail.
- We offer discharge printing at no additional charge. In fact, it’s often cheaper than traditional ink.
- Higher production cost but long-lasting unique styles

DISADVANTAGES:

- It is an expensive process.
- Two stage application involved in dyeing or padding and discharge printing.
- Limited choice of ground and motif colors.
- Requires rigid process care that any default will lead to damages.
- Some sizes may discharge better than others.
- Can be hard to use for photographic style or process printing.
- Only works on natural fibres, like cotton, so 50/50 can’t be used.
- Not all shirt colours will discharge (royal blue never works well, for example).
- Process can be quirky

FLOCK PRINT:



Figure 25

Flock Screen printing, also known as flocking, is the method of adding dye, adhesive, and countless tiny fiber particles (called flock) to the surface of a t-shirt or garment. Flock can be made from either natural or synthetic materials like cotton, rayon, nylon, or polyester.

It’s a great way to enhance a garment’s touch, color, and overall appeal by giving it a velour, fluffy, velvety texture. Adding flocking to your clothing line is a certain way to make it stand out from the competition

ADVANTAGES:

- soft hand feel and good warmth retention. The wool is woven on the cloth surface using a specific process.
- fine patterns, rich and clear layers, high artistic quality, strong three-dimensional impression, which is inferior to ordinary printing methods.
- can print photography and painting style patterns; the printing colors are bright.
- the tar in the dye is left in the sublimation processing on the transfer paper, it will not contaminate the fabric.

DISADVANTAGES:

- It will stick in hot weather and feel hard.
- Easy to crack and not washable.

SCREEN PRINT:



Figure 26

Screen printing is a printing technique where a mesh is used to transfer ink (or dye) onto a substrate, except in areas made impermeable to the ink by a blocking stencil. A blade or squeegee is moved across the screen to fill the open mesh apertures with ink, and a reverse stroke then causes the screen to touch the substrate momentarily along a line of contact. This causes the ink to wet the substrate and be pulled out of the mesh apertures as the screen springs back after the blade has passed. One colour is printed at a time, so several screens can be used to produce a multi-colored image or design.

Traditionally, silk was used in the process. Currently, synthetic threads are commonly used in the screen-printing process. The most popular mesh in general use is made of polyester. There are special-use mesh materials of nylon and stainless steel available to the screen-printer. There are

also different types of mesh size which will determine the outcome and look of the finished design on the material.

The technique is used not only for garment printing but for printing on many other substances, including decals, clock and watch faces, balloons, and many other products. Advanced uses include laying down conductors and resistors in multi-layer circuits using thin ceramic layers as the substrate.

ADVANTAGES:

- Cost effective for large quantities
- Easier to print on special garments
- Various inks can be used
- Long lasting & durable quality

DISADVANTAGES:

- More money for multiple colors
- Not practical for small orders
- Relative Complexity
- Not environmentally friendly

DIGITAL PRINT:



Figure 27

Digital textile printing is described as any ink jet-based method of printing colorants onto fabric. Most notably, digital textile printing is referred to when identifying either printing smaller designs onto garments (T-shirts, dresses, promotional wear; abbreviated as DTG, which stands for Direct to garment printing) and printing larger designs onto large format rolls of textile. The latter is a

growing trend in visual communication, where advertisement and corporate branding is printed onto polyester media. Examples are: flags, banners, signs, retail graphics.

Digital textile printing started in the late 1980s as a possible replacement for analog screen printing. With the development of a dye-sublimation printer in the early 1990s, it became possible to print with low energy sublimation inks and high energy disperse direct inks directly onto textile media, as opposed to print dye-sublimation inks on a transfer paper and, in a separate process using a heat press, transfer it to the fabric.

ADVANTAGES:

- **FULL COLOR**

Various possibilities with full color and gradation print without the limitation of colors

- **QUICK DELIVERY**

Full Color print is done in one process without using plates. It enables quick delivery.

- **COLOR MATCHING TIME IS REDUCED**

It is now possible to create a single sample which have the same quality when compared the final product with the original design. Using the digital data makes easy and simply color matching and based on the original design the production can start right away.

Analog printing requires times for color matching before starting the production. In digital printing that time is no needed.

- **LOW COST**

Lower production is achieved by printing without plates and with less production processes.

3D EFFECT PRINT:



Figure 28

In many industries, including the fashion sector, 3D printing technology is regarded as one of the most cutting-edge and important technologies of the fourth industrial revolution. Numerous industry experts have predicted that the usage of 3D printing technology will skyrocket in the consumer goods, fashion, aviation, and aerospace sectors. The expansion of technological capabilities in 3D printing and 3D scanning opens the door to innovations that will fundamentally alter the way goods are produced and traded in the fashion and textile industries. Since designers and clothing producers realized the value and advantages of 3D printing technology, the usage of 3D printers in the textile and fashion business is receiving more attention nowadays. With the aid of unique shapes and geometries that have never been manufactured before, they can utilize this technology to build wonderful 3D-printed apparel. They can also prototype using it, which creates a procedure for producing

CMYV PRINTING:



Figure 29

CMYK Screen Printing is a popular T shirt printing technique for achieving a full colour design on white garments. CMYK printing is done by layering four colours (cyan, magenta, yellow, and black) on top of each other to re-create art or a realistic image with only four screens. You can print CMYK with both plastisol and water-based inks.

Garment Printing will not be liable for colour variation between the proof and the printed product. We will try our best to match the colours of the proof and the printed product but please understand that colour variation differences are inherent inconsistencies of the printing process.

When printing the same design several times it may not appear as sharp on one garment as another. Additionally due to the printing process, colour variance is unavoidable from one print to another. Additionally, it may appear different on one garment to another garment due to colours and materials reacting different to the inks.

You accept the information above and accept an overall 25% of print colour variance. Any issues of this nature fall outside of our re-print and our re-fund policy.

5.EMBROIDERY UNIT:

- 3D emboss embroidery
- Twill patch embroidery
- Spilt satin stitch
- Fabric applique
- Satin stitch
- Print embroidery
- Lurex thread filling embroidery
- MC cross stitch
- Chain stitch embroidery
- Sequence embroidery
- Laser cut embroidery
- Chenille embroidery
- Tatami stitch
- Falling running stitch
- Motif stitch with multi color thread
- Satin applique
- Running stitch embroidery
- Satin outline embroidery

3D EMBOSS EMBROIDERY:



Figure 30

As the name implies 3D embroidery, also commonly described as puff embroidery, uses a technique that makes the design three-dimensional or ‘puff’ out from the objects it’s stitched on. This effect is achieved with the use of foam also referred to as 3D embroidery puffy foams. This technique is commonly seen stitched into baseball hats. However, 3D embroidery can also be achieved on sweatshirts, beanies, and bags giving any design texture and depth.

The type of foam used should be puffy and able to tolerate the repeated punctures of embroidery needles without ripping. The repeated striking of the needlework process cuts the foam into its desired design, triggering it to increase in size and puff out. Resulting in a design that appears raised from the surface of the apparel.

Standard thickness of foam used in raised texture design or 3D embroidery is usually 3 mm. To give more depth to a project, foam with a thickness of 4 mm or 6 mm can be used. Colman and Company Embroidery Foam is available in different thicknesses and colors and is perfect for creating 3D embroidery products.

TWILL PATCH EMBROIDERY:



Figure 31

Patch twill fabric is ideal for making smaller patches as the twill is a sturdy woven fabric that tends to produce the best quality patches. A twill patch has a sealed edge and can be ironed or sewn onto other materials. The twill backing is pretty robust and stain-free. The twill embroidered patches are crafted using a piece of twill, which then has thread added to it to fill in the design. Twill patches can drape well and endure wear and tear due to their sturdy backing material.

Over the past few decades, technology and techniques have changed, and so have the supplies we use to create perfect patches. With the advent of better tools and more reliable raw materials, the need to develop authentic patches using modern techniques has also sprung into an upward slope.

There are many different ways to go about embroidering patches. One of the most important aspects of getting your patches to look and feel professional is the fabric backing that you use. A robust and sturdy fabric will prevent puckering and other stitching flaws and retain the beauty of the patches for a long time.

SATIN STITCH:



Figure 32

A satin stitch or damask stitch is a series of flat stitches that are used to completely cover a section of the background fabric. Narrow rows of satin stitch can be executed on a standard sewing machine using a zigzag stitch or a special satin stitch foot.

In order to maintain a smooth edge, shapes can be outlined with back, split or chain stitch before the entire shape including the outline is covered with satin stitch.

Machine-made satin stitch is often used to outline and attach appliques to the ground fabric.

CHAIN STITCH EMBROIDERY:



Figure 33

Chain stitch is a sewing and embroidery technique in which a series of looped stitches form a chain-like pattern. Chain stitch is an ancient craft – examples of surviving Chinese chain stitch embroidery worked in silk thread have been dated to the Warring States period (5th – 3rd century BC). Handmade chain stitch embroidery does not require that the needle pass through more than one layer of fabric. For this reason, the stitch is an effective surface embellishment near seams on

finished fabric. Because chain stitches can form flowing, curved lines, they are used in many surface embroidery styles that mimic "drawing" in thread. Chain stitches are also used in making tambour lace, needle lace, macramé and crochet. In Azerbaijan, in the Sheki region, this ancient type of needlework is called teledu's.

SEQUENCE EMBROIDERY:



Figure 34

Sequins are a popular fabric decoration for fashion items like dresses, skirts and tops. They can be sewn onto fabrics with thread or adhesives, or they can be placed on clothing using special techniques. There are many different types of sequins, and you can choose the style that suits your project best. You'll need to have some sewing skills in order to install them correctly, but it's an easy process once you know how to do it. Sequins are tiny pieces of metal or plastic that have been sewn together to create a design on fabric. They are often used in costume and fashion accessories, like headbands, purses and skirts.

Laser cut embroidery:



Figure 35

Laser cut technique allows to cut all kind of fabrics, such as leather, wool, linen, jersey or filtration fabric in a very precise way. Studio Designer can create custom-made clothing via our laser cut machines. This equipment allows us to operate with different formats, changing the depth of the laser cut into the fabric, so to create high definition “etched” patterns, elaborate raw cut edges or overlaying applications. We can also customise clothes with writings of different sizes.

Chenille embroidery:



Figure 36

Chenille embroidery, colloquially known as “chenille” is a kind of specialized loop or chain embroidery, which is made with yarn, not typical embroidery threads - polyester or viscose. Thanks to use of yarn instead of threads, this embroidery method makes the pattern look optically thicker and more convex.

TYPES OF CHENILLE EMBROIDERY

The chenille embroidery can be made in one of two forms, as:

- Loop
- chain

LOOP:

The chenille embroidery in the form of loops is often called by customers “terry embroidery”, due to its specific structure, because the embroidery design looks like terry towel. It is possible to make a loop embroidery of various height, depending on the client’s preferences. This type of embroidery is especially popular on children’s clothing, youth and, what’s interesting, also advertising clothing. Embroidery made with this method creates a convex impression, and in addition is soft in touch. The unique structure of this embroidery makes the design so original and often chosen by customers.

CHAIN:

Chenille embroidery is also used in the form of chain embroidery. In this case, it is a flat embroidery, resembling a chain, which is similar to classic embroidery, but is much thicker. Often in one pattern both types of chenille are used simultaneously, e.g., we embroider a letter filled with a loop, and its edge is finished with a chain. What is more, chenille embroidery can be joined with other embroidery techniques available in our offer, sequins, jets, pearls and prints.

TATAMI STITCH:

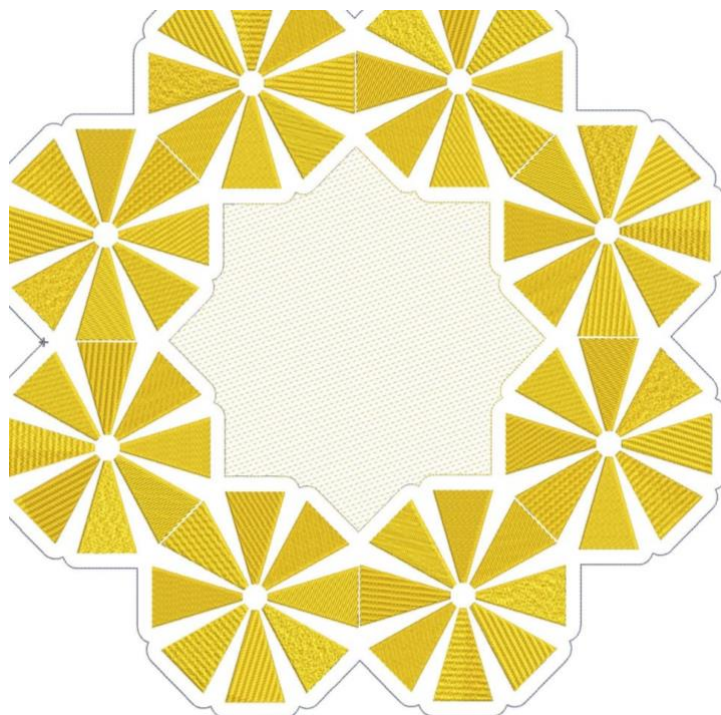


Figure 37

Tatami stitch is generally used for larger areas of fill in an embroidery design, which often will be the background for lettering or other objects in the design. Normally this would require an even stitch pattern, with a regular arrangement of stitch penetrations between to rows. However, tatami can be so much more than a backing by changing a few simple properties.

6.FABRIC UNIT:

- organic cotton
- recycled cotton
- recycled polyester
- cotton slub
- cotton slub organic
- cotton flex
- cotton viscose
- cotton polyester
- cotton modal
- cotton wool

- bamboo cotton
- cotton elastane
- cotton Sirona
- spun polyester
- polyester filament
- polyacrylic
- cotton nylon
- cotton hemp
- cotton tencel
- merino wool recycled polyester

ORGANIC COTTON:



Figure 38

Organic cotton is generally defined as cotton that is grown organically in subtropical countries such as India, Turkey, China, and parts of the USA from non-genetically modified plants, and without the use of any synthetic agricultural chemicals such as fertilizers or pesticides aside from the ones allowed by the certified organic labelling. Its production is supposed to promote and enhance biodiversity and biological cycles. In the United States, cotton plantations must also meet the requirements enforced by the National Organic Program (NOP) from the USDA in order to be considered organic. This institution determines the allowed practices for pest control, growing, fertilizing, and handling of organic crops.

As of 2007, 265,517 bales of organic cotton were produced in 24 countries and worldwide production was growing at a rate of more than 50% per year. In the 2016/2017 season, annual global production reached 3.2 million metric tonnes.

RECYCLED COTTON:



Figure 39

Cotton recycling is the process of converting cotton fabric into fibers that can be reused into other textile products.

Recycled cotton is primarily made from pre-consumer cotton which is excess textile waste from clothing production. It is less commonly made from post-consumer cotton which is discarded textile waste from consumers such as second-hand clothing. The recycling process includes assessing the quality of cotton fibers through systematics collection, manually sorting the materials, and undergoing a mechanical or chemical process to break down the textile fabric into reusable fibers. In the mechanical process, fabrics are torn into individual fibers through a machine, and in the chemical process, the fabrics' chemical properties are broken down through chemical reaction processes such as Lyocell process and dissolution in ionic liquids.[3][4] The mechanical process is the primary way to recycle textiles because the chemical process is not commercially used.

RECYCLED POLYESTER:

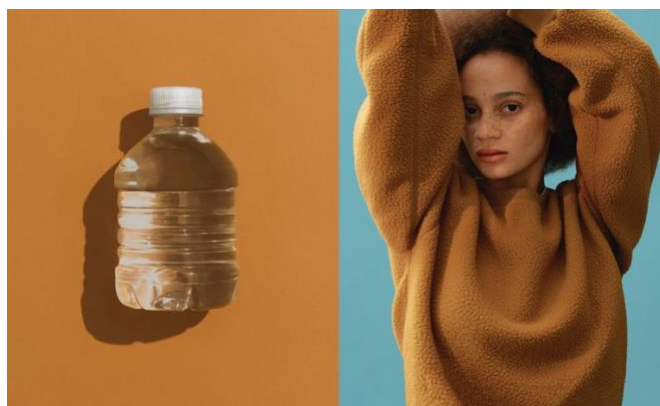


Figure 40

According to the Textile Exchange about half of the world's clothing is made from polyester fabric, which is basically plastic. This guide explores the sustainability of recycled polyester and features some eco-conscious RPET clothing brands if you're searching for brands that are more responsible in producing fashion made with polyester. This post does contain some affiliate links. If you decide to make a purchase The Honest Consumer will receive a commission. Our commission is at no additional cost to you.

Recycled polyester is also known as RPET, with the "R" standing for recycled and the "PET" for polyethylene terephthalate. Its use is particularly popular for sportswear, loungewear, and outdoor garments. It is made of recycled plastic water bottles, textile waste, and even old fishing nets. There are two methods of recycling plastic into RPET clothing: mechanical and chemical.

COTTON SLUB:



Figure 41

Cotton slub fabric is used for a variety of purposes. It is used in upholstery because it is durable and hard-wearing. Cotton slub fabric is also used in clothing. Cotton slub fabric is a great alternative to polka dot fabric because it has a vintage feel. Cotton slub fabric is also great for craft projects like quilts and pillows. Cotton slub fabric is also used in more decorative areas like curtains.

Cotton Slub Fabric is a cotton fabric that is manufactured with slubs, or short strands of yarn. The slubs can be created by twisting the yarn or by too much tension on the weaving loom. Slubs make the fabric feel more natural and create a textured appearance. However, there are some concerns about this fabric because it has a shorter shelf life than regular cotton fabrics and can shrink or pill more easily. Cotton is a natural material and has distinct characteristics that make it different from other fabrics. Cotton fabric is made of fibres that are twisted together to form threads, resulting in a strong, long-wearing fabric and providing the strength needed for workwear.

COTTON VISCOSE:



Figure 42

cotton and viscose fabrics can make similar garments. with little between them when it comes to comfort and style, it can be tough to choose between the two. when it comes to cotton vs viscose, the main difference between cotton and viscose is the manufacturing process. cotton comes from the fluffy case of cotton seeds and is a completely natural material. viscose is a mix of wood pulp and chemicals. Neither natural nor synthetic, it creates an artificial silk fabric. One that looks and feels like the real thing.

COTTON POLYESTER:



Figure 43

Polymers are made by a lot of little molecules together to make one long molecule, like a string of beads. The little molecules are called monomers and the long molecules are called polymers. According to the American Federal Trade Commission "polyester fibers are chemically composed of at least 85% by weight of an ester of a substituted aromatic carboxylic acid, including but not restricted to substituted terephthalate units and Para substituted hydroxyl benzoate units". Polyester is made by reacting ethylene glycol and terephthalic acid. Polyester fabric is highly amorphous in the molecular structure, and hydrophobic in nature, which resist water on the surface of the fabric.

COTTON MODAL:



Figure 44

Modal is a man-made cellulosic fibre that has found fame in the age of activewear. Breathable and absorbent, this cotton alternative is used to manufacture underwear, pyjamas, bathrobes, bed sheets, and more.

Modal is the generic name for a variant of viscose (viscose aka rayon—here's our take on the sustainability of viscose). Essentially, modal goes through an additional process that makes it somewhat stronger than traditional viscose. Breathable and silky smooth to the touch—and with impressive resistance to shrinkage and pilling—modal is around 50% more water-absorbent per unit volume than cotton. Boasting similar properties to other cellulose fibres, it's designed to absorb the dye and stay colour-fast when washed in warm water, making it a popular choice for garments that sit close to the skin. Some modal is still made in Japan, where it was originally developed in 1951, but the vast majority is now produced in China.

The manufacturing process involves spinning reconstituted cellulose mainly from beech trees. The wood fibres are pulped into liquid form and then forced through tiny holes, creating the

thread. The resulting fibres are then spun into yarns—sometimes in blends with other fibres such as cotton or elastane. These yarns can then be woven or knitted into fabric.

COTTON WOOL:



Figure 45

Cotton wool consists of silky fibres taken from cotton plants in their raw state. Impurities, such as seeds, are removed and the cotton is then bleached using hydrogen peroxide or sodium hypochlorite and sterilized. It is also a refined product (absorbent cotton in U.S. usage) which has medical, cosmetic and many other practical uses.

The first medical use of cotton wool was by Dr Joseph Sampson Gamgee at the Queen's Hospital (later the General Hospital) in Birmingham, England. Although cotton wool is called cotton wool it is actually not wool at all. It is from the cotton plant. Most cotton comes from India, The United States or, China. Cotton plants prefer heavy soil to grow well. Good locations, such as seasonally dry tropical areas, or subtropics are perfect.

BAMBOO COTTON:



Figure 46

A bamboo textile is cloth, yarn, or clothing that is made from bamboo fibres. While historically used only for structural elements, such as bustles and the ribs of corsets, in recent

years, different technologies have been developed that allow bamboo fibre to be used for a wide range of textile and fashion applications. Bamboo yarn can also be blended with other textile fibres such as hemp or spandex. Bamboo is an alternative to plastic, but is renewable and can be replenished at a fast rate.

Bamboo is 40% more absorbent than even the finest organic cotton, wicking moisture away from the skin much faster and keeping you dry and comfortable easier. Bamboo can take in three times more water than its weight which once made into a fabric, means that it also is able to get rid of moisture faster.

Like cotton, bamboo fibre is naturally breathable and wicks moisture away from the skin. Unlike cotton, bamboo fabric allows moisture to evaporate into the air quickly. So, when you sweat, you won't stay wet. Bonus – bamboo fabric is super light and silky soft too!

Now that we know a little about the Bamboo Cotton let's dive into the 6 reasons you need to switch to Bamboo cotton.

COTTON ELASTANE:

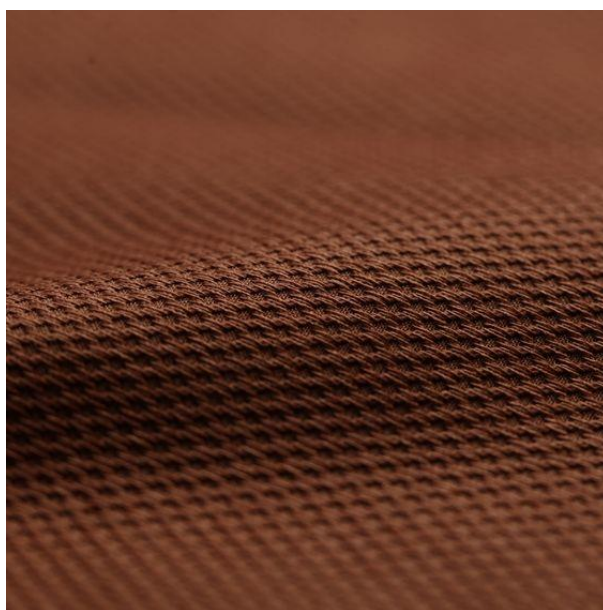


Figure 47

Elastane is the generic term used to describe branded textiles such as Lycra. This type of fabric is also called spandex, and its primary attribute is its incredible elasticity. While Lycra, spandex, and elastane are all the same material, regional variants of the term “elastane” are most commonly used to refer to this type of fabric in continental Europe.

This textile is composed of a long chain polymer known as polyurethane, and it is known in technical circles as a polyether-polyurea copolymer. Elastane is an entirely synthetic fabric; no organic materials are used to make this substance, and it does not exist anywhere in nature.

While elastane was invented in the late 1950s, the story of this material truly begins in 1937 in Nazi Germany. Polyurethane was originally invented by Otto Bayer and his associates at the IG Fabens plant at Leverkusen, and this substance was almost immediately made into a variety of

plastics. The primary purpose of polyurethane was as a replacement for rubber, which was only available from certain types of trees and, therefore, was subject to unexpected price fluctuations and was sometimes hard to obtain

POLYESTER FILAMENT:



Figure 48

Polyester filament yarns are used in knitting & weaving to make polyester fabrics such as consumer fabrics and home furnishing like curtains, bed sheets, bed spreads and draperies. Similarly Polyester high tenacity industrial yarns can be used to make ropes, conveyor belts, safety belts & tire fabric. Polyester Staple Fiber is mainly used as fibre fills to stuff pillows, cushion, sofa & beddings.

Polyester fibre has a series of excellent properties, such as high breaking strength and elastic modulus, moderate resilience, excellent heat setting effect, good heat and light resistance, etc. Moreover, it has excellent resistance (such as resistance to organic solvents, soaps, detergents, bleaches, oxidants, etc.)

COTTON HEMP:

Hemp fabric is a type of textile that is made using fibers from the stalks of the Cannabis sativa plant. This plant has been recognized as a source of extraordinarily tensile and durable textile fibers for millennia, but the psychoactive qualities of Cannabis sativa have recently made it harder for farmers to produce this immensely beneficial crop.

Over thousands of years, Cannabis sativa has been bred for two distinct purposes. On the one hand, many generations of cultivators of this plant have selectively bred it to be high in tetrahydrocannabinol (THC) and other psychoactive chemical constituents called cannabinoids. On the other hand, other cultivators have consistently bred Cannabis sativa to produce stronger and better fibers and have purposefully.

POLYACRYLIC:



Figure 49

Polyacrylic is usually cheaper to buy and therefore the gradient yarns are not that expensive. This is a good solution, especially if you have to keep an eye on the money or have just started crafting. Apart from that, the global production of natural fibres would not be sufficient to meet the demand for textiles!

Yarns with a plastic content do not usually 1`feel (that's why sock yarns also have a plastic content!) and can be ruffled without any problems, which is hardly possible with yarns with long fibres such as mohair.

Our yarns made of cotton with polyacrylic are also suitable for the vegan lifestyle.

COTTON NYLON



Figure 50

Nylon is a synthetic fabric. It emerged as an important material in the tactical apparel and tactical gear industries just before World War II. Riding nylon to the post position in the race to the top was the DuPont chemical company.

The war years saw nylon begin to challenge cotton for supremacy as the preferred material for garments and other gear. Even so, synthetic fibers like nylon had a long way to go to reach the top. In those days, nylon's share of the market stood at a mere 15 percent or so.

Synthetics gained ground slowly but surely in the postwar era. By the 1960s, nylon (together with the synthetic fiber polyester and a few similar others) accounted for more than 50 percent of the market for not just tactical gear and apparel but for all categories of clothing.

7.CUTTING UNIT

- Take fabric from the fabric store
- Relaxation of fabrics
- Cut order planning
- Fabric Spreading/layering
- Planning markers
- Making markers
- Cutting fabrics
- Sorting, bundling and numbering of garment plies
- Inspecting cut components
- Sorting printed and embroidery panels
- Re-cutting panels
- Fusing garment components

TAKE FABRIC FROM THE FABRIC STORE



Figure 51

The cutting department gets a cut order plan from the production manager. According to the cut plan, the cutting in-charge generates a fabric requirement sheet or requisition slip to the fabric store to issue fabrics.

The fabric receiving process from the fabric store may be done on the same day of the cutting or one day before the cutting schedule.

RELAXATION OF FABRICS



Figure 52

Knitted fabrics require relaxation before cutting. After receiving the fabric from the fabric store, the cutting department opens the fabric from the fabric roll and lays it on the table for relaxation for some hours before cutting. Factories also relax fabric in the fabric store overnight after opening the fabric rolls. This process helps in controlling fabric shrinkage.

The cutting master plans the number of markers they need to prepare, the size combination to be set for each marker and the number of plies to be laid in each marker. Fabric is delivered to manufacturers in large rolls, so the first step in textile production is to unroll it. Depending on the fabric type, factories leave unrolled fabrics to settle for 12 to 48 hours to release the tension they get from being rolled up. Fabric manufacturers need to understand the properties of material types to know how long fabrics should be relaxed. Stretch fabrics, for instance, need a far longer relaxation time than 100 percent cotton fabrics. Too much or too little tension in unrolled fabrics can cause problems later on in manufacturing and impact the measuring and shaping process that is necessary for an accurate cut.

Fabric Spreading/layering



Figure 53

Fabric spreading is the first irreversible process of garment manufacturing where the fabric package is converted into layers of fabric. The fabric package is available in either roll or meter-fold form. The number of layers depends on fabric type, cutting machine type and order quantity. The typical stack height of fabric layer varies from 1 inch to 6 inches. The spreading mode commonly used are face one way/nap one way (FOW/NOW) or face to face/nap either way (FF/NEW, commonly known as zig zag). In FOW/NOW mode, every layer is cut to a pre-determined length, whereas in FF/NEW mode, fabrics are folded at the end of pre-determined length. The spreading mode to be used depends on the visual appearance of motif in the fabric and FOW/NOW is the universal mode that can be used for any type of fabric. It is also the most user friendly and requires least level of mechanization.

The first step of mechanizing the spreading process was the use of roll stand which was kept at one end of the table and two operators pulled the fabric along two selvedge. Although this process of spreading is the most economical and universally used for all types of fabrics, this is not the quickest one.

PLANNING MARKERS

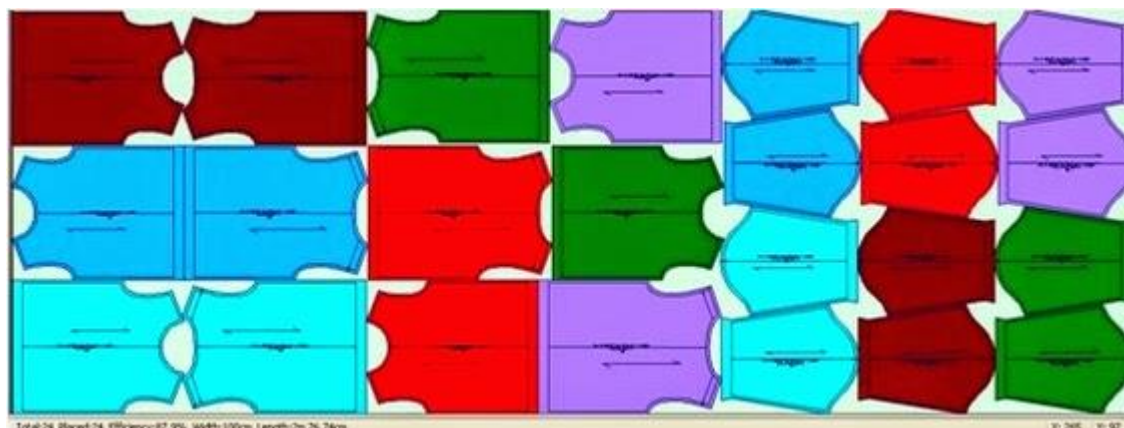


Figure 54

The cutting master plans marker ways, marker lengths and the numbers of plies to be laid in each lay. Marker making means adjusting and drawing according to pattern pieces on the marker paper. Marker planning is the process of plotting all the pattern pieces for all the sizes of a particular

style of garment on a thin piece of paper. The marker planner makes a plan for each pattern and its position on marker paper to ensure better efficiency. It can be done manually or using CAD system. In case of manual marker making time, skill and concentration are required for making an efficient marker. Factories those don't have CAD system perform this process manually. According to Glock and Kunz, "Marker making is the process of determining a most efficient layout of pattern pieces for a style, fabric and distribution of sizes."

MAKING MARKERS



Figure 55

This is a process of making an outline of garment patterns on the lay for cutting garment components. After layering, the marker paper is laid on the top of the layer. Those factories that don't have CAD markers make markers manually using paper patterns.

CUTTING FABRICS

After making the marker, garment patterns are cut and taken out from the layer. Various technologies are used for cutting fabric layer, such as straight knife machine cutting and a computer-controlled automatic cutting machine.

STRAIGHT KNIFE CUTTING



Figure 56

- Consist of a base plate, usually on rollers for easy movement

- A handle for the cutter to direct the blade, and a sharpening device
- Blade length - 4 to 14 inches.
- Induction motor, ¼ HP, 220 volts.
- 2850 rpm. Manual lubrication system.
- Blade holder for the blade to rest.

BAND KNIFE MACHINE



Figure 57

- Comprises a series of three or more pulleys, powered by an electric motor, with a continuously rotating steel blade mounted on them. One edge of the blade is sharpened
- Used when higher standard of cutting accuracy is required than can be obtained with a straight knife
- Blade thickness – 0.45mm.
- Blade width – 10mm.
- Blade length – 3500mm.

COMPUTER-CONTROLLED AUTOMATIC CUTTING MACHINE



Figure 58

- Made up of a table with a cutting surface consisting of nylon bristles
- Nylon bristles support the fabric lay that are flexible enough to permit penetration & movement of the knife blade.
- Nylon bristles also allow the passage of air through the table to create a vacuum, reducing the height of the lay & holding it in place.
- Knife blade is supported on the top.

- The carriage supporting the cutting head has 2 synchronized servo motors which drive it on tracks on the edges of the table.
- The cutting head contains knife, automatic sharper and a further servo-motor which rotates the knife to position it at a tangent to the line of cut on curves
- A sheet of air tight polyethylene covers the top of the lay which assists in creation of vacuum & allows significant compression of the lay.
- A control cabinet to drive the cutter, its carriage & the vacuum motor

SORTING, BUNDLING AND NUMBERING OF GARMENT PLIES:



Figure 59

After cutting the fabric, layers are sorted size-wise and colour-wise. Each ply is numbered using stickers. Bundles are kept on inventory tables, before these are sent to undergo the next process.

INSPECTING CUT COMPONENTS:

To maintain the cutting quality, standard cutting components are checked randomly by quality checkers. If defective components are found, they replace those defective parts.

SORTING PRINTED AND EMBROIDERY PANELS:

As per order requirements, printing and embroidery is done on cut panels. Size-wise sorting is done after receiving printed and embroidered panels. The checking of printed and embroidered panels is also done by the cutting department

RE-CUTTING PANELS:

Re-cutting is done for garment components that require to be replaced in bundles. Re-cutting requests are received from the sewing department for defective garment parts. Re-cutting is also done for block panels cut for the printing and embroidery processes. After receiving garment panels from the printer or embroiderer, these panels are reshaped.

FUSING GARMENT COMPONENTS



Figure 60

Fusing in garment components is done to stiffen parts of a garment. If needed, fusing is done at the cutting section (e.g., fusing of the collar and cuff components of formal shirts).

8.DESIGN

Two types of collection:

- Creative
- Commercial collection

CREATIVE

Creativity is important in design because it can help create unique and innovative solutions to problems. It can also help designers to think outside of the box, which can lead to more interesting and efficient designs. In addition, creativity can help designers stay inspired when working on projects, which can lead to better results.

Creativity is important in design because it allows us to come up with new and innovative ideas. It can help us create more appealing products, and it can also help us find solutions to problems that we may not be able to solve with traditional design methods.

COMMERCIAL COLLECTIONS

- Mass Marker
- Quality fit
- Orifice country, buyer
- Inspirational
- Unique selling price
- Fashion season

MASS MARKER

Mass market is not possible without mass production and thus the sewing machines emerged.

The manufacturing of Sewing Machine was a very gradual inventive step that spanned over an exorbitant amount of time.

It refers to research design, photo types, production, photo types into production.

QUALITY FIT

It is defined type of size, bands, etc....

INSPIRATIONAL

Inspirational people are those who can set a goal and do everything in their power to achieve it. It takes a lot of self-discipline and dedication to one's passions to achieve your goals. Individuals who adopt this trait can use it to empower those around them.

UNIQUE SELLING PRICE

In marketing, the unique selling proposition (USP), also called the unique selling point, or the unique value proposition (UVP) in the business model canvas, is the marketing strategy of informing customers about how one's own brand or product is superior to its competitors (in addition to its other values)

FASHION SEASON

- Spine summer
- Fall winter
- Resort, grace, holiday
- Sneeze spring
- Free fall
- Restart
- Summer
- Winter sale

SUPPLY CHAIN MANAGEMENT

At the most fundamental level, supply chain management (SCM) is management of the flow of goods, data, and finances related to a product or service, from the procurement of raw materials to the delivery of the product at its final destination. It is a concept, design, planning, roto-type production, logistics, distribution and retail etc...

BUYER NAMES:

- Timberland
- Monored
- Billy bandit
- Decathlon

- Soiver
- Hugo Boss
- Dickies
- Billabong
- Ben Sherman
- Aigle
- Oxbow
- Campus
- Gant
- TBS
- Polo
- Lee
- United Colours of Benetton

9.COSTING

Costing is used in the garment industry to establish the financial feasibility of producing a given design within a defined price range, acceptable to the target market. Costing enables the manufacturer to identify the profit potential of the design, aiding in the decision of whether or not a design should be added to the line.

Once a design has been added to the line, costing in the next stage helps in the formation of line budgets and set up a base selling price. Costing also assists in justification of procurement of new equipment or capacity expansion investments.

STAGES OF COSTING

Costing is done at four broad stages in the entire garment manufacturing process:

- **Preliminary or pre-costing** done during the pre-adoption phase of the product development process, i.e., before the samples are made. This gives a rough estimate as to what to expect from the design, based on similar styles. This facilitates weeding out or modification of designs that are too costly for manufacturing.
- **Cost of line adoption** done to determine the expected investment required for the design in materials, labor and overhead. In this stage, the style is broken down into components and the assembly procedures to establish its financial viability and producibility of the design at a specific price point. This is based on the samples and standard data available.
- **Post adoption or Pre-Production Costing**, also known as Detailed Costing or Tech Design Costs, which include detailed costing, based on

specific production methods (machine type, SPI, material handling methods, layout, etc.) and costing standards (in-house standards, PMTS, etc.). It is conducted during the post-adoption stage, prior to the start of actual production.

- **Actual costs**, estimated during and after production. It includes the material and labor costs, compared to the allowed budget for the style. This costing can also be used to force changes in the style to limit the expense to the allocated budget.

PRODUCTS COST

According to Jeffrey and Evans (2011, 8), the three main categories of costs for garment manufacturers are, direct materials — contributing about 50% to the total cost, direct labor — contributing about 20% to the total cost and, overheads — contributing about 30% to the total cost.

Costs:

As the name itself suggests, this cost head consists of all the material costs of the product like fabric, thread, trims, etc.

Labor Costs:

This head chronicles the wages of the employees directly involved with the garment production, like the cutting, sewing and finishing helpers and operators.

Overheads: this section comprises of both the variable and fixed, indirect manufacturing costs. This includes indirect labor costs (managerial labor, service personnel, quality control staff, etc. or the staff not directly involved in product manufacturing), occupancy costs like rent, depreciation, property taxes, insurance, and security; and other overheads like administrative costs, material management (carrying costs), machinery and equipment costs, compliance and regulation costs, etc.

PRICING STRATEGIES

When it comes to garment manufacturing, there are three main costing methods or strategies used, namely, direct costing, absorption costing and activity-based costing (ABC).

Direct Costing:

In this method of costing, only the variable costs like the direct material cost, the production labour costs, and the sales commissions are considered to be a part of the product cost. The fixed costs here are treated as time-period costs. So, using this strategy, it becomes easy to clearly identify individual product costs, and compare each product/style and their level of contribution to the factory's bottom line.

Absorption Costing:

This strategy includes both the variable and fixed manufacturing cost in product costing. Here, the overheads are allocated with an application rate. This application rate is a percentage of the direct labour costs.

Overhead Application Rate = Total factory Overhead ÷ Total Direct Labor Costs (for the given period)

Accurate determination of the overhead application rate is tough and thus often leads to distortion of the actual value of the profit potential of particular products/styles.

Activity Based Costing (ABC):

This is a much more realistic approach than the above two. Every activity creates a cost, and these costs can be associated directly with the product, customer or supplier for which the activity is being done. All the factory overheads here are allocated to activity centers like design, MIS, merchandising, quality and distribution.

10.PRODUCTION

In the garment industry stitching section is considered as production department. Though fabric cutting and garment finishing sections are part of the garment production department. In this post, I will explain the function of production department.

The main function of the production department is stitching garments. But there are many associated activities performed by the production team to run the production floor smoothly. The major tasks of this department are described here but are not limited to these only.

- Style Analysis
- Estimating labour costs
- Planning and scheduling floor level production
- Setting the line
- Stitching garments
- Balancing the assembly line
- Marking parts
- Ironing garment components
- Checking stitched garments
- Stitching alteration
- Managing documentation
- Recruiting operators

STYLE ANALYSIS

The line supervisor analyses the garment construction of the style to be loaded to the line. He calculates the machine requirement for the style, based on the garment construction.

ESTIMATING LABOUR COSTS



Figure 61

Line supervisors calculate the estimated cost per operation. In the piece-rate-production system, the supervisor sets piece rates for stitching operations. Those factories that have industrial engineering departments calculate direct labour costs based on the standard allowed minutes (SAM) to produce a garment.

PLANNING AND SCHEDULING FLOOR LEVEL PRODUCTION

The floor in-charge and line supervisors plan the daily production output. They take information on upcoming orders from merchandisers or the planning department and plan manpower and machine requirements in advance.

SETTING THE LINE

Line supervisors set the sewing line for new orders. Line setting involves the tasks of placing sewing in a sequence, by allocating operators to each machine, giving work to operators and helpers and giving instructions to operators on how to undertake operations and the required stitching quality.

STITCHING GARMENTS

The sewing department stitches garments and makes clothes. Operators sew garments using different types of sewing machines. An operator can be given single or multiple operations to sew.

BALANCING THE ASSEMBLY LINE

To get maximum production from the line, line supervisors balance line by adding additional operator, or by clubbing operations. Read this article to learn about line balancing.

MARKING PARTS

Marking is done on the garment component needed to point a position from where the stitching is to be done. Helpers mark on garment parts as per process requirement by using marking chalk and magic marker.

IRONING GARMENT COMPONENTS

Garment components might need to be folded and ironed prior to stitching to improve seam quality. Portable irons are used for ironing on garment parts.

CHECKING STITCHED GARMENTS:

Garments are checked in line and off the line. The purpose of checking garments is to reduce defect generation from the line. The end-of-line checker segregates defective pieces from the good pieces. Read quality checking procedures in garment production.

STITCHING ALTERATION

After segregation, defective garments are sent back to the stitching section. Seams are repaired by re-stitching. If defects are related to the fabric, part changing is done by replacing the defective component with the correct part.

MANAGING DOCUMENTATION

The department maintains various logbooks and records. The sewing department records the details of receiving cuttings from the cutting department and issuing garments to the finishing department. They make reports of the daily production on a line-wise basis and the manpower used in each line.

RECRUITING OPERATORS

In most factories, line supervisors are responsible for bringing sewing operators and recruiting operators through skill assessment tests.

11.PACKING

NEEDLE DETECTOR 1.0 M



Figure 62

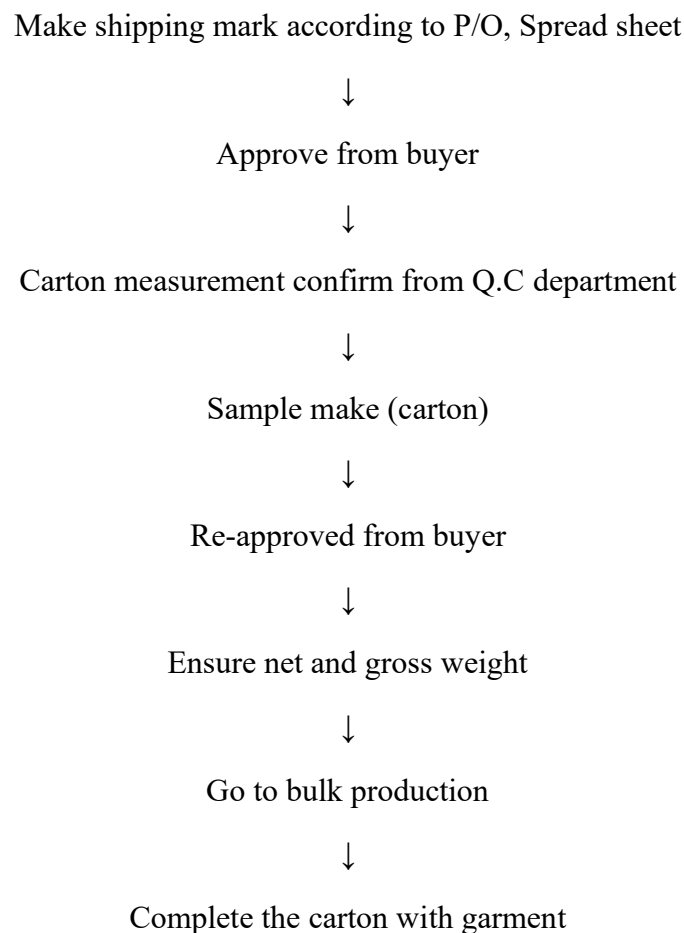
the sample passes through the electromagnetic induction channel of needle detector. After detecting the metal substance, the electronic integrated control system receives the signal, and after processing, outputs an alarm signal and drives the device conveyor belt to return the detection sample. In order to accurately determine the position of a metal object in a large object, a hand needle detector machine is also needed to determine the specific location of the metal object. Unuo metal detector machine for garment industry is also suitable to test shoe as a shoe metal detector.

Undo Instruments is professional needle detector machine supplier and conveyor belt metal detector manufacturer for garment industry, toy, footwear, handbag, leather, paper, plastic and etc.

Packing section:

Packing is part of garment finishing. It is done by the requirement of the buyer. Various types of packing accessories are available in the storeroom such as polybag, packing board, tissue paper, hanger, scotch tape, gum tape, carton, etc. Flow chart of packing section in the garment industry is as follow:

FLOW CHART OF PACKING SECTION IN GARMENT INDUSTRY:



PROCESS SEQUENCE OF PACKING SECTION IS GIVEN BELOW:

Cartons are made according to buyer instruction and lengthwise it contains the buyer's name, width-wise it contains the measurement, net & gross weight. Carton contains the information that is printed by screen print style. In the apparel manufacturing process, fabric is the main raw material. It is impossible to make apparel only with fabric. To make complete apparel different types of secondary materials are used. These secondary materials are known as trimmings and accessories. Accessories are not directly attached to the body of apparel by sewing, only used for finishing and packing purpose. Basically, accessories are used for decorative purposes and trimmings are used as functional purposes.

In every packing section of the garments industry, trimmings and accessories are very important to make apparel aesthetic, functional, and commercially acceptable. Trimmings are used to enhance apparel. It is visible parts of the apparel that can be used to increase hanger appeal, provide product differentiation, and relate to current fashion trends. At the same time, Accessories are used for decorative purposes to be selected and applied to enhance the aesthetic appeal of apparel. In a brief, functional trimmings and decorative accessories are an inevitable part of the apparel structure.

MY WORK



Figure 63



Figure 64

CONCLUSION

This internship thought about the manufacturing processes used in the fashion industry, which is the at the cutting edge of design, innovation and large-scale production. This program helped to gain knowledge about the casual wear industry's raw material sourcing, production, quality control and final product. It offered knowledge on premium clothing of the finest quality in the global market for casual wears. The internship program has shed light on the development. Overall, this internship program gave a lot of knowledge about the structure of the fashion industry, how it operates in accordance with moral principles and how it contributes to the world.

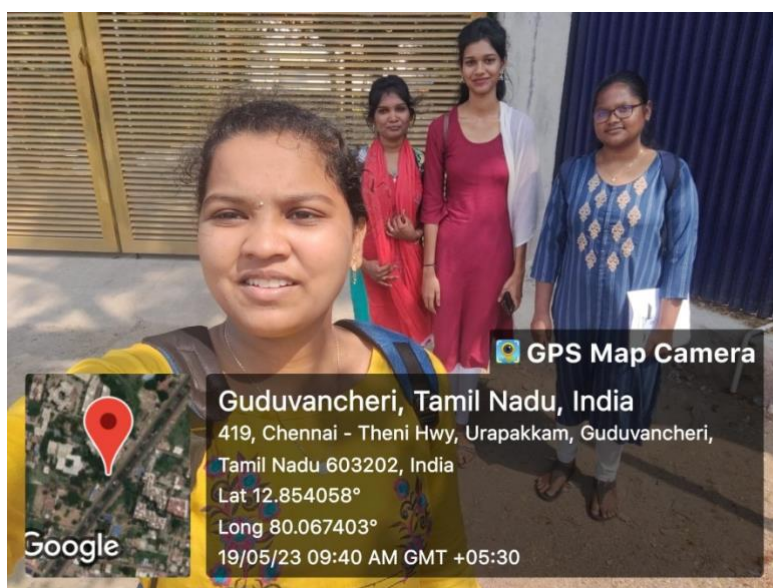


Figure 65

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