



Daffodil
International
University



Faculty of Engineering

Department of Textile Engineering

REPORT ON

Industrial Attachment

At

Mascot Garments Limited

146, Dewan Idris Road, Zirabo, Ashulia, Dhaka-1341

Course Title: Industrial Attachment

Course Code: TE-431

Submitted By

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Supervised By

Md. Abdullah Al Mamun

Assistant Professor

This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Textile Engineering.

Advance in Apparel Manufacturing Technology

Duration: From September 16, 2017 to November 15, 2017

Front View Of Mascot Garments Ltd.



Declaration

We attest that this report is totally our own work, except where we have given fully documented references to the work of others and that the materials contained in this report have not previously been submitted for assessment in any formal course of study. If we do anything, which is going to breach the first declaration, the examiner/supervisor has the right to cancel my report at any point of time.

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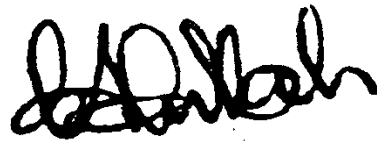


Faculty of Engineering

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Approval Sheet

This report entitled “ **Industrial Attachment at Mascot Garment Ltd.**” is prepared and submitted by **Amit Kumar Bepari (ID#141-23-3779) & Rohan Islam (ID#141-23-3809)** in partial fulfillment of the requirement for the degree of BACHELOR OF SCIENCE IN TEXTILE ENGINEERING has been examined and hereby recommended for approval and acceptance.



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Acknowledgement

At first we would like to express our deep appreciation to Allah for providing the opportunity to complete our report. Firstly, our special thanks go to **Md. Abdullah Al Mamun**, Assistant Professor, Department of textile Engineering, Daffodil Intentional University for his encouragement and valuable suggestions.

We would like to thank the management of the Mascot Garment Ltd. for giving us the opportunity to perform the Report successfully.

We are indebted to **Mr. Palash Biswas, (Head Department Of IE)** Of MASCOT GARMENTS LTD. for his valuable teaching, advising, supervising and training during our industrial attachment. We hope his valuable information regarding to production process will help us a lot for our future carrier.

Dedication

We dedicate this report to our **Parents** who give us chance to study in Textile Engineering and support us all time. Specially Dedicate this report **Mr. Palash Biswas, (Head Department Of IE)** Of MASCOT GARMENTS LTD and all the people who have helped us in the Mascot Garment Ltd. to complete this report.

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CHAPTER – 1

EXECUTIVE SUMMARY

1. EXECUTIVE SUMMARY

The Industrial Attachment is the most effective way for Textile Engineering students 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. It is our pleasure that we had an opportunity for internship at Mascot Garments Ltd., which is one of the modern industry of our country. We have learned a lot from this industry, the process & technique to maintain quality. We also learn about Inspection, batching technique, CAD and pattern making, cutting technique, , sewing technique, shade to shade bundling in cutting section, different types of sewing, sewing machine mechanism and their task, work study, motion study, method study, line balancing, inspection procedure, measurement taking method, merchandising working culture etc. We have learned about production management, work study, efficiency, industrial management, purchasing, utility and maintenance of machineries of different sections and their operation techniques and knew the work culture of different sections. The above mentioned cannot be achieved successfully by means of theoretical knowledge only. This is why it should be accomplished with practical knowledge in which it is based on. Industrial attachment makes us reliable to be accustomed with the industrial atmosphere and improve courage and inspiration to take self-responsibility. We have tried to prepare this report as required on completion of our attachment of our attachment course in regarding guideline given by the university authority.

CHAPTEER-2

INFORMATION ABOUT FACTORY

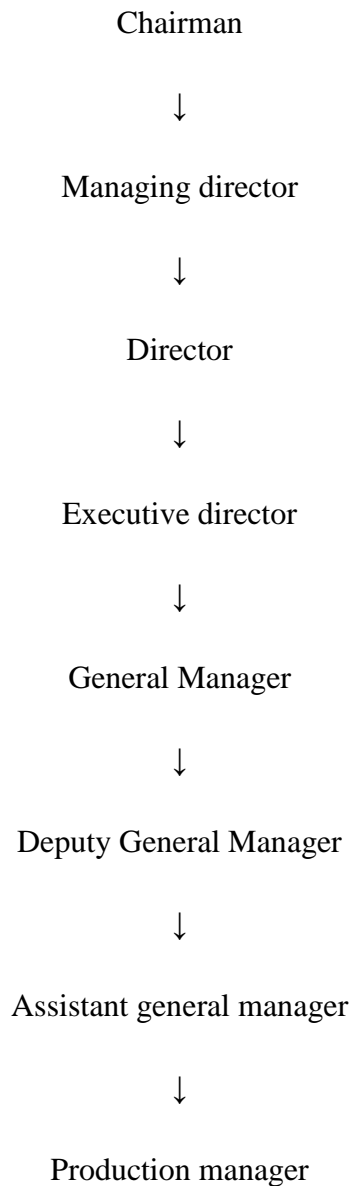
2.1 INTRODUCTION

If the theoretical knowledge is a glass of water then the practical knowledge would be drinking of the water. It is always very easy to make a man understand about a firebox by showing and lighting practically rather than describing theoretically who has not ever seen a firebox. So, for any technical education the practical experience is the most important along with the theoretical knowledge. As we are studying in a technical line, it is always important for us to gather the practical knowledge. Through our study life the only biggest chance for us to combine the theoretical knowledge with the practical knowledge is the 'Industrial Attachment period' that comes only once in the education life.

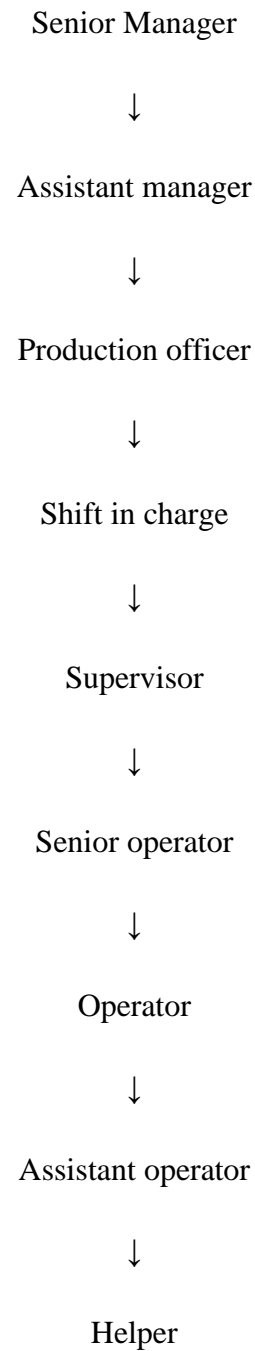
So we can easily realize the importance of Industrial Attachment. And in addition the knowledge we gathered from the industrial training reflects in the report of industrial attachment note book. So industrial attachment is the process where the trainee can blend his theoretical knowledge with practical knowledge increasing his/ her ability of work, skills, performance and attitude and so on.

2.2 ORGANOGRAM

Organogram of Administration



Organogram of Administration



2.3 HISTORY OF THE FACTORY

Mascot Garments Ltd is a sister organization of Mascot Group. Actually, Mascot Group is a group of companies diversifying in garments and real estate industry, privately owned by family members who are well educated, professionals with great management skills and moral values. The group started its journey with one woven factory in 1985.

Now Mascot Garments Ltd. is running with most comprehensive and strategic planning supported by sophisticated machinery, latest technology. Skilled workmanship, substantial marketing, proper discipline and consistent effort from all, the company entered into the global market.

Values :

- Customer Satisfaction
- Inspiring creativity
- Integrity
- Corporate Social responsibility
- Healthy Work Environment
- Commitment & Teamwork
- Equal Opportunity Employer
- Greener Environment Specialties

2.4 Management:

: F.M. Zubaidul Haque-Chairman

: S.M. Rezaul Haque-Vice Chairman

: N.M. Ziaul Haque- Managing Director

: T.M. Enamul Haque-Director

: Saniul Hague(Sasha)-Director

Contact:

N.M. Ziaul Haque- Managing Director

Phone: +88-02-8953238, 8953905.

Mobile: +8801713035311

Fax: +880-2-8923840

E-mail :zia@mascotgrp.com

2.5 SOCIAL COMMITMENT

Mascot Garments Ltd, understand their responsibilities towards society and environment in which they operate. They give prime consideration to health & safety, environmental protection & accident prevention in line with any other phases of operation or administration. They provide all first aid and free medical service to workers.

2.6 GENERAL INFORMATION OF THE FACTORY

01.Name and address Of The Company : Mascot Garments Ltd.

Regd.Office : Mascot Plaza (6th Floor) 107/A, Sonargaon Janapath, Sector-7,

Uttara C/A, Dhaka-1230, Bangladesh.

02. Name and address Of The Banker :Janata Bank Ltd, Local Office,1,

Dilkusha C/A, Dhaka,Bangladesh.

Tlx:671416JBLOBJ,Swift#JANBBDDHAJBD

: Bank Asia Ltd. Holding no79/A, Road no#07,

Sector#04 Uttara-Dhaka.Ph-8802-8957427-29

03.Type :100% Export oriented Garments industry.

04. Year of Establishment : 1985

05. Total Machine :

Machine type	Units
Plain M/C	650
Button Attaching	10
2/Needle M/C	50
Over lock M/C	26
Feed Of The Arm	20
Kansai Special	10
Eye let hole	08
Plastic Staple	10
B/S Stitch M/C	32
Bartack	10
Pocket welting M/C	04

Flat Lock	06
Others	

Table: 2.1 List of machines used in Mascot Garments Ltd.

06. Production Capacity :

Item	Quantity
Bottom	18000 Dzs/Month(Around)

Table: 2.2 Capacity at Mascot Garments Ltd.

07. Factory Area : 90000 Sft.

(Sewing = 45000 Sft, Finishing+Packing = 21000 Sft,
 Cutting = 6000Sft, Finished Godown = 5000 Sft,
 Electric generator =3000 Sft, Office &
 Others = 10000 Sft)

08. Work Force : (Sewing = 992 Finishing = 416 Cutting=65 +
 Others = 75 Persons)

09. Exporting to : U.S.A, Australia U.K

10. Major Buyer : Wal-Mart, Sear's, Tesco, K-Mart(Aus) The Children Place(TCP).

11. Mailing Address (H.O) : Mascot Plaza (6th Floor), 107/A, Sonargaon Janapath
 Sector – 7, Uttara C/A, Dhaka-1230, Bangladesh.

12. Factory Address : 146, Dewan Idris Road, Zirabo, Ashulia, Dhaka-1341.

13. Telephone No : Off : 880-2-8953238, 8953905, 8961806,
8956415, 8955446
Fty : 880-2-7791582, 7791641

14. Fax : Off : 880-2-8923840,
Fty : 880-2-7791961

15. E-Mail Address : Off : info@mascotgrp.com ,
Fty : mgl-@mascotgrp.com

16. Backward Linkage : Fabric: Epic Group
Thread: Novo Tower, 270 Tejgaon Industrial Area Dhaka-1208

17. Web Address : www.mascotgroupbd.com

2.7 DIFFERENT MAJOR DEPARTMENTS

- a) CAD Section
- b) Sampling
- c) Cutting
- d) Sewing
- e) IE
- f) Quality inspection
- g) Batch Selection
- h) Bundling section
- i) Merchandising
- j) Fusing
- k) Store
- l) Needle room
- m) Packaging
- n) Finishing
- o) Quality control

2.8 BUYERS :

Mascot Garments Ltd works with some world class reputed buyers. They work with Walmart, The children Place(TCP). Sears, Tasco, Kmart, Target etc.



Figure: 2.1 Buyer's logo of Mascot Garments Ltd.

2.9 MISSION & VISION

Mission:

Each of our activities must benefit & add value to the common wealth of our society. We firmly believe that, in the final analysis we are constituents with whom we interact; namely our employees, our customers, our business associates, our fellow citizens.

Vision:

To build true marketing led enterprise with motivated workforce, innovative vision & more value added product portfolio, customer satisfaction & understanding of global market.

CHAPTER-3

DETAILS OF ATTACHMENT

3.1 CAD(Computer aided design) SECTION

Mascot Garments has a well-developed CAD section. Early 2014 they use manual process of pattern/ marker making but now a days they are using well branded machine. CAD makes their work easy and efficient.



Figure: 3.1 CAD Room of Mascot Garments Ltd.

3.1.1 Equipment used in CAD section : i) Winda Inkjet plotter ii) Euro plotter iii) Quality inspection Table iv) 4-Computer v) Cutting knife vi) pattern/ marker papers vii) Two designer viii) One technician with two operators.

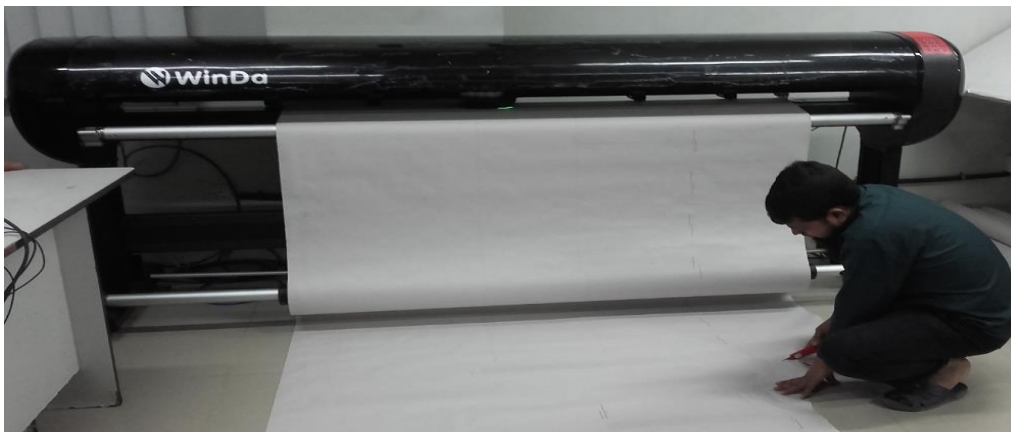


Figure: 3.2 Winda Inkjet plotter

Winda Inkjet plotter :

Model :WD-JET H(Head)

Voltage :220V 50-60Hz

Serial No : 15042413

Original :China

Web : www.windacadcam.com



Figure: 3.3 Winda Inkjet plotter, Service Hotlines & Customer information

3.1.2 PATTERN MAKING

Pattern is the one of important element of a design. In a garment industries there are two type of pattern uses based on their capability. Mostly big companies are use CAD (Computer aided design) as well as little companies' uses manual pattern. In Mascot Garments, they use CA. Also manual pattern in some cases. Basically Garban, Winda Software uses here. There are 6/8 high skilled pattern masters working here.

In Mascot Garments Ltd. marker is made both manual system & automatic system. In computer aided marker Mascot Garments Ltd use Garban,Winda software. In manual marker making process, marker man use pattern paper to draw different garments parts in marker paper.



Figure: 3.4 Pattern used in Mascot Garments Ltd.

3.1.3 MARKER SECTION

In Mascot Garments Ltd marker is made both manual system & automatic system. In computer aided marker Mascot Garments Ltd use Garban,Winda software. Here marker designer arrange the marker in his computer with enough efficient way and print the following design on marker paper. In manual marker making process, marker man use pattern paper to draw different garments parts in marker paper.

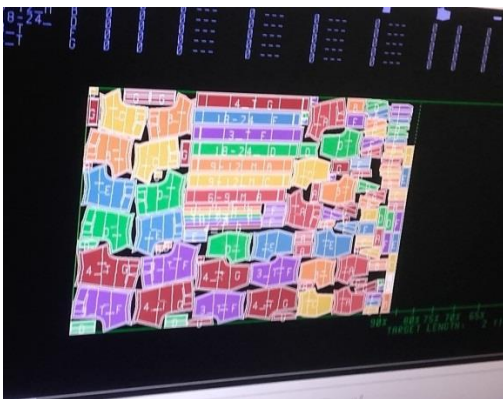
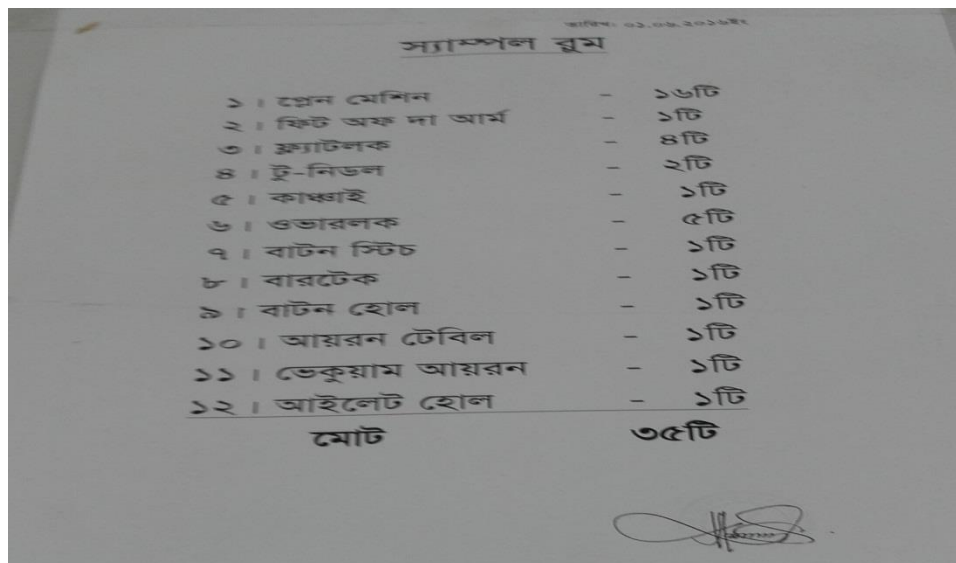


Figure: 3.5 Marker Making & Printing

3.2 SAMPLE ROOM

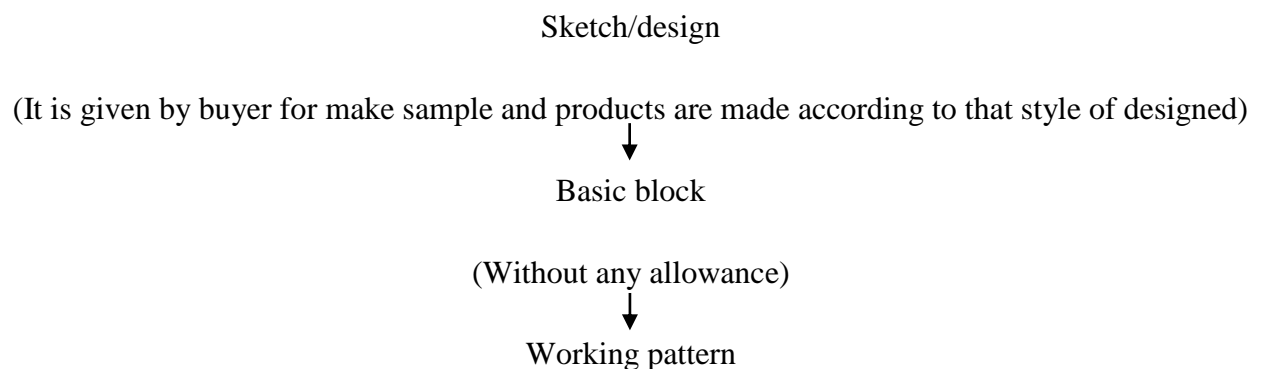
Sample room is the place from where the journey of a order start. Customer always want accurate sample with proper measurement. That's why the personnel who works in sample room should be well trained & skilled. The personnel of sample room at Mascot Garments Ltd. are well trained. One cutting manager with 28 year's experience, lead the sample room..



স্যাম্পল রুম	
১। প্রেন মেশিন	- ১৬টি
২। ফিট অফ দা আর্ম	- ১টি
৩। ফ্ল্যাটলক	- ৪টি
৪। টু-নিডল	- ২টি
৫। কাম্বাই	- ১টি
৬। ওভারলক	- ৫টি
৭। বাটন স্টিচ	- ১টি
৮। বারটেক	- ১টি
৯। বাটন হোল	- ১টি
১০। আয়রন টেবিল	- ১টি
১১। ভেকুয়াম আয়রন	- ১টি
১২। আইনেট হোল	- ১টি
মোট	৩৫টি

Figure: 3.6 Machines list of Sample room

3.2.1 FLOW CHART OF SAMPLE DEPARTMENT



(To make of garment according to design)



Sample making

(Sample is made by sample man)



Basic manufacturing difference

(Critical path is identify)



Approved sample

(Sample approved by buyer)



Costing

(To estimated the making charge, trimming, fabric required and profit)

3.2.2 SAMPLE TYPE : Mascot Garments Ltd. produce the following types of sample in their sample room.

- I. Development sample
- II. Salesman Sample
- III. Photo Sample
- IV. Approval Sample
- V. Size set Sample
- VI. Mock up Sample
- VII. Pre-production Sample
- VIII. Production Sample
- IX. Shipping Sample

After the confirmation of order, each sample sent to the buyer has the following details attached to it, with the help of a tag. It contains the details pertaining to both, what the buyer has demanded and what supplement fabric/trim etc they have used (if applicable).

- a) Ref no.
- b) Color Fabric
- c) Composition
- d) Description
- e) Quantity
- f) Style no/ Size
- g) Store

3.3 CUTTING SECTION

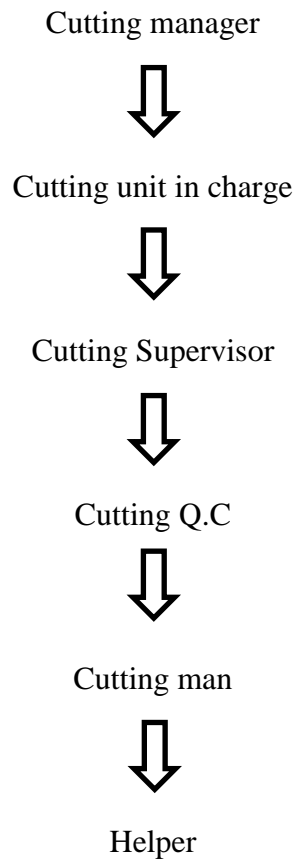
3.3.1 CUTTING

Cutting is the major operation of the cutting room, where the spread fabric is cut into garment components. This is the most decisive operation, because once the fabric has been cut, very little can be done to rectify serious mistakes. Cutting can be done manually using powered knives or by computer-controlled system. In Mascot Garments Ltd. the cutting section use straight knife cutting machine for cutting fabric after fabric spread.

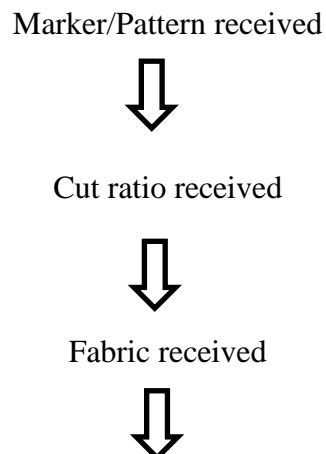


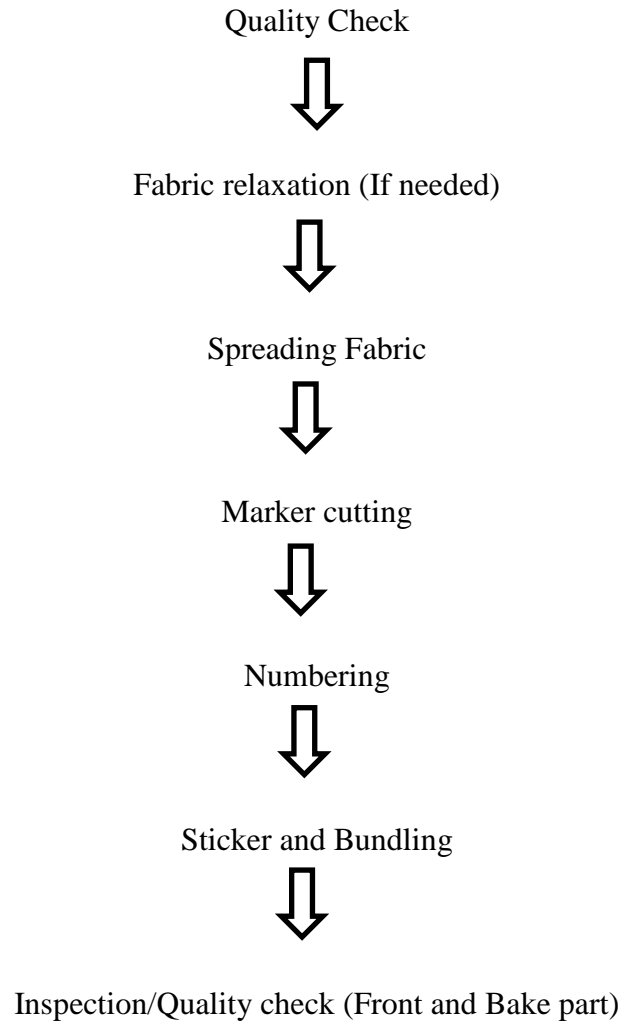
Figure: 3.7 Cutting Table

3.3.2 ORGANOGRAM OF CUTTING



3.3.3 PROCESS SEQUENCE IN CUTTING ROOM





3.3.4 List of cutting tools and accessories:

Here is a list of cutting tools and accessories often used on cutting department at Mascot Garments Ltd.

1. Cutting table
2. Scissor
2. Straight Knife.
3. Drill Machine.

4. Hand glaps
5. Adhesive tape
6. Clip

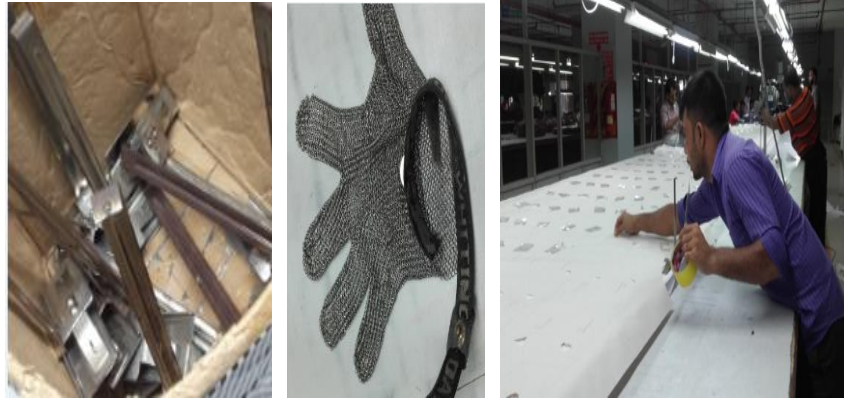


Figure: 3.8 Accessories used in cutting.

Here Scissor is used in maximum cases in cutting section. Straight Knife is used in 100% cases for bulk cutting directly from lay cutting. Mainly Straight knife cutting machine used for bulk fabric cutting. Drill machine is used if there possibility of lay to lay shade variation. Clips is used to hold the lay together. Adhesive tape help to add the marker with fabric lay. As a result it is easy to identify the individual parts of garments at the time of bundling.



Figure: 3.9 Fabric Spreading & Cutting

3.3.5 Bundling Section:

Bundling is one of the important section. Mascot Garments maintain proper bundling sequence. As we know without proper bundling, parts of garments may missing or mix one part of a garment with another part and as a result shade variation occurs. Sometime size to size variation also noticed.

Equipment use in bundling section:

- i. Auto sticker tool: 4- Auto stickers tools are used in Mascot Garments. Capacity: 150/min.
- ii. Manual sticker tool: 4- manual sticker tools are used in Mascot Garments Ltd. Capacity: 100/120 per min.
- iii. Clips
- iv. Ink
- v. Rubber mask on finger
- vi. Tape



Figure: 3.10 Stickers tools & technic

3.3.6 Checking area

After cutting parts are bundled checking is started in Mascot Garment Ltd. The checking team works under the supervision of quality manager. Individual cutting parts are checked by the checking team. Stain, oily, dart & dust mark, miss yarn, foreign materials, parts to parts shade variation, yarn fault like knot, gathering of yarn etc. are checked in checking area. 12 operators work on checking team. One supervisor always guide them at Mascot Garments Ltd.



Figure: 3.11 Cut parts checking area

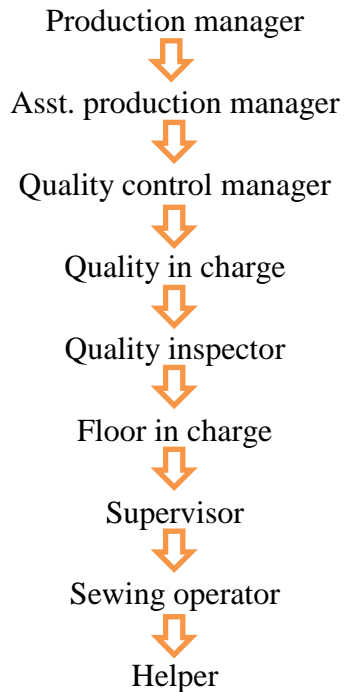
3.4 SEWING SECTION

This is the main section of a Garments industry. In Mascot Garments Ltd. there are ten sewing lines covering two floor which produce bottom garments. The sewing lines are well arranged. About 76/78 Machines in per line.

The line is divided into three classes.

- a. Back Part
- b. Front part
- c. Output

3.4.1 ORGANOGRAM



3.4.2 Back parts

Back parts contain about 22/23 m/c on the basis of garments style. The garments(pant) with welding pockets required welding machine. So we noticed the variation of m/c number. An IE officer always guide the line production he/she check the production with line chef, Supervisor and in-charge.

In Mascot Garments Ltd. each and every division of the line has quality inspection table. The quality team is very careful about quality standard.

Machines used in back parts per line:

Plain machine-13

Feed of the arm machine -02

Auto pocket welding machine -01

Over lock machine - 02

Button attaching machine -01

Button hole machine - 01

Bar take machine -01

Manual Iron-02

Steam iron-01

Operation and hourly inspection reports:

প্রতিদিনের অয়েল স্পিলেজ রিপোর্ট (ব্যাচ পার্ট)

সং.	অপারেশন	সে. নং.	অপারেটর	তারিখ:	লাইন: 03	ওরেস: TCP (2057044)	কিউ.মালার: KAMPUR	সুপারভাইজার: SAKIL
1	2	3	4	5	6	7	8	9
1	বাক লামেল টাক-৪ সেকেন্ড এন্টিক	P/M-54	জাউলি					
2	বাক ভার্ট - 2	P/M-54	জাউলি					
3	বাক ভার্ট উপসীম	P/M-52	হোসেন					
4	পকেট জামেন - 2	P/M-33	জাউলি					
5	পকেট জামেন - 2	P/M-33	জাউলি					
6	বন জামেন এ.পি.ভি.ভি.ভি.	APM-01	জামিন					
7	বাক রাইজ প্রভাবক	O/L-20	নারাজ					
8	বন উপসীম সোয়াচ - 2	P/M-33	জাউলি					
9	বন উপসীম সোয়াচ - 2	P/M-18	জাউলি					
10	বন ফেনিং স্পানসিচ (সোয়াচ) - 2	P/M-31	জাউলি					
11	বন ফেনিং উপসীম (সোয়াচ) - 2	P/M-120						
12	বন উপসীম অপার - 2	P/M-84	জামিন					
13	বন উপসীম অপার - 2	P/M-83	জাউলি					
14	ফেনিং জামেন (অপার) - 2	P/M-56	জাউলি					
15	ফেনিং জামেন (অপার) - 2	P/M-56	জাউলি					
16	পকেট ব্যাগ 2/8 ক্রেডিং - 2	P/M-25	জামিন					
17	পকেট ব্যাগ 2/8 ক্রেডিং - 2	M-25	জামিন					
18	পকেট ব্যাগ 2/8 ক্রেডিং - 0	M-85	জাউলি					
19	পকেট ব্যাগ 2/8 ক্রেডিং - 8							
20	বাক রাইজ উপসীম							
21	সেকেন্ড এন্টিক - 2	P/M-54	জাউলি					
22	সেকেন্ড এন্টিক - 2	P/M-01	জাউলি					
23	বাক পকেট বার টাক	B/F-X	জাউলি					

Figure: 3.12 Hourly inspection reports of back parts

3.4.3 Front Parts

Front parts contain up to 20 m/c according to garments. For each and every machine individual target is setup by the IE officer. The worker works and maintain the target guideline. Supervisor and line in-charge supervise the workers and check the production with quality team.

Machines used in Front part per line:

Plain machine-17

Over lock machine - 03

Manual Iron-02

Steam iron-01

Hourly inspection reports of front parts:



অপারেশন		ম. নং	প্রতিদিনের অয়েল শিফটেজ রিপোর্ট (ফ্রন্ট পার্ট)																							
ক্র. নং	অপারেশন	ম. নং	১	২	৩	৪	৫	৬	৭	৮	৯	১০	১১	১২	১৩	১৪	১৫	১৬	১৭	১৮	১৯	২০	২১	২২	২৩	২৪
১	ফ্রন্ট কেসিং বিগ	P/M-৩৫	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
২	ফ্রন্ট কেসিং মদল	P/M-৩৫	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
৩	নিম্নেমা+ডাবল ট্রাই ওভারলক	O/L-153	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
৪	নিম্নেমা ট্রাই জয়েন উইথ লক	P/M-৪২	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
৫	নিম্নেমা ট্রাই ১/১৬ টপসিট	P/M-৪৪	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
৬	ডাবল ট্রাই টপসীম উইথ ট্রা-ক	P/M-৬৩	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
৭	কো-সিট	P/M-৪৪	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
৮	টু পার্ট জয়েন	P/M-৫৪	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
৯	পকেট জয়েন - ১	P/M-৪৪	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১০	পকেট জয়েন - ২	P/M-10	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১১	হাই ক্রোজ	P/M-70	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১২	পকেট জয়েন ১/১৬ টপসিট	P/M-50	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১৩	পকেট রোলিং - ১	P/M-03	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১৪	পকেট রোলিং - ২	P/M-10	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১৫	পকেট টাক-সাইড+ওয়েস্ট - ১	P/M-৪১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১৬	পকেট টাক-সাইড+ওয়েস্ট - ২	P/M-৪১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১৭	পকেট ব্যাগ ওভারলক - ১	O/L-31	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১৮	পকেট ব্যাগ ওভারলক - ২	O/L-15	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
১৯	পকেট ১/৪ টপসিট - ১	P/M-৪৪	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
২০	পকেট ১/৪ টপসিট - ২	P/M-৪৪	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১
২১	কোরস সেবেল জয়েন		১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১	১

Figure: 3.13 Hourly inspection reports of front parts

3.4.4 Output

Assembling of back and front parts is done in output division. Mascot garments arrange the output division with very carefully. Number of machines and personnel is required more than back/front parts. About 28 machine and up to 30 personnel work on output.

Machines used in output per line:

Plain machine-08

Feed of the arm machine -03

Over lock machine - 04

Bar take machine -02

Kansai Machine- 02

Button join at belt (B/S)-01

Hourly inspection reports output:

প্রতিদিনের অয়েল স্পিলেজ ইন্সপেকশন রিপোর্ট (আউট পুট)

১	ইনসীম ওভারলক - ১	কোম্পি					
২	ইনসীম ওভারলক - ২	শিপি					
৩	ইনসীম টপসীম ফিট অফ ব্রা - ১	কোম্পি					
৪	ইনসীম টপসীম ফিট অফ ব্রা - ২	কোম্পি					
৫	সাইডসীম ওভারলক - ১	কোম্পি					
৬	সাইডসীম ওভারলক - ২	কোম্পি					
৭	সাইড টপসীম - ১	কোম্পি					
৮	সাইড টপসীম - ২	কোম্পি					
৯	ওয়েস্ট বেল্ট কানসাই - ১	কোম্পি					
১০	ওয়েস্ট বেল্ট কানসাই - ২	কোম্পি					
১১	ওয়েস্ট বেল্ট কানসাই - ৩	কোম্পি					
১২	মাউথ কোজিং আপার- ১	কোম্পি					
১৩	মাউথ কোজিং আপার- ২	কোম্পি					
১৪	মাউথ কোজিং লোয়ার- ১	কোম্পি					
১৫	মাউথ কোজিং লোয়ার- ২	কোম্পি					
১৬	লুপ টাক আপার - ১	কোম্পি					
১৭	লুপ টাক আপার - ২	কোম্পি					

Figure: 3.14 Hourly inspection reports of output

3.4.5 Machine Name and their Brand

Machine name	Brand name	Country
Plain lock stitch M/C	Juki/Brother	Japan
Over lock Stitch M/C	Juki/Pegasus	Japan
Flat lock Stitch M/C	Juki	Japan
Button attach stitch M/C	Juki	Japan
Button hole stitch M/C	Juki	Japan
Feed of the arm	Brother	Japan
Auto Pocket welding	Juki	Japan
Kansai	Kansai	Japan

Table: 3.1 Machine name, brand and origin

3.4.6 BASIC COMPONENTS OF MACHINE

- ❖ Plain lock stitch M/C:
 - Needle - 1Pcs
 - Needle guide
 - Back stitch
 - Tension guide
 - Feed dogs
 - Pressure foots
 - Bobbin- 2 (Extra Bobbin-1)

- ❖ Over lock stitch M/C
 - Bobbin Guide

- Bobbin- 4
- Needle- 2 Pcs
- Loppers- 2Pcs
- Pressure foots
- Tension guide- 4
- Feed dogs
- Stitch tension controller
- Eye Protector
- Knives- 2
- ❖ Flat lock stitch M/C
 - Body
 - Needle- 3
 - Lopper- 1
 - Tension guide- 5
 - Pressure foots
 - Automatic foot lifter
 - Feed dogs
 - Stitch tension controller
 - Knives
- ❖ Button hole M/C
 - Needle
 - Bobbin
 - Bobbin cage
 - Yarn tension
 - Yarn guide
 - Stitch pressure controller
 - Feed pressure controller
 - Feed guide
 - Needle guide
 - Throat plate
 - Knife controller

- ❖ Button attaching M/C
 - Needle
 - Button guide
 - Feed plate
 - Cams
 - Yarn tension
 - Pressure controller
 - Bobbin cage
 - Button hole controller
 - Eye protector

3.4.7 Different types of stitching:

- Chain stitch
- Multi thread chain stitch
- Over edge chain stitch
- Covering stitch
- Hand stitch
- Lock stitch

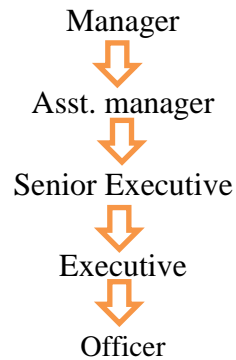
3.4.8 Thread used in Mascot Garments Ltd: Mascot Garments Ltd. commonly use three types of suppliers thread. Normally Ne 40/2, 20/2 20/3 are used.



Figure: 3.15 Thread used in Mascot Garments Ltd

3.5 INDUSTRIAL ENGINEERING SECTION

3.5.1 ORGANOGRAM



3.5.2 INDUSTRIAL ENGINEERING

They work to eliminate waste of time, money, materials, energy, and other resources. This is why Mascot Garments Ltd. hiring industrial engineers and trying to promoting them into management positions.

Industrial Engineering (IE) = Production ↑ Cost ↓ Proper use of all elements ↑ Efficiency ↑ Profit ↑



Figure: 3.16 IE Department of Mascot Garments Ltd.

3.5.3 CALCULATE OF SMV IN MASCOT GARMENTS LTD.

SMV Calculation in Mascot Garments Ltd.:

SMV calculation differ accounting to the number of operations, seams length, types of fabric, number of workers, machine efficacy etc.

General formula of SMV is given below-

$$\text{SMV} = \text{Basic time} + (\text{Basic time} \times \text{Allowance})$$

Say, Cycle time = 38.06 Rating = 70%

$$\text{Basic time} = \text{Cycle time} \times \text{Rating}$$

$$= 38.06 \times 70\%$$

$$= 0.44 \text{ TMU}$$

TMU means Time Measurement Unit

$$\text{SMV} = \text{Basic time} + (\text{Basic time} \times \text{Allowance})$$

$$= 0.44 + (0.44 \times 15\%)$$

$$= 0.51$$

$$\text{Capacity} = \text{Time} / \text{SMV}$$

$$= 60 / 0.51$$

$$= 118 \text{ pcs}$$

$$\text{Target} = \text{Total manpower} \times \text{working shift} \times \text{Efficiency} / \text{SMV}$$

$$= 38 \times 60 \times 70\% / 8.97$$

=178 Pcs per hour

Efficiency = Total Output X SMV X 100 / Total Manpower X Total Working hour

$$= 1780 \times 8.97 \times 100 / 38 \times 10 \times 60$$

$$= 70.02 \%$$

Manpower Calculation

=Total SMV / Total no of process

$$= 8.97 / 28$$

=0.32 X Efficiency

$$= 0.32 \times 70 \%$$

$$= 0.22$$

Process SMV / 0.22

$$= 0.4 / 0.22$$

$$= 1.81$$

That's means, 2 mans are needed for this process to acquire the target

3.6 QUALITY SECTION

QUALITY: Quality means customer needs is to be satisfied. In the competitive world no alternative of quality. Worlds trend is now quality not quantity. In the apparel business severely maintain quality of products. In this case, buyer's satisfaction is the primary and basic goal. Failure to maintain an adequate quality standard can therefore be unsuccessful. In this case, Mascot Garments Ltd is very much careful. They maintain proper quality standard. For this reason they setup quality table in every end of the parts.

Quality table-1 : Check Back part of the garments

Quality Table-2 : Check Front part of the garments

Quality Table-3 : Check Output of the garments.

Quality Inspection: Each and every quality table is operate by three person. Quality in-charge. Supervise as well as whole quality team try best to maintain desire standard quality. Quality manager regular check and alert his team for maintaining following standard.



Figure: 3.17 Quality table

Inspection area of QC:

Back part: Pocket welding, miss stitch, back rise stitch, uneven stitch, gather stitch, skip/broken stitch of back parts, uncut thread, pocket marking, Size and shape of pocket dart mark, oily and dust mark, foreign yarn etc.

Front part: Miss stitch, front rise stitch, uneven stitch, gather stitch, skip/broken stitch of front parts, uncut thread, pocket marking, Size and shape of pocket , coin pocket placement, dart mark, oily and dust mark, foreign yarn etc.

Output: Proper match of front & back parts, shade variation, miss stitch, uneven stitch, gather stitch, skip/broken stitch, uncut thread, dart mark, oily and dust mark, size and measurement of the garments etc.

3.7 FINISHING SECTION

In mascot Garments, finishing section is well set up and the personnel of finishing are well train up. Quality team always care and check finish product. Finishing section has the following machines.

Machine	Number
1. Steam iron	29
2. Metal detector	3
3. Thread sucker	3

Table: 3.2 Machines in finishing section



Figure: 3.18 Ironing



Figure: 3.19 Dust cleaning & Finished garments

3.7.1 Packing area:

Mascot garment has well developed entry restricted packaging floor. Only some specific persons are allowed in this area. About 4000ft floor cover the packaging area. The garments are packed according to buyer requirement. Normally 3 or 5 fly carton is used.



Figure: 3.20 Packaging area

3.8 Store & Maintenance Section :

Store section of mascot garments always careful about their requirements. With some well skill and experienced personnel work in maintenance section. One store manager with three skilled technician maintain the floor. The technicians have individual assistant to assist their work.



Figure: 3.21 Store & Maintenance

3.9 Health, Safety and other facilities:

This is the very positive that Mascot garments always take care their employees. Health and safety is the first priority of management. For safety issue they set up auto water outlet system. Automatic water will spread when the temperature would be up to 65degree Celsius. Mascot Garments always keep First Aid Box near to the worker. They have also Day Care facilities and a huge canteen is available for the employees. There is also hose reel, fire extinguisher and sufficient number of exhaust fan for the security.



Figure: 3.22 Map of Emergency Evacuation & Fire safety plan

CHAPTER-4

IMPACT OF INTERNSHIP

4.1 CAD SECTION

- ❖ We learn how CAD (computer aided design) done
- ❖ We learned how to print in plotter
- ❖ We learned about the uses of Winda, Garbar software work

4.2 SAMPLE SECTION

- ❖ Understood why sample section is called a mini Industry
- ❖ Observed how skilled workers work in sample section
- ❖ Learned the process of preparing a pattern for an individual size & design
- ❖ Cleared the conception about different types of sample garment

4.3 CUTTING SECTION

- ❖ Learned about different type of cutting machines (i.e. Straight knife cutting machine, Round knife cutting machine, Band knife cutting machine etc.)
- ❖ Learned the process of fabric spreading
- ❖ Observed the process of fabric cutting according to the marker
- ❖ Understood different process of fabric lay
- ❖ Realized the use and importance of metal gloves for fabric cutting process through different cutting machines
- ❖ Understood how numbering and bundling is done

4.4 SEWING SECTION

- ❖ Observed different sewing or joining process of shirt
- ❖ Learned about different type of machines used in a sewing floor (i.e. Single or double needle lock stitch machine, Multi needle chain stitch machine, Over lock machine, Feed of the arm machine etc.)

- ❖ Observed the ironing and fusing process for different body parts (i.e. Collar, Placket, Facing Interlining etc.)

4.5 IE SECTION

- ❖ Learned about Standard Minute Value (SMV) of different sewing process
- ❖ Learned the process of determining operator's efficiency in an individual process for a shirt
- ❖ Cleared the conception about production of a sewing floor (line by line and total floor)
Observed and realized the importance of final inspection at the end of every sewing line
- ❖ Got experienced in making production study of an operator for an individual process for a definite time interval

4.6 QUALITY SECTION

- ❖ We observed how garments are inspected
- ❖ We also observed what types of defect inspector get
- ❖ We learned about major, minor, critical defects
- ❖ We learned about AQL
- ❖ We observed duty of inspector

4.7 FINISHING SECTION

- ❖ Observed various type of finishing process after sewing
- ❖ Observed different type of machines used in finishing section (i.e. Neck press machine, Metal detector machine)
- ❖ Learned about different type of iron machines
- ❖ Learned about various type of accessories used to attach to the garment (i.e. Security alarm, Hang tag, Price tag, Barcode label etc.)
- ❖ Observed the application of different chemicals for the removal of type of stain
- ❖ Observed and learned different type of folding process (i.e. Standard fold, Semi-standard fold, Hanger fold, Twill fold, Half fold, Full fold etc.)

CHAPTER-05

CONCLUSION

5. CONCLUSION

We have completed our Industrial Training successfully by the grace of Allah. Industrial Attachment sends us to the expected destiny of practical life. We have learned a lot from this industry, the process & technique to maintain quality. We also learn about Inspection, batching technique, CAD and pattern making, cutting technique, , sewing technique, shade to shade bundling in cutting section, different types of sewing, sewing machine mechanism and their task, work study, motion study, method study, line balancing, inspection procedure, measurement taking method, merchandising working culture etc. We have learned about production management, work study, efficiency, industrial management, purchasing, utility and maintenance of machineries of different sections and their operation techniques and knew the work culture of different sections. All the Textile Engineers, technical & non persons of Mascot Garments Ltd. are very sincere, co-operative and helpful.