

Faculty of Engineering Department Of Textile Engineering

REPORT ON

Industrial Attachment

Urmi Goup

235/B, Bir Uttam Mir Shawkat Sarak

Tejgaon Industrial Area ,Dhaka 1208,Bangladesh.

Course Title: Industrial Attachment

Course Code: TE-410

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This Report presented in partial fulfillment of the Requirement for the Degree of Bachelor of Science in Textile Engineering.

Advance in Apparel Manufacturing Technology

Duration: From 20st January 2017 to 30th March 2018





Acknowledgement

First of all we are grateful to Allah who gives us sound mind & sound health to accomplish **Industrial Attachment** at **Urmi Group** successfully.

We are also grateful to our supervisor **Mst. Murshida Khatun**, Senior Lecturer, Department of Textile Engineering, Faculty of Engineering, Daffodil international University. Her continuous patience, learned direction, continual support, energetic supervision, constructive criticism, valuable advice, reading various poorer draft and correcting these at all step have made it possible to inclusive this project.

We would like to give special thanks to the supervisors, technicians, operators and all other staffs of **Urmi Group**, who were most friendly and supportive to us during internship.

We are also thankful to our all teachers, lab assistant, register sir, coordinators and all the employees of Daffodil International University. We are highly delighted to express our regards & gratitude to honorable Head **Prof. Dr. Md. Mahbubul Haque** for providing his best support to us.

Finally, we would like to express a sense of gratitude to our beloved parents and friends for their mental support, strength and assistance throughout completing industrial attachment.





Declaration

We hereby declare that the work which is being presented in this report entitled, "Industrial Attachment at Urmi Group" Is original work of our own, has not been presented for a degree of any other university and all the resources of collected information for this report have been duly acknowledged.

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Letter of Approval

April 12, 2018
То
The Head
Department of Textile Engineering
102, Shukrabad, Mirpur Road, Dhaka 1207
Subject: Approval of Industrial Attachment Report of B.Sc in TE Program.
Dear Sir,
I am just writing to let you know that this Industrial Attachment in "Urmi Group" has been prepared by the student bearing ID 142-23-3874,142-23-3877 and 142-23-3935 is completed for final evaluation. The whole report is prepared based on the proper investigation and information in Urmi Group. The student were directly involved in their industrial attachment report activities.
Therefore it will highly be appreciated if you kindly accept this industrial attachment report and consider it for final evaluation.
Yours Sincerely
AD 12
36 / 36 - 1 1 77 /
Mst. MurshidaKhatun





Senior Lecturer,

Department of Textile Engineering

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Chapter-1 Executive Summary





1.2 Executive Summary

This report presents a conception of Textile sector especially of a knit composite industry and tries to clarify the overall processes required to complete a garment. Two months long training is not enough to capture all the information related to but it is possible to overview of all the departments. Urmi Group is a part of Fakhruddin Textile Mill Ltd.

Where we try to gather information about all the departments. The factory has a nice system for the internship students that are the training schedule provided by the authority. There are several departments in Urmi Group among them Cutting, sewing ,finishing are the major ones. There are also other departments those act as supporting of them. It describes about the activities of each departments and the relation among the departments. Training schedule is prepared in such a way that helps a learner to know that to produce a garment which department works first and correspondingly which works at last. This paper includes from where order is received and to where it is supplied and how a large scale of products is produced within a very short period of time. Different types of order are running on the same time on a same floor with different types of garments from several buyers. But there is no miss match of any product except some cases which are removed by inspection. This paper concludes by identifying some important information about different department that help the factory to grow up quickly with large amount of profit with environment friendly technologies. This report may be a guideline for other small industries to become large in size and for students or other people to learn a little about a knit composite industry without visiting. We have started our 2 months internship in 20th January 2018 and have successfully completed in 30th March 2018.





Chapter-2

Information about Factory



Figure: Urmi Group





2.1 Basic Information

2.1.1 Company Name & Address

Ghargaria MasterBari, Kewa, sreepur, Gazipur, Bangladesh

2.1.2 Head Office Address

235/B, Tejgaon Industrial Area, Dhaka-1208, Bangladesh

2.1.3 Date of Establishment

1984

2.1.4 Founder and Directors

Founder: Shamsul Alam

Chairmen: Ashfaque Ahmed

Managing Director : Asif Ashraf

2.1.5 History of the Group

Inception of Urmi Group Dates back ton1984 when Urmi Garments Ltd. was set up. Today they are one of the leading manufacturers & exporters of knit garments in Bangladesh. Over the last Two Decades, by offering the best blend of quality, efficiency and productivity to their valued customers. Urmi Group now operates in a facility of 20,000 square feet having more than 90 production line and more than 8000 people working relentlessly to keep the wheel moving. We have a capacity of producing 150000 pcs per day. We have also 2200 units of sewing machine, 160 units of iron, 4 units of boiler and 5 pcs of generator. We also have two leased factories.





2.1.6 Compliance Certifications

Urmi Group realizes the importance of adapting to changes in external environment and keeping the workplace safe and enjoyable for employees to be motivated and productive. Compliance certifications include

- ➤ H&M
- > BSCI
- **≻** WRAP
- ➤ OEKO-TEX

2.1.7 Sister Concerns

Fakhruddin Textile Mill Ltd

Urmi Group Ltd

Attires Manufacturing Co.Ltd

2.1.8 Export growth

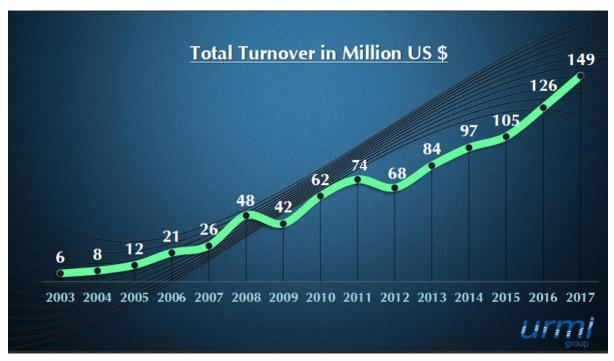


Fig 2.1: Export growth graph





2.1.9 Export Share in 2017



Fig 2.2: Export Share in 2017

2.1.10 Export By Region 2017



Fig2.3: Export By Region 2017





2.2General Information

2.2.1 Layout

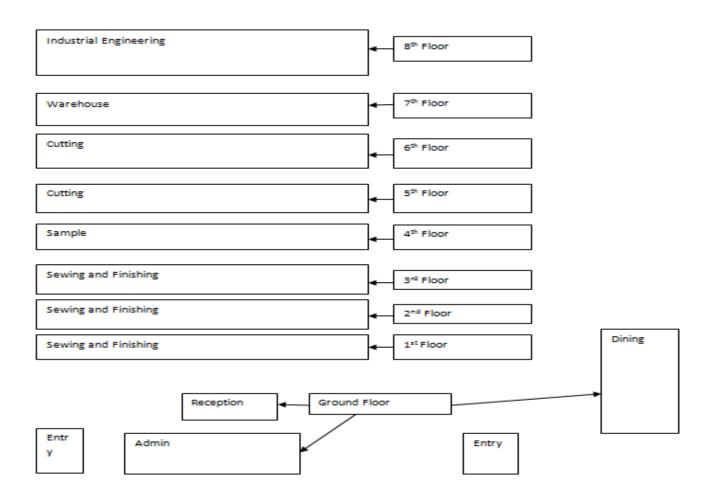


Figure: 2.4 Factory layout





- **2.2.2 Total Area-----**20,000 sq. feet
- **2.2.3Total Building-----**5
- **2.2.4 Production capacity**-----(6-7) lakh/month.

2.2.5 Major Buyers with Their Logos

Buyer Name	Logo
M&S	5M8S
H&M	HaM
Puma	PUMA
s.Oliver	s.Oliver
Next	next
FULLBEAUTY BRANDS	EULLBEAUTY BRANDS







Table: 2.1 Buyer of Urmi Grouop

2.2.6Transport Facility

Office Stuff: Bus, Car

Product: Cargo van





2.3 Human Resource & Organization Structure

2.3.1 Organogram

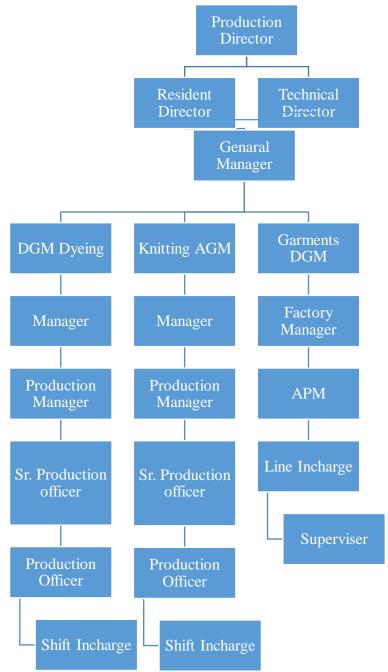


Fig 2.4 Factory organogram





2.3.2 Total no. of Department

07

2.3.3 Name of Department

- I. Store section
- II. Sample section
- III. Cutting section
- IV. Sewing section
- V. Finishing section
- VI. IE section
- VII. Merchandising

2.3.4 Product

All types of knit items for men, women, kids such as T-shirt, pant, underwear Sweater etc.

2.3.5 Total no. of employee: Almost 2000

2.3.6 Total salary: 35 million taka

2.3.7 Vision and Mission

Vision

To become a truthfully worldwide dealer that provides a sustainable growth opportunities for its customer and its employees, whilst achieving its goal of becoming the number one value style dealer across the world.

Mission

- ➤ Be a market boss in the field of value global supplier of RMG.
- ➤ Deliver excellence fashionable products at reasonable prices.
- ➤ Be original, cost valuable and globally competitive.
- ➤ Fulfill our customer's prospect
- ➤ Provide opportunity for growth for our human resources.





Chapter-3

Details of Attach





3.1 Store section

3.1.1 Function

- > Store the materials for order
- > Issue and supply the materials to production unit
- > Prepare Inventory report



Fig3.1Store section

3.1.1 Fabric Store

- After receiving fabric for each order then numbering different shade of color of the fabric role.
- > Locally and Imported fabric is stored.





- > Mostly imported fabric comes from India.
- ➤ Different types of fabric like 100% cotton single jersey, Terry, Fleece & spandex etc.



Fig3.2: fabric store

3.1.3 Fabric Relaxation Procedure

- ➤ 100% cotton single jersey and terry Minimum 12 hours
- ➤ Single jersey cotton 5% Spandex &rib
 Minimum 24 hours
- ➤ Fleece 100% cotton
 Minimum 16 hours
- ➤ Fleece Polyester/ cotton Minimum 12 hours







Fig3.3: Fabric Relaxation

3.1.4 Accessories Store



Fig3.4: Accessories Store





3.1.5 List of Accessories

Main	lahel
mani	lauci

- ➤ Care label
- > Size label
- > Threads
- > Twill tape
- ➤ Hanger sizer
- ➤ Hanger loop
- > Price sticker
- > Tissue paper
- Snap button
- ➤ Hang tag
- ➤ Hanger

- > Elastic
- Zipper
- ➤ Hit seal label
- > Carton
- ➤ Poly
- > Rope
- > Button
- ➤ Garment Marking Chalk
- ➤ Lock pin
- Poly sticker
- ➤ Gum tape
- > Eyelet

Table 3.1:List of Accessories



Fig3.5: Different type of Accessories





3.2 Sample Section

3.2.1 Flow chart of Sample procedure

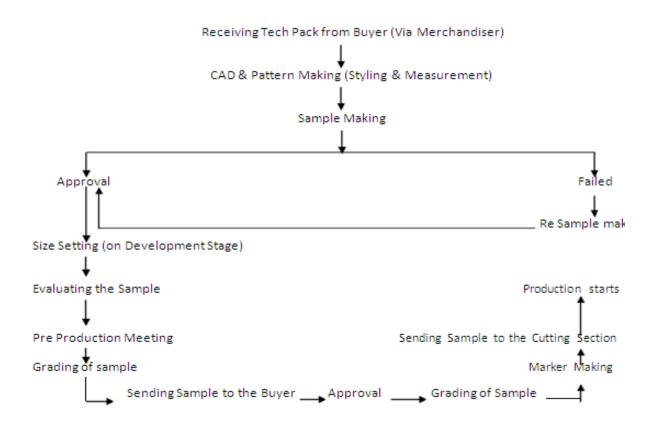


Fig3.6: Flow chart Of Sample section

3.2.2 Pattern Making

Pattern made by Lactra software. First pattern made in computer then it is automatically make pattern in pattern making table by computer instruction. Grading are also included here.





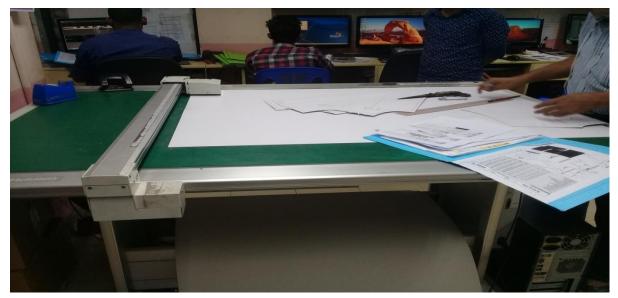


Fig 3.7: Pattern

3.2.3Marker: After grading marker make in computer. In this process fabric wastage is reduce.

There are five types of marker made by this software.

- I. Solid marker
- II. Step marker
- III. All Garments one way marker
- IV. One Garments one way marker
- V. Group marker

Key factors during marker making

- > Fabric width must be higher than marker width
- > Fabric length must be higher than marker length
- ➤ Allowance must give in end and selvedge minimum 1"
- > Grain line must be parallel to the line Wales in knitted fabric.







Fig3.8: Marker

3.2.4Sample Making

Sample making is the ultimate goal of this department. After making the pattern, the sample is made by using the pattern set.



Fig 3.9: Sample section





3.2.5 Machine in sample room

- > Plain machine
- > Oveerlock machine
- > Flatlock machine
- > Button hole machine

3.2.6Types of sample & their uses

Serial no.	Sample	Use
01	Proto/ Development Sample	To convert the pattern into actual garment.
02	Size set/ Grade/ Fitting Sample	To fit the styling of the garment.
03	Additional Sample (White Only) Magazine. Photo shot) garment on the rack.	All these Samples are made to show the garment of the rack
04	Contract Seal/ Seal Sample	To gain approval before the bulk Production.
05	Pre Production (PP) sample	To gain approval before the bulk Production.
06	Production Sample	To gain approval for shipping the garment.
07	Sales Man Sample (SMS)	To gain approval for bulk production
08	Rack Sample	To show the garment on the rack.

Table 3.2: Types of Sample

3.3 Cutting Section

Pattern received from pattern department

1

Cutting ratio received from merchandiser

 \downarrow

Marker making





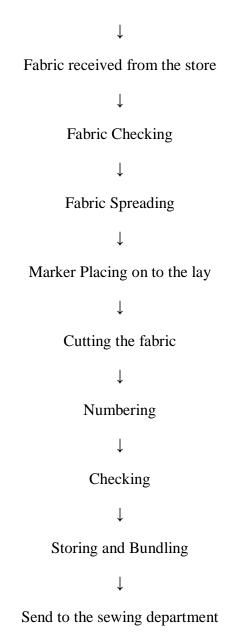


Fig3.10: Flow chart of Cutting Section

3.3.1Spreading

Fabric spreading is the part of apparel manufacturing process. Fabric spreading is done after marker making. Spreading of fabric can be defined as the smooth laying out of the fabric of specific length and width. The marker is laid on the top most layer of the fabric. Cutting





operation is done after completing fabric spreading. Cutting performance depends on fabric spreading. Spreading is done manually



Fig 3.11: Fabric Spreading

Requirements of Fabric Spreading

- ❖ Alignment of fabric ply,
- ❖ Correct ply tension,
- ❖ Fabric must be flat,
- Elimination of fabric defects,
- Correct ply direction and lay stability,
- **\$** Easy separation of the cut lay into bundles,
- * Avoidance of distortion in spreading,
- ❖ Matching the shade of fabric





3.3.2 Cutting M/c



Fig 3.12: Cutting M/c

Parts of Cutting Machine with Their Functions

- i. Plate: To stand the machine and help to move the machine.
- ii. Feed: To hold the layer of fabric by pressure.
- iii. Knife: To cut the layer of fabric precisely.
- iv. Handle: To help to move the whole cutting machine according to design.
- v. Power switch: It is used to run and stop the machine.
- vi. Oil box: To supply oil or lubricant to the machine parts.
- vii. Motor: To give reciprocating motion to the knife for cutting.





viii. Sharpening device: To make sharp the knife edge when required.

M/C Specification

Model: BLUE STREAK II

Manufacturer: Eastman machine company

Type: Straight knife

Origin: USA

Blade Length: 12"

Blade Width: 1.5 cm

Blade Thickness: .5 mm

Function: cutting fabric layer according to maker

3.3.3 Points Should Concern Fabric Cutting

- > During Cutting operator must be used metal gloves.
- Precision in cut i.e. the dimension of pattern and fabric parts is cut should be same.
- ➤ The cut edge must be cleaned.
- > Infused edge.
- > Consistency in fabric cutting.
- > Support of lay.





- ➤ Drill hole and size should be appropriate and it will be placed in its right place. If it is too large it would be seen after sewing. But if it is too small then it can be blocked easily.
- > Should position the pattern pieces on the fold or on the grain line as indicated.
- Without shoe operator should not use cutting machine.
- Mask must be used during cutting.

3.3.4Lay Height

- ➤ Single jersey/ spandex/ interlock: Maximum2-2.5"
- ➤ Single jersey/Cotton & Others: Maximum 3-4"
- ➤ Fleece Maximum 4-4.5"
- ➤ Mesh/Dazzle: 2"

3.3.5Cutting Table Specification

- ➤ Total Cutting Table: 5 pcs
- ➤ Table Height: 33"
- > Table Width: 97.5"
- > Table Length: 840"

3.3.6Wastage during Cutting

- > Ends of ply losses.
- > Selvedge loss.
- Loss of fabric in roll.
- Loss for fabric defect.





3.3.7 Manually Cutting



Fig 3.13: Manually Cutting

3.3.8 Reject Part Replacement



Fig 3.14: Reject part Replacement





3.3.9 Numbering



Fig3.15: Numbering

3.3.10 Quality Check in Cutting Section

Here they check fabric fault and cutting fault manually.



Fig3.16: Quality Check







Fig 3.17: Defect Swatch Card

3.3.11 Different type of Fabric Fault

Fault Name	Picture	Causes
Hole		 Yarn feeder badly set Yarn breakage Yarn running tension is too high
Set-off		 Yarn breaks before the yarn feeder Yarn package winding faults,





Oil spot	* *	When oil licks through the needle to the fabrics
Sinker mark		Sinker head bend
Needle line	4 4	Caused by bend needle
Yarn contamination	→ ←	Count mixing occurs
Dust knit	→ ←	Dust on the machine part





Star mark	 Yarn tension variation during production Due to damage of needle latch
Fly	When lint is too much flying during fabric production
Needle mark	Needles are not cleans.Use of defected bent needle.
Thick & Thin Places	 It causes due to yarn problem. If thick & thin places remain in yarn. Tension variation

Table3.3: Fabric Faults





3.3.12 Fabric Inspection Process

Four point system

Defect size	Points
3 inch or less	1
3 to 6 inch	2
6 to 9 inch	3
Over 9 inch	4
All hole	4

Table 3.4: Four point system

28 points p	er 100 square yards is acceptable
	Points count x 26 x 100
Formula=	
	Roll length 9 (yds.) x Fabric dia (inch)





3.4 Sewing Section

3.4.1 Process

Product analysis \downarrow Set up target for production Set up machine layout on the basis of target Set operator layout on the basis of target Qc check of product Line balancing \downarrow Line set up \downarrow Distribution all the processes \downarrow Cutting parts distribution to the operator and helper \downarrow Complete parts making individually Online Qc check





 \downarrow

Counting output and checking with the target

 \downarrow

Final quality check (for each Garment)

Fig3.18:Flow chart of Sewing Section

3.4.2 Different Type's Machineries with Application in Sewing Section

Machine Name &	M/c Picture
Application	
Plain M/c	
Application:	Modeled Designation 25% of a service of the service
Bottom hemming	
Belt making	brother
Loop tack stitch	
Pocket joint stitch	
Zipper joint	
Neck top stitch etc.	





Over Lock

Application:

Neck piping

Sleeve piping

Sleeve joint

Side seam etc.



Button Attaching

Application:

To attached button in garment



Flat Lock m/c

Application:

Sleeve hem

Leg hem







Fusing Machine

Application:

For interlining



Heat Seal M/c

Application:

Attached main label with garments



Button Hole M/c

Application:



Table3.5:Sewing Machineries





3.4.3 Machine layout (T-shirt)

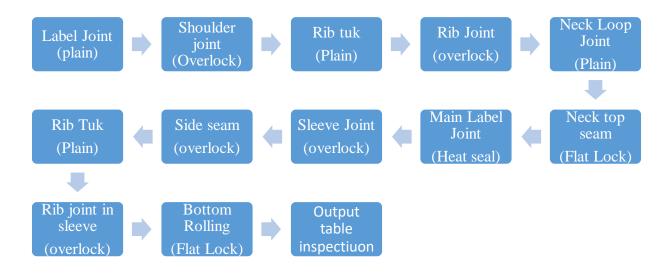


Fig 3.19: Machine layout (T-shirt)

3.4.4Machine layout (legging pant)

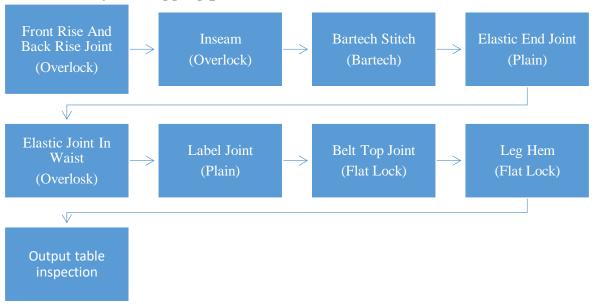


Fig 3.20: Machine layout (Legging-shirt).





3.4.5 Line Target/Hour

In this garments machine cost per day \$40

Cost per machine * Number of machine per product in line = Total cost

CM cost / dz. Of garments
-----= = CM cost/pcs

12

\$6.6
-----= \$.55

Total cost

12

----- = production/day

CM cost/pcs

840

----= 1528 pcs / day,

.55

In garments section daily 10 hours is available.





So that, target production of that product= 1528/10

Target =153 pcs/hour

3.4.6 Quality control in sewing section

Sewing defects

- ➤ Needle damage
- > Skipped stitch
- > Seam pucker
- > Wrong stitch density
- > Uneven stitch
- Defected stitch
- ➤ Oil spot

Seaming defects

- > Uneven width
- > Uneven seam line
- > Not secured by back stitch
- > No matching of check or stripe
- ➤ No matching of seam
- > 4 point check





3.5 Finishing section

3.5.1 Process and their Function

Process Name & Function	View
Thread Checker Function: Remove loose thread from garments part.	
Ironing Function: Create a shape of garments	





Side Check

Function:

Check defect in both side of garments



Measurement check

Function:

Check measurement according to buyer requirement







Hang Tag Attach

Function:

Hang tags are attached with a garment, such as,

- a) Price tag
- b) Tag of garment type

These hang tags are attached with garment either by hand or by hang tag machine.



Needle detector check

Function:

It identifies needles in garments if have.







Folding

Function:

Pressed garments are folded in a specific dimension. This work is usually done by women labors.



Poly

Function:

In this section garments are packed in poly.



Cartooning

Function:

In this section garments are assorted in different size and color in a ratio.



Table 3.6: Finishing Process





3.6 Industrial Engineering Department

3.6.1 Industrial Engineering & Planning

The main function of this department is to re- engineering the garment from the sampling stage so that it would be production friendly for the production as well helps to increase the productivity through machine layout, time and motion study.

In the sewn products industries we must continually ensure that we remain competitive and profitable whilst also striving to improve our personal and community's standard of living.

Productivity improvements may be achieved through:

3.6.2 Industrial Engineering Department

- To follow up the production process
- Work process development
- SMV calculation & Line target
- Efficiency control
- Time study
- Capacity study
- Workers training
- M/C sequence lay out
- Thread consumption

3.6.3 Duties and Activities of a Work Study Officer

- Style details collect
- SMV calculation





- Layout make
- Machine arrange
- Attend P.P meeting
- First week production plan
- Line feeding
- Work aid arrange
- Method studies (innovation) & takes video & record
- Time study
- Line capacity find out
- Bottle neck operation find out
- Individually follow up bottle neck operation and try to increase production
- Capacity & efficiency wise target setting & try to achieving Line balancing

3.6.4 Line balancing

Line balancing is the allocation of sewing machine according to style and design of garment. It depends of that what type of garment we have to produce.

3.6.5 Qualities of an Industrial Engineer

- 1. Good knowledge about fiber, yarn, fabric, dyeing, printing, finishing, dyes, color fastness, garments production, etc.
- 2. Clear conception of the usual potential quality problems in the garments manufacturing.
- 3. Good knowledge of the usual raw materials inspection systems & garments inspection system
- 4. Clear Knowledge on the planning of garments product.
- 5. Clear knowledge about operation breakdown of garments product.
- 6. Clear knowledge about layout of garments.
- 7. Order getting ability
- 8. Sincere& responsible
- 9. Hard worker





3.7 Merchandising Department

3.7.1Work Done by Merchandising Department

- > Buyer searching
- Costing and consumption
- > Order receive
- > Prepare TNA
- > Fabric and accessories booking
- > Follow up lead time
- > Production follow up
- > Delivered good at right time and right quantity

3.7.2 Calculation of Knit Fabric Consumption (T-shirt)

Body fabric consumption per dozen, (all measurements in cm)

$$= \frac{(Bodylenght + Sleevelength + Alowance) * (\frac{1}{2}chest + alowance) * 2 * GSM * 12}{10000 * 1000}$$

+ Wastage%

Neck Rib Consumption:

Width = Neck width x + 2 + 2 cm (Round)

Total Height = Rib Height X 2 + Allowance

Points for consumption

- > Types of fabric and fabric GSM will be confirmed by the buyer.
- For body length and sleeve length, approximate sewing allowance should be needed at body hem, shoulder joint, sleeve hem and armhole joint.





- For chest width, approximate sewing allowance should be needed at both side.
- ➤ And approximate fabric wastage in various stages is 5 to 15%.

3.7.3 Costing of a Basic T-shirt

Total fabric consumption = 2 kg/dz.

Actual fabric consumption = 2 + (13% process loss + 5% cutting wastage)

= 2.38 kg/dz.

Yarn cost ----- \$2.7/kg

Knitting cost-----\$.2/kg

Dyeing cost-----\$1.7/kg

Total-----\$4.6/kg

Others

CM (cost of making) -----\$ 6.00

Accessories cost ------ \$ 3.50

Chest print -----\$ 2.00

Lab test -----\$ 1.00

Others cost-----\$2.00

Total -----\$13.50

In total cost /dz. = $(\$ 4.6 \times 2.38) + \$ 13.50 = \$ 22.7/dz$.

Buying house (%) + profit % = 5% + 10%





= 15%

Now cost of a t-shirt= (\$22.7+15%) / 12

= \$2.18

3.7.4 Printing

We saw different type of printing in Merchandising department.

They use 2 type of printing m/c. One is Flat Bed Screen Printing Machine and others is Rotary Screen Printing Machine.

Different types of Printing

Printing Name	Picture
Rubber Print	
Pigment Print	





Photo Print Puff Print Pearlesent Print





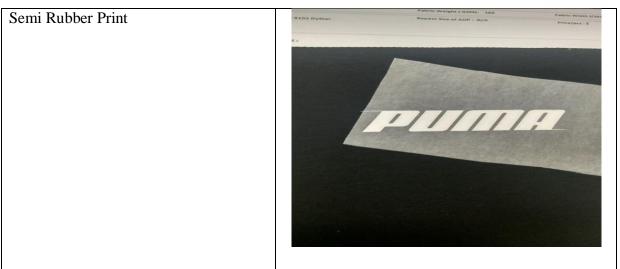


Table3.7: Printing

3.7.5 Seamless Garments

We also saw seamless garments in Merchandising department. Seamless means without sewing or seam by seamless knitting m/c. It produce tube shape of garments.

- > It is very comfortable and highly demandable garments.
- ➤ It is reduce wastage of fabric.
- ➤ It is also reduce man power because here cutting and sewing in not needed.
- > But price of this garments is very high.



Fig3.21: Seamless Garments





Chapter 4 Impact of Internship





4.1 Store Section

In store section know about fabric store, fabric relaxation process. We also saw different type of accessories .

4.2 Sample section

In Sample Section we have learnt about various kinds of sample and also function of sample. Cleared the conception about different types of sample are required to produce a garment.

4.3Pattern & Marker Section

In CAD & Marker Section we have learnt about making pattern and marker, grading by manually or by computer.

4.4 Cutting Section

In cutting section we have learn about spreading, cutting and numbering system by cutting m/c and manually.

4.5Sewing Section

In sewing section, we practically saw different types of sewing machine. We saw the workers activities, their work culture, time table and their work efficiency which is calculated by their performance.

4.6Merchandising Section

In merchandising we have learnt how to face a buyer and negotiation of a buyer and negotiation of a buyer to convince collect on an order. Analysis of order in the requirements of a buyer and calculate profit and loss of manufacturing of garments. We have learned about CM (cost of manufacturing process).

4.7IE Section

In IE department we came to know about different types of sewing thread consumption, IE engineers working activities, there working procedure, responsibilities etc.





Chapter -5 Conclusion





5.1 Conclusion

Industrial attachment is a most important and essential part for completing B.Sc. program in textile engineering. Actually there is large difference between theoretical knowledge and practical knowledge. Industrial training is an essential part for textile education because it minimizes the gap between theoretical and practical knowledge. This industrial training increases our knowledge though a lot about textile technology. It also helps us to know a lot about industrial production process, machineries, industrial management etc. It made us suitable for industrial life. It is also gives some experience to prepare us for the expected or destiny in future.

Overall we can say industrial training would be helpful in future progress.

5.2 Limitations

- > Two months is not enough time to complete industrial attachment. If we get more time we will know lot and complete it more effectively.
- ➤ In here garments section is so small.
- ➤ Some operation is controlled of garments section by head office. Like Merchandising.
- ➤ All operators cannot provide full or right information.
- > It is not possible to reporting full information for some limitation. So, we try our best to summarize all the information.