Department of Textile Engineering

Faculty of Engineering

Course Title: Industrial Attachment

Course Code: TE 431

A report on Ripon Knitwear Ltd.

Submitted by

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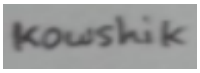
(A report submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Textile Engineering)

Advance in Wet Processing Technology

Fall-2019

DECLARATION

I hereby declare that, this internship has been done by us under the supervision of **Tanvir Ahmed Chowdhury**, Assistant Professor, Department of Textile Engineering, Faculty of Engineering, Daffodil International University. I also declare that neither this report nor any part of this has been submitted elsewhere for award of any degree or diploma.



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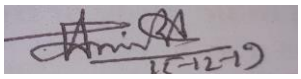
Letter of Approval

The internship report on **Ripon Knitwear Ltd.** is prepared by **Kowshik Das** of bearing **ID: 152-23-4324**. This report is submitted in partial fulfillment of the requirements for the degree of BACHELOR OF SCIENCE IN TEXTILE ENGINEERING. The whole report is prepared under my supervision and guidelines. During the internship the student was found sincere, punctual and hard working. I wish him every success in life.



Tanvir Ahmed Chowdhury
Assistant Professor
Department of Textile Engineering
Faculty of Engineering
DAFFODIL INTERNATIONAL UNIVERSITY

ACKNOWLEDGEMENT

At first, gratefulness goes to Almighty Allah who gave me the strength and ability to complete the industrial training and this report. Now I would like to take this excellent opportunity to thank a lot of people who have assisted and inspired me in the completion of my training period.

Tanvir Ahmed Chowdhury, Department of Textile Engineering, my supervisor to whom I am extremely indebted for his tremendous support and guidance throughout my training period. Being working with him I have not only earned valuable knowledge but also inspired by his innovativeness, which helped enrich my experience to a greater extent. His ideas and way of working was truly remarkable.

I would like to thank the management of the **Ripon Knit wears Ltd**. For giving me the opportunity to work on different sections and helping me in every possible way. My deepest appreciation goes to **Mr. Jahirul Islam** (GM Dyeing & Knitting), and **Md. Ahad Mia** (Dyeing Manager) of **Ripon Knit wears Ltd**. Without their permission and help my industrial training would be uncompleted. Special thanks to them for providing the required data and also for guiding in a profound way to complete our industrial attachment.

Finally, I must acknowledge with due respect the constant support and patients of my parents and Teachers.

DEDICATION

This Internship report is DEDICATED to my beloved PArents & respected TEAchers

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CHAPTER-1

EXECUTIVE SUMMARY

CHAPTER 01
EXECUTIVE SUMMARY

The industrial attachment is the most effective way for textile engineering student to be achieved the knowledge about the practical field of the textile manufacturing. It brings an opportunity to all the learners to enrich their academic knowledge by practicing with the experts of the practical field of textile.

Textile and garments sector is the biggest and fastest growing sector in Bangladesh. Among this sector, knit garment is growing very rapidly due to smaller investment requirement, greater backward linkage facility and higher profit than woven garments. That's why export of knit garments is increasing steadily for last few years and up to now.

It is my pleasure that I had an opportunity to complete my two month internship at **Ripon Knit Wears Ltd. (Ripon Group)**, which is one of the most modern industries of the country.

Ripon Knit Wears Ltd. (Ripon Group) is one of the major knitting and garments manufacturing organization in Bangladesh. This organization increasingly reducing its rejection and rework rate in-process and final garments in order to ensure product quality and delivery time as per buyer requirement and increase profitability. **Ripon knit wears Ltd. (Ripon Group)** will ensure sufficient training and suitable work to increase productivity and skills for the employee. Textile education can't be completed without industrial training. Because this industrial training minimizes the gap between theoretical and practical knowledge and make accustomed to industrial environment.

In this report I am trying to cover a short profile of **Ripon Knit wears Ltd. (Ripon Group)** and major customers of this industry and their different activities.

CHAPTER-2

INFORMATION ABOUT FACORY

2.1 Introduction

Practical knowledge is very much essential for the education of textile engineering and technology. Practical knowledge makes us capable and perfect to apply theoretical knowledge in practical life. The textile sector has the capability to offer a complete product range for the export textile markets. The goal of the textile sector is to become the preferred partner for sourcing high quality fabrics and clothing from Bangladesh. With highly advanced technology and an emphasis on developing local human resources.

That is why B.Sc. in Textile technology course is extruded over four years followed by two months industrial training in mills. It is attached to my study curriculum to achieve adequate practical knowledge and develop adoption power with industrial environment.

I prepared this attachment in H.R Textile Mills Ltd. (Pride Group), which is a hundred percent export oriented knit composite industry. It is fully approved by several multinational inspection firms.

2.2 General Information of the company:

Name of the Company: Ripon Knitwear Ltd.

Sister concerns: Ripon Group

BGMEA Reg. No: 4629

Membership Certificate: BGMEA, Oeko-Tex

Date of establishment: May, 2008

Factory Type: Knit

Address: House# 29, (2nd floor), Road# 17 Block# E Banani, Dhaka-1213, Bangladesh

Head Office: Jarun, Konabari, Gazipur, Bangladesh.

Total land area: 1, 00, 000 sq feet

No. of Employees: 280

Total Workforce: 1,000

No of Machines: 185

Per day Capacity:

800000 pcs per day (for T-Shirt)

500000 pcs per day (for Trouser)

600000 pcs per day (for Jacket/Polo Shirt)

Production Capacity: 5,10,000 (Yearly in dozen)

Principle exportable products: T-shirt ,Polo Shirt

2.3 Location layout

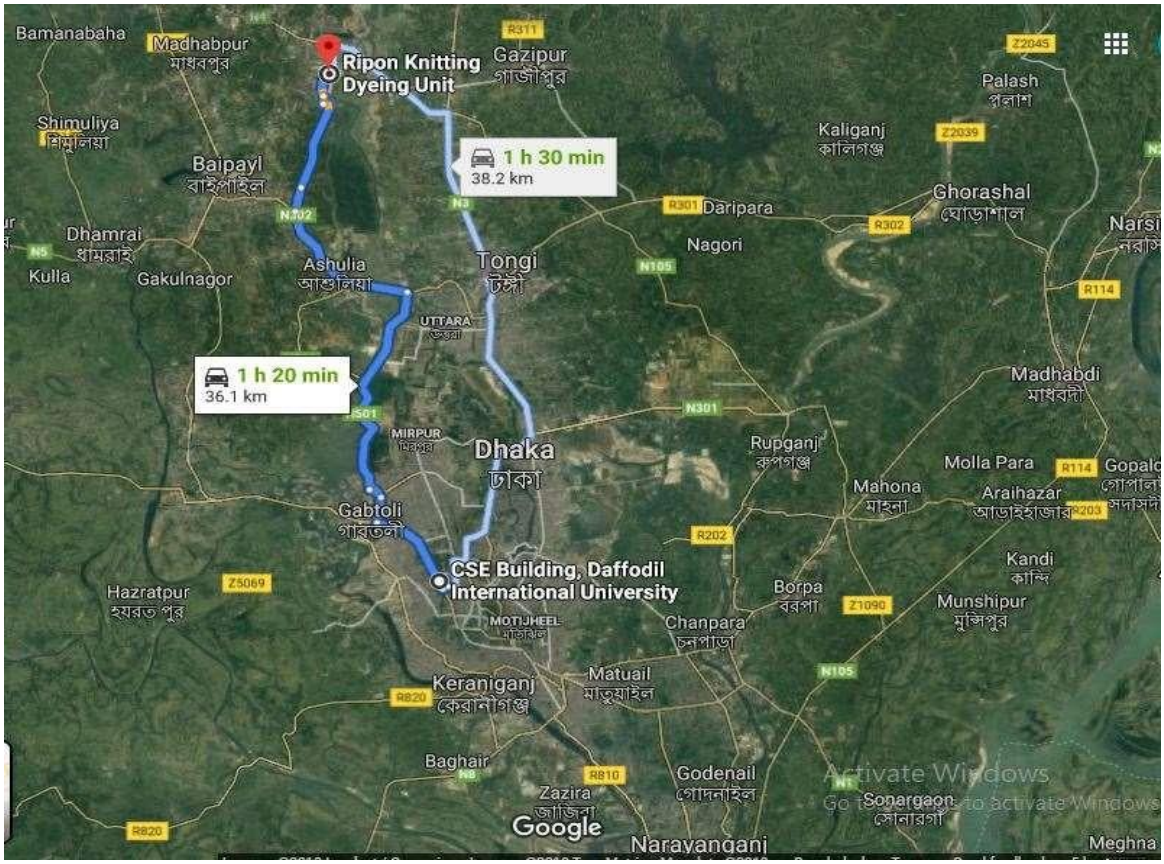


Figure: 2.3 Location layout of Ripon Knitwear Ltd.

2.3 Factory layout

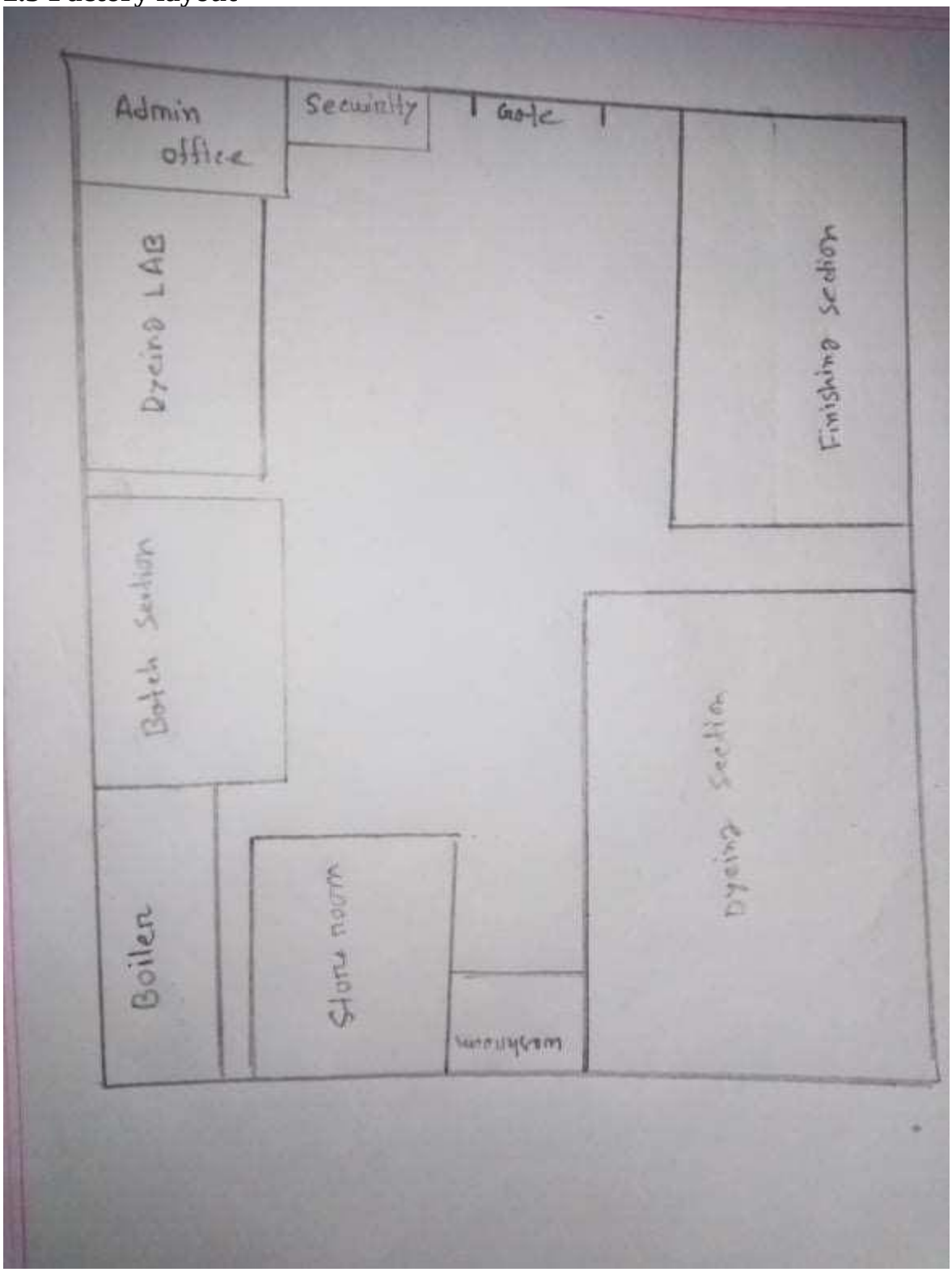


Figure: 2.3 layout of Ripon Knitwear Ltd

2.4 Different section of the company:

Ripon Knitwear LTD. (Garments)

Ripon Packaging Ind. (pvt) LTD

Ripon Traders.

Mumu Packaging & plastic Inds.

Aranna Auto Packs LTD.

Ipsha Print & Embroidery.

Supporting Department:

Higher Management & Management

Administration

Printing

Quality

Marketing

Packaging

Maintenance

2.5 List of Buyers:

Origin	**Buyer**
USA	Gildan, New Port Blue, Lord Daniel
UK	Primark, Bhs, Henbury, Next, TK, MAX, Scottie, Arcadia
Germany	Kappa, Lidi, Disney, Aldi
France	Gosport
Italy	Geox, Goodyear, Clayton, Martes, Martes, Jetfeel, Olympias

Spain	ZARA
Ireland	Dunnes Store
Serbia	Umbro

Turnover:

Vision: To mature into a highly reputed manufacturer of garments in the international market by producing top quality product which conforms & surpasses the customer expectation.

Mission: To become one of the leading garments manufacturer in Bangladesh in every aspect of its business & in delivering its obligations as a good corporate citizen to its customer, employees, owners, Public & the environment.

To get these objectives, the management of **Ripon Knitwear Ltd.** To take the following-

To the customer & surpasses the customer expectation

To improve productivity.

To development of employees to meet future challenges.

To improve the awareness regarding customers specific requirement.

To know customers conception about their company and collect their feedback regularly and to take appropriate action in timely.

To minimize rejection rate.

Monitor ISO 9001:2008 quality management system.

Production of export quality Knit.

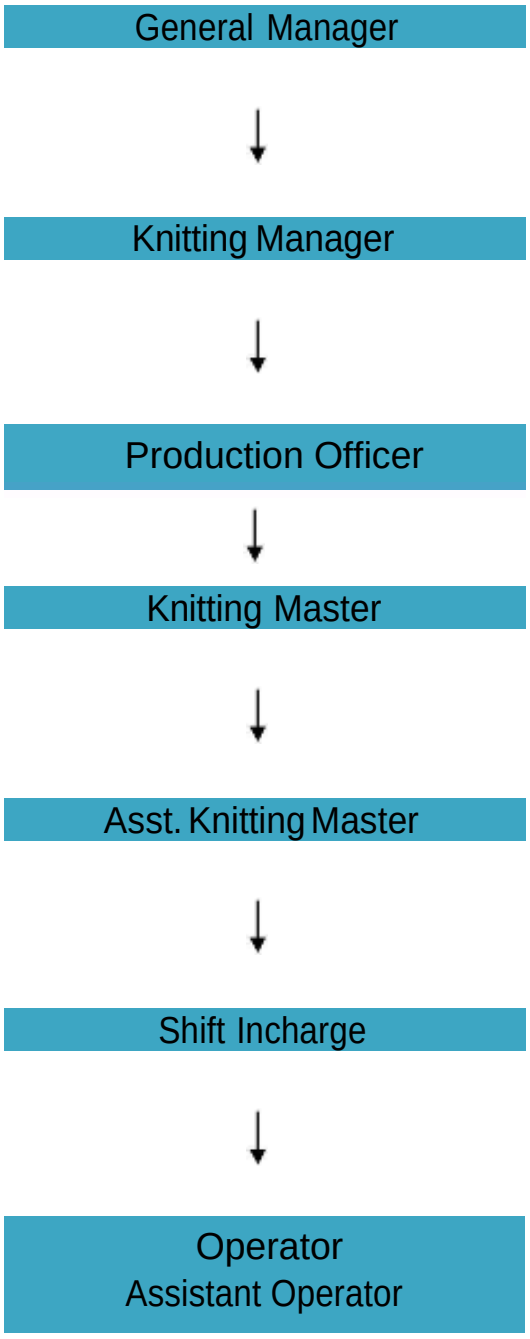
To conduct random inspection based on 4 point system.

CHAPTER-3

DETAILS OF THE ATTACHMENT

Knitting Section

3.1 Organogram of Knitting section



3.2 Knitting Section:

Knitting is a method of converting yarn into fabric by a series of intermeshing/interlocking loops, which are formed from a single yarn or from many yarns with the help of needles, is known as knitting. As each row progress a new loop is formed through an existing loop. The active stitches are held on a needle until another loop can be passed through them. This process eventually results in a final product.

Figure-3.2: Knitting section

3.3 Machines of the knitting Floor:

Table- 3.3.1: machine List of Knitting Section

Types of Machine	**Total Number Of Machine**	
S/J Circular knitting Machine	10	Single Jersey , Lycra S/J
Rib Circular Knitting Machine	2	Rib 1*1, Lycra Rib 2*1, Fleece, (2*2) rib
Flat Knitting Machine	6	Collar, Cuff
Fabric Inspection Machine	1	Fault Inspection

Figure-3.3.3: Circular knitting machine

Table-3.3.2: machine parts and their work

1	Motor	When the motor on then motor give the motion and machine control
2	Fan	Fan works to remove the dust from the machine
3	Upper Light	Upper light works to see the yarns
4	Lower Light	Lower light works to see the fabrics
5	Auto	When stover give on/off signal then machine will be automatic around
6	Inchi	This key helps to slow around
7	Start	Machine always running

8	Stop	Machine is totally off ,,, if we try to machine will be run no never
9	On /Off	The on / off buttom is machine stop totally
10	Reading total counter time	Every shift a roll how much around
11	Roll counter	Roll counter works as a stop automatically roll
12	Oil signal	In machine have oil or not
13	RPM	RPM up and down
14	Set up	Roll counter set up
15	Number up	Roll number up
16	Number Down	Roll number down
17	RPM	How much have rpm in settings
18	Reset	When roller counter will be full than we do reset counters
19	Clear	When machine will be fulfill in dust then automatically air will be open
20		When leycra cut of then light will be done signal
21		When yarn cut then light signal
22		When fabric would be cut off then light will be done signal
23	Break	When machine will be fulfill in dust then will be automatically off
24	Oil	When oil will be blank then light will be done signal
25		When air gun have no air then will be start signals
26	Counter	Running roll counter indicators.

27	Gate	When machine gate would be on / off then light will be done signals

3.4 Definition:

Knitting is the interlocking of one or more yarns through a series of loops. The length wise columns of stitches, corresponding to the warp in woven cloth, are called Wales; the cross wise rows of stitches, corresponding to the filling in woven cloth, are called Courses, Filling Knits (Weft Knits) are those fabrics in which the course are composed of a single strand of yarn, while warp knits are those in which the Wales are composed of single strand of yarn. Gauge corresponds to the yarn in a woven fabric, and is defined as the number if needles of yarns in half inches of cloth. The higher the gauge, the more compact and finer is the cloth.

3.5 Basic Knitting Element:

Needle

Sinker

Cam

Figure: Needle

3.6 Working process in knitting section:

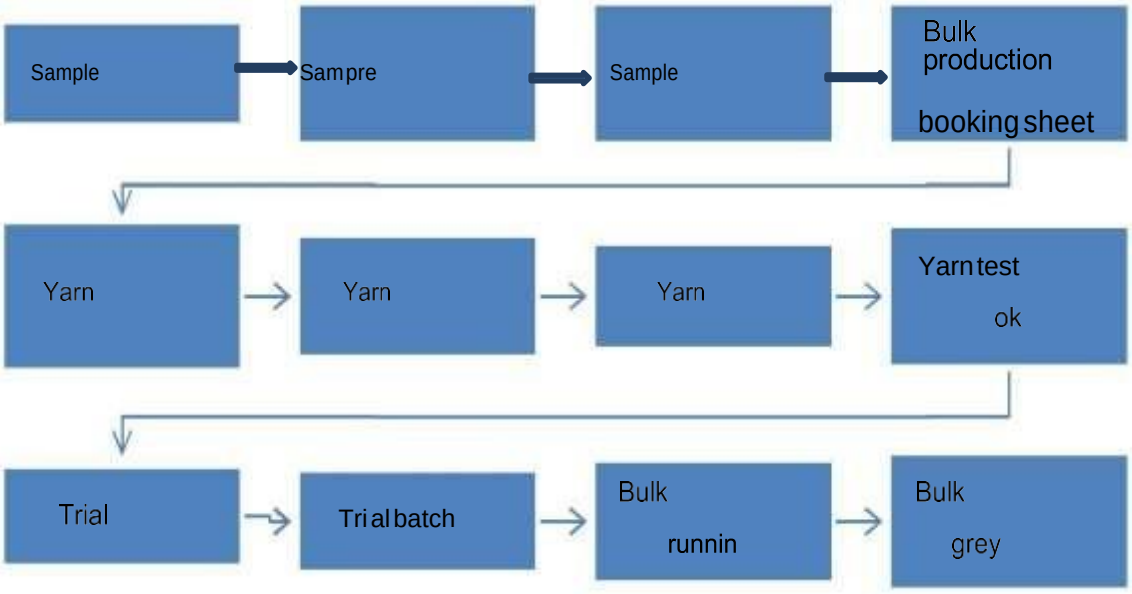


Figure-3.6: Working Process in Knitting Section

3.7 Description of production process:

In knit fabric production maintained the following sequence. It is also followed in this mill where we were in industrial attachment. The process sequences are in list below:

First of all knitting managers took a production sheet from the merchandiser as consumer's demands and after that he informed to the production officer about it.

Technical in charge got information from production officer who knows about machine and the production will be running through this.

For taking decision about machine for analyzing machine condition, productioncapacity, maintenance and complexity technical in charge call for leader of mechanical fitter troops.

To getting required stitch length & grey GSM for required final GSM, production officer with expert mechanical fitter adjusted all.

Production regularity and making operators conscious about finishing tin due time supervisor checks daily.

If there were not faults in fabrics then operators will operate machine with higher attention. If any fault found in production operator calls the mechanical fitter in duty.

Completion of required production & final inspection by 4 point system it is goes to next procedure dyeing for dyeing section.

3.8 Knitting Program Card

In knitting section knit card is used to indicate Information about running product at any machine:

Party

Buyer name

Order no Fabric type

Color

GSM

Date

3.9 Types of yarn used

100% cotton

Mélange

PC

CVC

Polyester

Spandex etc

Dyeing Section

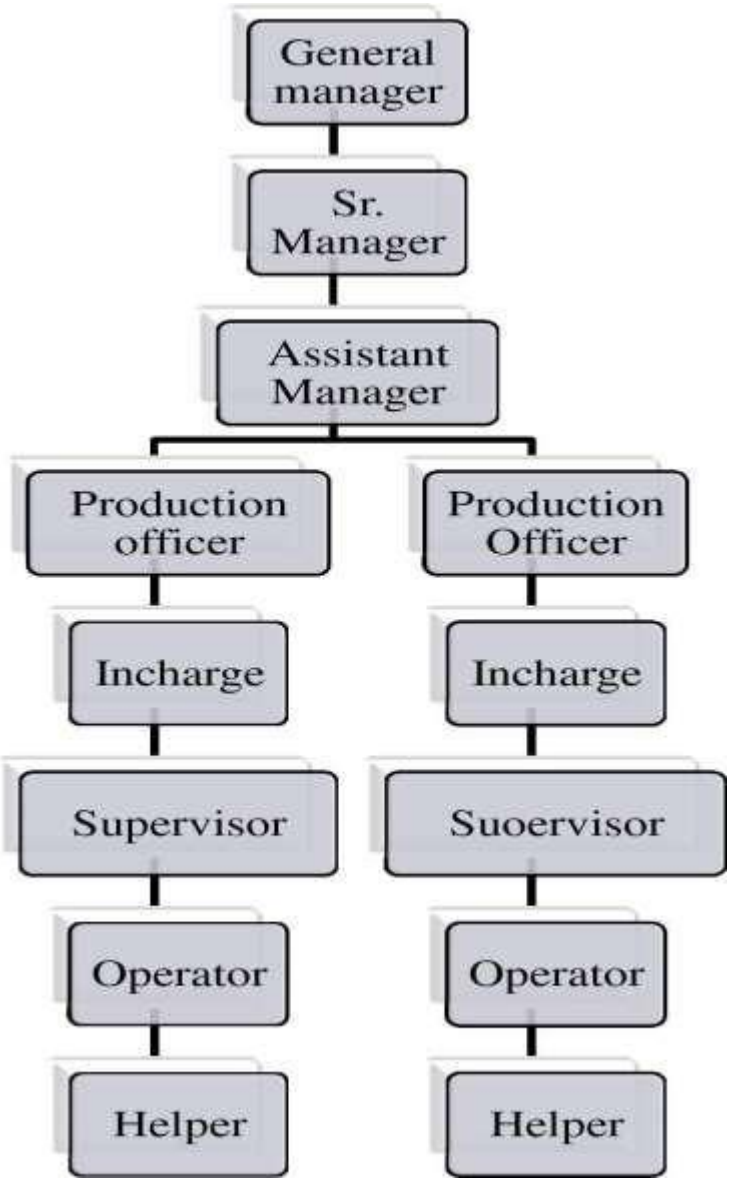
3.11 Dyeing section

Coloration is the main stage of chemical application for attractiveness or decoration of textile end product. But to get the best result of coloration some preparatory steps are necessary for grey textiles. Dyeing is the process of adding color to textile products like fibers, yarns, fabrics.

Wet process steps for a particular fabric are selected according to the specific end use. These are mainly different types of chemical reactions. Wet processing stages are primarily classified under three heading: Pre-treatment, Dyeing/ Printing, Finishing.

Figure-3.12: Working Process in Knitting Section

3.13 Organogram



3.14 Lab

In lab section testing are done by two types at the Magpie Textile Composite ltd.

Physical Test

Color Test

3.15 Physical test equipment & Their Function

3.15.1 Washing machine:

Samples are wash with standard washing chemical to the dimensional stability of the sample

3.15.2 Crock meter:

Its main purpose to test of rubbing in the color fastness of fabric

3.15.3 GSM Cutter:

It's used to cut the GSM of fabric

3.15.4 Tumble dryer

Used to dry the sample

3.15.5 Rota wash

Here check the color fastness to wash.

3.15.6 Shrinkage Test

Sample whose shrinkage test is to be done is placed on the table.

3.15.7 PH Meter

Used to determine the PH of a solution

Color Test equipment Their Function

3.15.8 Auto Disperse machine

Used for making a solution of dyes and chemical in accurate amount.

3.15.9 Data color Spectrophotometer:

Here seeing the Color matching

Measuring difference of color

3.15.10 Sample dyeing Machine:

The samples are dying for the laboratory.

3.15.11 Water Hardness Tester:

Here measures the hardness of water

3.15.12 Light Box Function

Checking the color difference under in different light source as like D65, TL84, UV

3.16 Processing dyeing & Finishing

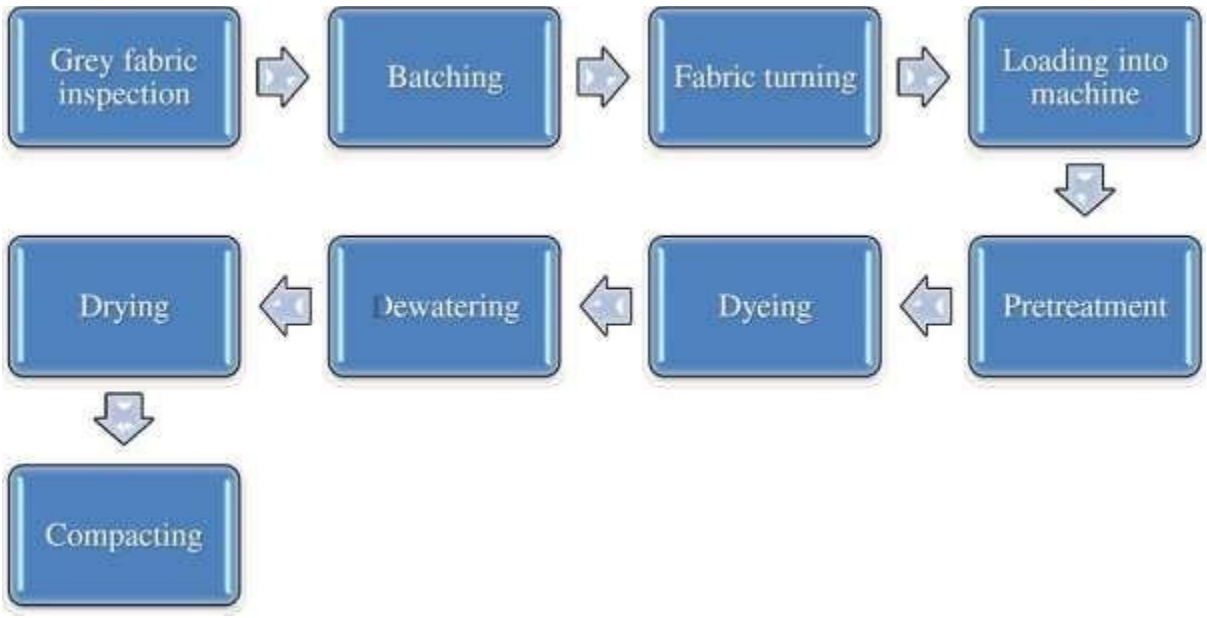


Figure-3.16: Process of dyeing and finishing

3.17 Batch Section:

The batching are ready for dyeing of fabrics which come from are knitting sections. After dyeing dyed fabrics will be particular colour , particular batch , particular order , particular lot. In the batching section, batch quantity of fabric is according to the ratio of body fabric and rib is calculated.

The batching ratio formula Wise batch (kg)

= (Dia Quantity * Batch. Quantity) / Total quantity

3.18 Fabric Turning Machine:

When fabrics are made by tube form, then turning machine are used. It is used for back side to front side turning of fabrics prepared before dye.

Function: Back face side make

Figure-3.18: Fabric Turning Machine

3.19 Dyeing Process Flowchart

Figure-3.19: Dyeing process

3.20 Chemical used in different process and their function

Process	Chemical	Function
Pre-treatment	Detergent	Detergent work as a wetting agent and work with impurities to do remove
	Sequestering agent	Its work as a remove of water hardness.
	Ant creasing agent	In the dyeing process reducing crease effect
	Antifoaming agent	It is used for resist foam formation when doing pretreatment and dyeing.
	Stabilizer	Increase the Hydrogen peroxide rate
	Alkali	Remove dust and dead fiber by alkali..
	Bleaching agent	Increase whiteness the fiber.
Neutralization	Peroxide killer	To remove the peroxide in material
	Acid	P^H control in fabrics
	Enzyme	Hairiness remove of fabric
	Leveling agent	Used for uniform dyeing.
	Dye	Coloration in fabric

Dyes & chemical	Salt	The dyeing process exhaustion ratio increase
	Soda	The ratio control of reaction between cellulosic material and reactive dye
Neutralization & Wash off	Acid	Control P^H
	Wash off	Unfixed dye remove from fabrics

Fixing	Fixing agent	Fix the dyestuff and also remove unfixed dyes.
Softener	Softener	Hand feel Soft of the fabric.
	Acid	P^H control

3.21 Machine specification of Dyeing:

Total number of machine is 20

Sample Machine: 6

Production Machine: 14

SON TECH (6 sets machine)

Made in China

SON TECH PRECISION MACHINERY CO. LTD

M/C NO: UFHM-30

Serial No: 17034176

Model: DTR-686

MFG Date: 2017/03

Dilmenler (8 sets machine)

Made in Turkey

Type: DMS11HT Jumbo

Serial: 11H03002010099

Capacity: 300Kg

Volume: 10372

Category: IV

3.22 Raw materials for dyeing:

The raw materials for production - Grey Fabric

Dyes and Chemicals

3.23 Grey Fabrics:

Following types of grey fabrics are dyed –

Single jersey

Single jersey with lycra

Polo pique

Back Pique

Single lacoste

Double Lacoste

Fleece

Terry

Mini Terry

Interlock

Rib

Lycra rib

1 x 1 rib

Collar & cuff

Polyester fabrics et

3.24 Different dyes Used in knit wears Ltd

No	Dyes Brand Name	Types	Smyce	Origin
1	Remazol Yellow 3GL	Reactive Dye	Dyestar	India
2	Remazol Blue BB	Reactive Dye	Dyestar	India
3	Remazol Yellow 3RS	Reactive Dye	Dyestar	India
4	Reactive Yellow RR	Reactive Dye	Dyestar	India
5	Reactive Red RR	Reactive Dye	Dyestar	India
6	White 4BK	Reactive Dye	Dyestar	India
7	Brighten RT-1015	Reactive Dye	Dyestar	India
8	Megaperse Yellow YNA	Reactive Dye	Dyestar	India
9	Megaperse Blue F2RL	Reactive Dye	Dyestar	Germany
10	Megaperse Navy NNA	Reactive Dye	Dyestar	Germany
11	Megaperse Blue FBL	Reactive Dye	Dyestar	Germany
12	Megaperse Yellow 3RHXF	Reactive Dye	Dyestar	Germany
13	Novacron Yellow FN-2R	Reactive Dye	Dyestar	Germany
14	NovacronBright Red FN-	Reactive Dye	Dyestar	Germany
15	NovacronBlue -FNR	Reactive Dye	Dyestar	Germany
16	NovacronTurquise-HNG	Reactive Dye	Dyestar	Germany
17	Novacron Yellow S-3R	Reactive Dye	Dyestar	Germany
18	Novacron deep Red S-B	Reactive Dye	Dyestar	Germany
19	Novacron Red FN2BL	Reactive Dye	Dyestar	Germany
20	Novacron Orange FN-R	Reactive Dye	Clariant	Germany
21	Novacron Navy FN-BN	Reactive Dye	Clariant	Germany
22	Novacron Ruby S3B	Reactive Dye	Clariant	Germany

23	Novacron Navy WB	Reactive Dye	Clariant	Germany
24	Novacron Ocean SR	Reactive Dye	Clariant	Germany
25	Drima TURQUISE CL-B	Reactive Dye	Clariant	Germany
26	Drima Navy CL-R	Reactive Dye	Clariant	Germany
27	Drima Blue –HF2B	Reactive Dye	Clariant	Germany
28	Imcozin Red E-3BF	Reactive Dye	Impo color	Germany
29	Imcozin Yellow E-3R	Reactive Dye	Impo color	Germany
30	Imcozin Blue E-NR	Reactive Dye	Impo color	Germany
31	Imcozin Orange E-2R	Reactive Dye	Impo color	Germany
32	Imcozin Navy blue E-RB	Reactive Dye	Impo color	Germany
33	Imcozin Blue –ERL	Reactive Dye	Impo color	Germany
34	Imcozin Navy Blue –E2G	Reactive Dye	Impo color	Germany
35	Imcozin Blue V-3 R 150%	Reactive Dye	Impo color	Germany
36	Imcozin Black VB	Reactive Dye	Impo color	Germany
37	Imcozin Yellow V4GL	Reactive Dye	Impo color	Germany
38	ImcozinTurquise Blue VG	Reactive Dye	Impo color	Germany
39	Imcozin BR Blue VR(SPE)	Reactive Dye	Impo color	Germany
40	ImcozinGol Yellow VRNL	Reactive Dye	Impo color	Germany
41	Imcozin BRI Red V –F3B	Reactive Dye	Impo color	Germany
42	Ciba Navy NFB	Reactive Dye	HANNSMAN	MEA
43	Ciba Red FB	Reactive Dye	HANNSMAN	MEA
44	Ciba Yellow FN-2R	Reactive Dye	HANNSMAN	MEA
45	Cibacron Red –FN-3G	Reactive Dye	HANNSMAN	MEA
46	Cibacron Super Black –G	Reactive Dye	HANNSMAN	MEA
47	Liva Amber –CA	Reactive Dye	Dyestar	Germany
48	Liva Blue –CA	Reactive Dye	Dyestar	Germany

49	Liva Red –CA	Reactive Dye	Dyestar	Germany
50	Solacion Yellow HE-XL	Reactive Dye		

51	Reactive Black –GR	Reactive Dye			
52	Rective Black –WNN	Reactive Dye			
53	Zeda Black –B	Reactive Dye			
54	Zeda Black –HFGR	Reactive Dye			
55	Zeda Red –ME4BL	Reactive Dye			
56	Zeda Yellow-MERL	Reactive Dye			
57	Bezactive Red S-2B	Reactive Dye			
58	Beza Yellow S3R	Reactive Dye			
59	Beza Blue SG LD	Reactive Dye			
60	Bezactive Blue V-2B	Reactive Dye			
61	Procion Crimson HE –XL	Reactive Dye			
62	Procion Navy HE –XL	Reactive Dye			
63	Procion Yellow HE –XL	Reactive Dye			
64	Procion Royal Blue HE-Xl	Reactive Dye			
65	Sumifix supra Red E-XL	Reactive Dye			
66	Sumifix supra Yellow E-XF	Reactive Dye			
67	Sumifix supra Blue E-XF	Reactive Dye			
68	Sionzol Black B	Reactive Dye			
69	Reactive Red ME4 BL	Reactive Dye			
70	Taifix Black VSB –T 133%	Reactive Dye			
71	Taicron Yellow –HW-T	Disperse Dye			

74	Taicon Red –XF T	Disperse Dye		
75	Taicon Blue –HW –T	Disperse Dye		
76	Taicon Navy Blue –HW –T	Disperse Dye		
77	Taicron Black -HWT	Disperse Dye		
78	Taicon Blue –XF -T	Disperse Dye		
79	Terasil Red R	Disperse Dye	Swiss Color	Switzerland
80	Terasil G Yellow W3R	Disperse Dye	Swiss Color	Switzerland
81	Terasil Navy GRLC	Disperse Dye	Swiss Color	Switzerland
82	Terasil Black –SRL	Disperse Dye	Swiss Color	Switzerland
83	Dianix Blue –SBB	Disperse Dye		
84	Leucophor BSB	Brightener		
85	Syno White 4BK	Brightener	ForCotton	
86	UVI Tex 2B	Brightener	For Cotton	
87	UVITex HBV	Brightener	ForCotton	
88	UVITex EBF	Brightener	For Polyester	
89	Bluton -2B	Brightener	ForCotton	
90	Leucophor –BMB	Brightener		

3.25 Chemicals used Ripon Knitwears Ltd.

Sl. No	Category	Brand Name
1	Acid	Acetic Acid
		Sirrrix – NE
		ECO Acid R
		Green Acid
		Core Neutracid – 100
		Cametic soda

.

2	Alkali	Soda Ash
		Chemtech – ALF
3	Salt	Glauber Salt
		Common Salt
4	Enzyme	Bio – Polish EC
		Forylase DLS 255
		Biozymes-ECX
		Bio Polish – B II
		Mega – PH -20
5	Detergent	Sandoclean – PCLF

6		Ledegen – QC
		Heptol – EMG
		Ladiquest – 1097

3.26 Flow Chart for knit Process of Ripon Knit wears Ltd

Turn over Machine Grey Knit Fabric

↓

Batching

↓

Scouring & Bleaching

↓

Dyeing

↓

De-watering / Squeezing m/c

↓

If tube form If open form

↓ ↓

Dryer m/c Slitting m/c

↓

Tube Compactor m/c

↓

Stentor m/c

↓ ↓

Finished

↓

Open compactor machine

↓

Finished

3.27 Dyeing Machine

Figure-3.27: High Temperature Dyeing m/c

3.28 P^H Levels for Different Stages of Cotton Dyeing:

1. Initial Bath pH	□	6.5~7.0.
2. Before Enzyme, bath pH	□	4.5~4.7.
3. After Enzyme &Aquachoron ,pH	□	5.5~6.0.
4. Before Scmying& Bleaching, pH (With Enzyme)	□	5.5~5.8.
5. Before Scmying& Bleaching, pH (Without Enzyme)	□	5.5~5.8.
6. Scmying& Bleaching, bath pH	□	10.0~10.5.
7. After Scmying& Bleaching, pH	□	8.5~9.0.
8. Before Leveling Chemicals, pH	□	6.5~7.0.
9. After Leveling Chemicals, pH	□	6.7~7.0.
10. After Adding Dyes, pH	□	6.2~6.35.
11. After Addition of Salt, pH	□	7.5~8.0.
12. After Addition of Soda, pH	□	10.5~11.0.
13. Before HotWash, Bath pH	□	6.8~7.2.
14. Hot Wash, bath pH	□	8.5~8.7.
15. Before Softener, bath pH	□	7.2~7.8.
16. After Softener Addition, bath pH	□	6.5~6.8.

3.29 pH level for different Stage Polyester dyeing

1. Initial bath pH	6.5~7.0.
2. Scrying, bath pH	10.0~11.5.
3. After Scrying, bath pH	8.5~9.0.
4. Before Addition of Leveling Chemicals, pH	6.0~6.5.
5. After Addition of Leveling Chemicals, pH	4.5~4.7.
6. After Addition of Colors, bath pH	4.2~4.3.
7. During Reduction Clearing, bath pH	10.5~11.5.
8. Before Softener, bath pH	6.3~6.8.
9. After Softener Addition, bath pH	5.8~6.2

3.30 Common faults and their remedies in knit dyeing

3.30.1 Crack, rope & crease marks:

Causes:

Poor opening of the fabric rope

Shock cooling of synthetic material

Incorrect process procedure

Higher fabric speed

Remedies:

Pre-Heat setting

Lomar rate rising and cooling the temperature

Reducing the m/c load

Higher liquor ratio

Running at a slightly higher nozzle pressure

3.30.2 Fabric distortion and increase in width:

Causes:

Too high material speed Low liquor ratio

Remedies:

By decreasing both nozzle pressure & winch speed

Pilling:

Causes:

Too high mechanical stress on the surface of the fabric Excess speed during processing

Excess foam formation in the dye bath

Remedies:

By meting of a suitable chemical lubricant

3.31 Running problem:

Ballooning:

Causes:

Seam joining with too densely sew

Remedies:

By cutting a vertical slit of 10-15 cm in length for escaping the air.

Intensive foaming:

Causes:

- Pumping a mixture of air and water
- Remedies:
- By meting antifoaming agent
- Uneven dyeing:

Causes:

- Uneven pretreatment (uneven scrying, bleaching & mercerizing)
- Uneven heat-setting in case of synthetic fibers
- Quick addition of dyes and chemicals
- Lack of control of dyeing m/c

Remedies:

- By ensuring even pretreatment
- By ensuring even heat-setting in case of synthetic fibers
- By slow addition of dyes and chemicals
- Proper controlling of dyeing m/c

Shade variation (Batch to batch):

Batch to batch shade variation is common in exhumed dyeing which is not completely avoidable. Even though, to ensure a consistent batch to batch production of shade the following matters should be controlled carefully-

Me standard dyes and chemicals

- Maintain the same liquor ratio
- Follow the standard pretreatment procedure
- Maintain the same dyeing cycle
- Identical dyeing procedure should be followed for the same depth of the shade
- Make sure that the operators add the right bulk chemicals at the same time and temperature in the process.
- The Ph, hardness and sodium carbonate content of supply water should check daily.

3.32 Dye spot:

Causes:

Improper mixing of dyestuff in the solution

Remedies:

Me should pass the dissolved dyestuff through a fine stainless-steel mesh strainer when adding it to the chemical tank, so that the large un-dissolved particles are removed.

- Roll to roll variation or Meter to Meter variation: Causes:
- Poor migration property of dyes.
- Improper dyes solubility.
- Hardness of water.
- Faulty m/c speed, etc

Remedies:

- Mee standard dyes and chemicals.
- Proper m/c speed.
- Mee of soft water

Crease mark: Causes:

- Poor opening of the fabric rope
- Shock cooling of synthetic material
- If pump pressure & reel speed is not equal

Remedies:

- Maintaining proper reel sped & pump speed.
- Lomer rate rising and cooling the temperature
- Reducing the m/c load
- Higher liquor ratio

3.33 Finishing:

Textile finishing, in a restricted sense, is the term used for a series of processes to which all bleached, dyed, printed and certain grey fabrics are subjected before they are put to market. It's one of the most important operations in knit processing.

3.33.1 Objects of finishing:

- Improving the appearance, luster, whiteness etc.
- Improving the feel.
- Wearing qualities- non-soiling, antistatic, ant shrink, comfort etc.
- Special properties required for particular uses such as water proofing, flame proofing etc.
- Covering the faults in the original cloth.
- Increasing the weight of the cloth.

3.33.2 Effects of finishing:

- Easy care.
- Crease recovery.
- Dimensional stability.
- Good abrasion resistance.
- Improved tear strength.
- Good sew ability.
- Soft or stiff handle.
- Shine or luster.

Knit fabrics require finishing processes after dyeing. During dyeing all knit fabrics are dyed in tubular form. According to buyer's requirement dyed fabrics are finished in either Tubular or Open width form. Depending on which finishing sections are separated into two section Open & Tube section.

3.34 Slitting machine:

Manufacturer: Bianco, Italy

Slitting machine is used to dewater and to give a form for further finishing processes.

Slit- cut the tubular fabric through the needle mark.

Remove excess water.

Prepare the fabric for next operation.

Fig3.34: Slitting m/c

3.34 Stenter:

Manufacturer: Brukner, Germany

To dry the fabric.

Heat set the synthetic material.

Controlling the width of the fabric.

Controlling the GSM of the fabric.

Bowing controlling of stripe fabric.

Twisting control.

Fabric hand feels modification like- softening or hardening.

Shade control.

Fig3.34: Stenter m/c

3.35 Compactor:

Manufacturer: Lafer, Italy.

Objectives:

To compact the fabric.

To control the shrinkage.

To maintain proper width and G.S.M

Heating system: Steam, heat

Main parts of the machine:

Heating chamber

Blower

Synthetic blanket as conveyor

Exhaust fan

Unpinning cylinder

Belt cylinder

Uncurling device

Sensor

Brush roller

3.34.1 Additional device:

Selvedge cutting

Selvedge safety

Pinning safety

Selvedge unrolling

Fig3.34: Compactor machine

3.35 Dryer:

Manufacturer: Albrecht, Brazil

Function:

To dry the wet fabric.

Control the shade & GSM slightly.

Main parts:

Feed unit, contain conveyer belt & number of rollers.

Drying section.

Steam is used for heating.

Blower, to spread the steam.

Exhaust air ventilator.

Technical parameters:

Temperature: For colored fabric: 140,150,130^{o}C

For white fabric: 120 ^{o}C

Speed: 8-80 m/min

Nozzle distance: 35-55 mm

Fig 3.35 Dryer m/c

CHAPTER 4

IMPACT OF INTERNSHIP

4.1 Knitting Section

In knitting section we have learned about the following topics:

- Introducing knitting machine of different types
- Details discuss of knitting faults.
- Details know of different fabrics
- To know the four point system
- To know the inspection system of knitting fabrics.
- Details know the inspections machine of fabrics.

4.2 Dyeing Section

Under this topic we learn in dyeing sections

- Introducing finishing machine of different types
- To know different type of dyeing machine.
- To know details functions of dyeing and finishing machine.
- To know the finishing inspection system.
- In stander and compacting how do control GSM.
- Work in batch section
- To know the test of different types at lab.

4.3 Finishing Section:

- Learned about the functions of stenter,
- compactor and dryer machine.
- The objectives of finishing.
- Learned about the chemicals used in finishing.

Chapter 5

Conclusion

Conclusion

Industrial training is an essential part for textile education because it minimizes the gap between theoretical and practical knowledge. Undoubtedly, this industrial training helps us a lot about textile technology, production process machineries and industrial management and made us comfortable with industries life. Besides it gives us the first opportunity to work in industry. During our two month of industrial training at **Ripon knit wears ltd**. We have got the impression that this factory is a modern export oriented knit composite industry. Through it was established 12 years ago, it has achieved a very good reputation in foreign market. They have well equipped and modern textile testing laboratory. They do all the chemical and physical tests of dyed food and the results are very good and within the buyer acceptance limit. During our training period we have rarely saw many faulty dyeing. If there was any problem it was quickly removed with the help of experienced manpower. Moreover they use good quality yarn, dyes, and chemicals in production. . In this whole industrial work, we are come to know that knitting, dyeing & garments production section. It is completely a new experience about it. We see all sections of my industrial training and we get lot of information and experienced on production, sewing faults, etc. and their remedies. We are always trying our best work to finished project very well ahead. We would learn one best thing that how to do full fill buyer requirement and how to do settlement with local and foreign buyers. We are also try to know that how to do control workers and management them.

Our industrial training gives us a lot of knowledge from industrial and we see its many different

university knowledge from industrial work. Our university gives us theoretical knowledge to that's why we can think it is the full knowledge which we are learns it. It helps us enrich of our knowledge.