



**Daffodil**  
*International*  
**University**

Faculty of Engineering  
Department of Textile Engineering

PROJECT REPORT

**Study on Merchandising Activities of a Merchandiser in a Knit Garments Industry**

Course Title: Thesis (Project)

Course Code: TE 4214

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This report submitted in partial fulfillment of the requirements for the degree of Bachelor of Science in Textile Engineering.

Advance in Apparel Manufacturing Technology

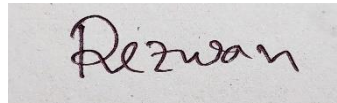
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# Daffodil International University

## Department of Textile Engineering

### Approval Sheet

This report entitled “**Investigation of Merchandising Activities of a Merchandiser in a Knit Garments Industry**” is prepared and submitted by **Md. Khobaeb Hossen (ID: 172-23-337)**, **Md. Tariqul Islam (ID: 172-23-336)** & **Md. Ashikuzzaman (ID: 172-23-313)** 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 Thesis on Garments Merchandising.

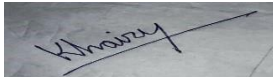
Firstly, our special thanks go to professor **Mr. Md. Mominur Rahman**, Head, Department of textile Engineering, Daffodil International University for his encouragement and valuable suggestions.

We would like to thank our supervising teacher **Kazi Rezwan Hossain**, Lecturer Dept of textile engineering, DIU for his tremendous support and guidance for making our thesis. Being working with him we have not only earned valuable knowledge but also inspired by his innovativeness which helped to enrich our experience to a greater extent. His ideas and way of working was truly remarkable.

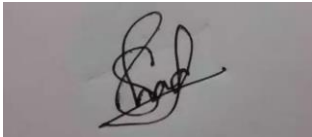
## **DECLARATION**

We openly declare that,

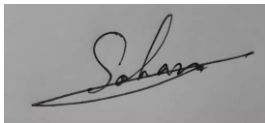
This Industrial Attachment has been completed to proper works by us. We also declare that the information neither of this Industrial Attachment or any part of it didn't submit elsewhere for offer of any degree or diploma.



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## **Abstract**

Bangladesh's export earnings carry more than 76% contribution from the Garments, Apparel, and Knitwear Industry. The objective of this thesis is to provide an extensive overview of Garments Merchandising, as well as a reference and guide for its study. The chapters are written for the garments merchandising professional for detailed easing information, who wants an overview or specific information in one particular area.

The book is organized into 11 chapters to provide comprehensive information on all aspects of Garments Merchandising from the initial concept of Garments Marketing, Garments Merchandising, Qualification of a good merchandiser, Merchandising procedure, Chronological process of Merchandising, important document for a Merchandiser, Costing and Consumption, Garments dry process, Garments washing, Inspection, Basic knowledge for a merchandiser, L.C and Other Documentation are included in this paper. This thesis paper contains the most recent technological information regarding industry practice as well as industry standards. The use of photographs and tables will help the reader to understand very easily.

Merchandising plays a great role in our economy. The living standard and prosperity of a nation vary directly with increase the foreign currency of a nation and ] totally depends of a merchandiser who deals not only liaison with the buyer but also directly Á economic and technological progress.

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# **1. Export Garments Business in Bangladesh:**

## **1.1 Introduction:**

Bangladesh's export earnings carry over 80% contribution from the clothes, Apparel, and Knitwear Industry. The industry itself is one in every of the most important Garments Industry within the world together with Thailand, India, and Mexico.

Starting from Buttons, labels, apparel papers, threads, and every one other products are found here. Even services like dying, washing, and ironing also are found within the corners of commercial areas of Bangladesh

The fashion industry of Bangladesh has been the key export division and a main source of exchange for the last 25 years. At present, the country generates about \$5 billion worth of products annually by exporting garment. The industry provides employment to about 3 million workers of whom 90% are women.

## **1.2 Garments Marketing**

The factory or company gets the order from the foreign buyers. Or sometimes the customer give an inquiry(s) of order to the buying house and company gets the it from the buying house. And sometimes the clothes factory tries to urge the clothes order from the buying house or directly from the buyers. However the clothes orders are confirmed, the clothes factory do the costing of it, and coat the value to the buying house or the buyers. And at last by the discussion and bargaining the order are confirmed.



## **2. Garments Merchandising:**

### **2.1 Definition of Merchandising:**

The "Merchandising" is thought to the persons specially involved in garments trade. The term merchandising has been derived from the merchandise. Merchandise means goods that are bought & sold.

The term "Merchandising" may be defined as Person who merchandises the products, specifically for export purposes. Garments merchandising means buying raw materials & Accessories, producing garments, maintaining required quality level and exporting the clothes within schedule time. From the above definitions, we will say that an individual involved in garments merchandising needs a good range of data & skill to perform his job successfully. The work itself is Technical and general yet.

Merchandiser is he who builds up relationship with the client and acts as a seller. He plays a significant role in a company in an exceedingly sense that he bears more responsibility than other with regard to execution of an order. The responsibilities that he bears on the roles are as follows:

He represents as a buyer to the factory.

He represents as a seller to the buyers.

He looks into the business to flourish more in future.

He tries to offer the deal more competitive without compromising the Quality.

His object is to satisfy the buyers to progress more of the future business.

His aim is to impress the buyers by means of

- (i) Right Product.
- (ii) Right Quality
- (iii) Right Quantities.
- (iv) Schedule Time

## **2.2 Qualifications of a good Merchandiser:**

- \*He should be hard worker.
- \*Should be responsible for the job.
- \*He should not be bureaucratic.
- \*Should be smart.
- \*Should be able to improve public relation.
- \*Good command in English and adequate knowledge of technical terms for accurate and efficient communication.
- \*Knowledge on internet browsing.
- \*Should be able to email communication.
- \*Good knowledge of fiber, yarn, Fabric, Dyeing, washing, Printing, Finishing, Quality of garments, Dyes, Colorfastness, Garments production, etc.
- \*Clear conception of the usual potential quality problems in the garments manufacturing.
- \*Good knowledge of the usual raw materials inspection systems & garments inspection systems.
- \*Knowledge of the quota system used in each of the producing countries', duty rates, customs regulations, shipping and banking documentation etc.
- \*Merchandiser - A Data Bus between Buyer & Seller.

## **2.3 Merchandising Procedures:**

### **Job List of a Merchandiser**

#### **INQUIRIES:**

1. On receiving an inquiry(s) the merchandiser must prepare a checklist and immediately forward all information to three factories from the approved factory list for pricing.
2. The merchandiser must confirm that the factory makes a speciality of the item being priced and has worked with the client before.
  - 2a. Selection of supplier should be supported their previous performance, efficiency, delivery, etc.
3. If it's a replacement client then the merchandiser must discuss the inquiry(s) with the dept. head before sending out the inquiry(s).
  - 3a. just in case of a replacement factory, a factory evaluation should be conducted as per the set standards. Only Synergies Sourcing approved factories are often used for pricing, sampling, etc.

#### **2. QUOTING PRICES:**

1. Prices must be sent within 1 -2 days of receiving the inquiry.
2. All enquires must be entered in to the new development sheet.
3. Supported rock bottom price the merchandiser must order proto sample. Min. 2 pieces must be ordered. One sample for the customer and one office sample.

4. Before quoting any prices to the customer. The merchandiser should get all prices approved by the top of Merchandising or manager.
5. If renegotiation is required then involve the dept. head, Head of Merchandising and director in order that the most effective price's are finalized with the factories.
6. Final quoted price must be updated on the new development sheet.

**PROTO SAMPLES:**

Obtain explanation from buyer for anything considered vague.

Forward the specification sheets/Pattern to the chosen supplier with all the reason of specifications & technicalities on as & when received basis & update records.

Ensure timely availability of cloth.

Follow-up with the supplier to produce the sample latest within 2 days for local accessories & fabrics, just in case of imported items maximum 12 days.

Upon receipt of the sample from the supplier thoroughly check the styling, measurement (if any), stitching, quality of the material, fabric construction/GSM, hand feel, washing standard, finishing of the sample & accessories if any & ensure compliance of approval.

At least 5 pieces of each sample should be developed. One for merchandisers, one for the Quality controller, one for production, one for the production manager & one for the buyer.

- \*Prepare Proto Sample Checking Sheet & attach with the checklist (Format Attached).
- \*Put duly filled sample card on the sample, format enclosed.
- \*Forward the samples as & when received basis & advice customer accordingly with all the details of dispatch.
- \*Follow with the customers for approvals/comments.
- \*Once approved, advice supplier as well as Head of Quality Control.
- \*Update Order Checklist, format enclosed.
- \*Update the excel sheet accordingly, format enclosed.

#### **ORDER PLACEMENT:**

Once an order is placed the merchandise manager should fill out a PO checklist.

All missing information with regards to the PO are forwarded to the client within 1 day of receiving the PO.

A complete PO package must be prepared and sent to the factory within 24 hours of receipt of order from customer with a duplicate of P.O. to Commercial Department.

Prepare a projected production plan & forward the same to the top of internal control & to the related supplier. The schedule should comprise of expected dates for cloth Quality Check, ILC, IPC, MPC & FRI. Prepare a projected sample plan & forward the identical to the related supplier with a replica to the top of department.

#### **PO PACKAGE FOR FACTORY:**

A new PO package for the factory must include the following:

- I. Original PO sheet.
- II. Spec. Sketch and workman sheet.
- III. Color print artwork, lab dip, original fabric swatch and original trim card.
- IV. Original sample (If available).

Within 1 day of receipt of a new order the merchandise manager must call for a pre - production internal meeting. The following people must attend this meeting:

- a) Head of Operation.
- b) Merchandise Manager.
- c) Acct. Related Merchandiser.
- d) Head of QA Dept.
- e) QA Personal.
- f) Internal QA Personal.

At the meeting the merchandiser will issue all information with regards to the order. This information includes.

- a) PO sheet copy
- b) Spec sheet with all related information.
- c) Lab dip card, print artwork, trims card, etc.
- d) Original fabric swatch (If available)
- e) Proto sample.

**LAB DIP / PRINT STRIKE OFF:**

- a) Follow up the sample color with the customer for lab dips.
- b) Upon receipt of sample from the client, immediately send a duplicate to the customer. 9 Follow-up with the client for approved of the sample.
- c) Obtain maximum numbers of lab dips 3 per color. 9 Follow with the client for approvals/comments.
- d) If sample are ok then choose the following process, if the customer don't seem to be satisfied then the entire process are start again.
- e) Update Order Checklist, format enclose d.
- f) Update the excel sheet accordingly, format enclosed.

**SIZE SET SAMPLES:**

- a) Follow-up with the scale Set options with actual fabric.
- b) A minimum of 5 pieces of every sample should be developed. One for merchandisers, one for the standard controller, one for production, one for the assembly manager & one for the client.
- c) Thoroughly check the styling, measurement (if any), stitching, quality of the material, fabric construction/GSM, hand feel, washing standard, finishing of the sample & accessories if any.
- d) Prepare size set format sheet & attach with the checklist, format attached.
- e) Head of department will give the ultimate approval prior sending the samples to the buyers.
- f) Make sure that buyer receives the samples as per their precise requirement. 9 Follow with the client for approve also/comments.
- g) Upon receipt of approval advise supplier & internal control Head. 9 Update Order Checklist, format enclosed.

h) Update the excel sheet accordingly, format enclosed.

Obtain actual production schedule from the supplier. ensure the schedule is in accordance with the shipment date.

**SAMPLE ACCESSORIES:**

Factories are going to be answerable for the choice of accessories supplier.

Follow-up with the supplier and quality control for prompt delivery of accessories for local max 4 days for imported max 12 days.

Obtain 4 sets of samples of all accessories with a minimum of 3 different options from the supplier. One for merchandisers, one for the customer, one for the quality control, & one for the suppliers for future references.

Upon receipt of samples from the supplier, match these against buyer specifications.

Thoroughly consult with the original/instructions received from the customer, artwork, color, quality, sewing allowance, bar code, price tags etc.

Prepare accessories format sheet, format attached.

Head of department will give the ultimate approval prior sending the samples to the buyers.

Prepare a minimum of 2 synergies trim/accessories cards. One for buyer & one for merchandiser.

Make sure that buyer receives the samples as per their precise requirement.

Update Order Checklist, format enclosed.

Update the excel sheet accordingly, format enclosed.

**PRE-PRODUCTION SAMPLES:**

Follow-up with the client for prompt delivery of pre -production sample maximum 2 days.

Obtain 4 sets of pre -production samples from the supplier. One for merchandisers, one for the sample store room, one for the standard control, & one for the client for future references.

Pre-production sample all told size sets should be available to the merchandisers a minimum of 5 days before the beginning of actual production.

Upon receipt of samples from the client, match these against buyer specifications.

Thoroughly check the styling, measurement, stitching, quality of the material, fabric construction/GSM, hand feel, washing standard, finishing of the sample & accessories.

Prepare PP sample format sheet, format attached.

Head of department will give the ultimate approval prior sending the samples to the buyers.

Make sure that buyer receives the samples as per their precise requirement.

Follow with the client for approvals/comments.

Update Order Checklist, format enclosed.

Update the excel sheet accordingly, format enclosed.

### **DYE LOTS:**

Follow-up with the supplier and internal control for the delivery of dye lot.

Dye Lot should be available (6 X 6, for each roll) to the merchandisers a minimum of 5 days before the beginning of actual production.

Upon receipt of samples from the customer forward the identical to lab for lab test & match these against buyer specifications.

Thoroughly see the color standard, color fastness, shrinkage, GSM/construction, hang feel, fabric quality, knitting tension, Lycra etc.

Receive Dye Lot sample format sheet from lab, format attached.

Head of department will give the ultimate approval prior sending the samples to the buyers.

Update Order Checklist, format enclosed.

Update the excel sheet accordingly, format enclosed.

### **BULK ACCESSORIES:**

Follow-up with the supplier for the delivery of bulk accessories.

These accessories should be available to the merchandisers a minimum of 5 days before the beginning of actual production.

Upon receipt match these against buyer specifications.

Prepare Bulk Accessories for mat sheet, format attached.

Head of department will give the ultimate approval prior sending the samples to the buyers.

Update Order Checklist, format enclosed.

Update the excel sheet accordingly, format enclosed.

### **PRODUCTION:**

Once sampling is completed Head of concern Merchandiser forwards the order file to the pinnacle of internal control together with the approved sample & a duplicate of projected production schedule. Ensure the file is forwarded a minimum of 5 days before start of actual production.

A meeting should be conducted between the top of Merchandising Department, Concern Merchandiser, Head of internal control & internal control Officer (Production) discussing all the small print of order.

Obtain an instruction sheet covering all the desired information from the quality control officer & approve.

Confirm any new comments are added into the instruction sheet.

Regular follow up should be made with the client & internal control regarding the status of production.

Confirm the standard Control Department conduct all the required inspections.

Fabric Quality Testing, ILC, IPC, MPC & FRI for each order. For big volumes ensure, there are over 1 MPC being conducted by the standard control.

Obtain daily production status from internal control & forward the same to that for updating the net Site latest by 11:00 every morning.

Obtain reports of all the inspection conducted i.e. Fabric Quality Testing, ILC, IPC, and MPC & FRI for each order from internal control & keep a replica for record.

Update Order Checklist, format enclosed.

Update the excel sheet accordingly, format enclosed.

**SHIPMENT / SALESMAN SAMPLES:**

- a) Inform Head of internal control for Shipment Sample.
- b) Obtain 2 sets of shipment samples from the standard Control Department of all sizes covering all colors or as specified by the customer. One or two pieces to be provided to concerned Merchandiser & all remaining to Manager Administration. Just in case where buyer requires shipment samples receive one complete set from internal control.
- c) Shipment samples should be available to the merchandisers the subsequent day of FRI.
- d) Upon receipt of samples, conduct an intensive check & match these against buyer specifications.
- e) Thoroughly check the getup, styling, stitching, fabric quality, fabric construction/ GSM, hand feel, washing standard, finishing, & accessories.
- f) Prepare Shipment sample format sheet.
- g) Head of department will give the ultimate approval.
- h) Make sure that buyer receives the samples as per their precise requirement.
- i) Forward one set of shipment samples to administration department.
- j) Keep remaining samples within the department for future use & maintain a register.
- k) Update Order Checklist, format enclosed.
- l) Update the excel sheet accordingly, format enclosed.



**DELIVERY & COMMERCIAL DEPT:**

Regular follow-up is important to:

- o Ensure goods are handed over to the forwarder.
- o Ensure the forwarder books space/flight for timely delivery of products.
- o Ensure staffing of products is conducted.
- o Ensure the date of departure is as per the booking.
- o Obtain vessel/flight details from commercial department & advise buyer.
- o Receive acknowledgement of products from buyer.
- o Update Order Checklist, format enclosed.
- o Update the excel sheet accordingly, format enclosed.

**DOCUMENTATION:**

Conduct regular follow up with commercial department & supplier for the timely delivery of all the below mentioned documents to the buyer.

- a) Packing List
- b) Commercial Invoice
- c) GSP
- d) Country of Origin Certificate
- e) Annexure III for Mexico Shipment (must be obtained 1 month prior shipment)  
Country of Origin Certificate attested from Argentinean Embassy in India  
Argentina shipment (must be obtained 1 month prior shipment)
- f) Inspection Certificate
- g) All these documents are required to be sent to the buyer first via email or fax &  
Then original via courier.
- h) Receive acknowledgement of documents from buyer.

## **3.Chronological Process of Merchandising:**

### **3.1Sequence of merchandising process:**

3.1. a. Salesman Samples, Counter Samples, Approval Samples, Photo samples, Preproduction Samples, Production Samples, Shipping samples.

3.1. b. Swatch, and Trims, Trim's Related Affairs

Sample: Reference garment corresponds to:

- a) The artwork (styling) done by designer and/or developer
- b) Particular purchase order.
- C) Any revision to the style work.
- d) Conform to any specific requirement.

**Sequence Of Sampling:** Sequence of sampling is a non-probability sampling technique where in the researcher picks a single or a group of subjects in a given time interval, conducts his study, analysis the results then picks another group of subjects if needed and so on.

### **First Pattern:**

First pattern is the first physical version of any garment as per the artwork done by designer and for developer.

Purpose: See the design work & test the fitting.

Status: Nothing specific

Material: Available

Price: Not confirmed

Quantity: 1 (for customer) + 1 (for merchandiser)

Delivery: As per urgency.

### **Second Pattern:**

Usually designer /developer always ask for some changes to the first pattern. Second pattern is made as per comments.

**Counter Sample:**

Where first pattern is made on designers artwork, Counter sample is to make not on designer's artwork, has to follow another sample given by the merchandiser.

Purpose: See the workmanship & test the factory skill

Status: Nothing specific

Materials: Available

Price: Not confirmed

Quantity: 1 (for customer) + 1 (self-keeping)

Delivery: As per request.

**Salesman Sample:**

Salesman sample is created when price is confirmed and orders are on speculation, usually in 1 size altogether color combinations of expected order. Buyer held a gathering with its customer and record their response on order quantity per color, size etc. and at last place order to their vendor.

¾ Purpose: Sales meeting by retailers, market appraisal & Demand / order forecast

¾ Status: finish of the order confirmation

¾ Material: Actual

¾ Price: Confirmed

¾ Quantity: There's minimum quantity per color combination

¾ Delivery: Very, important to fulfill the delivery date.

**Photo Sample:**

™ Photo samples are made with actual color and material to be worn by the model on the event of shooting for catalog.

**Approval Sample:**

In any discrete period of your time, whenever it required any revision within the sample, a replacement sample is formed (sometimes mock -up is workable too) as per new specification. it's sent to buyer for his approval of the conformity that -the revision is finished correctly.

SIZE SET: Consists of 1 pc from each size for every color combination.

MOCK UP: Any a part of the garment to create for particular purpose, not complete garment Pre- Production Sample When material for bulk production arrived, factory makes a sample with the particular material and sends to buyer.

**Production Sample:**

It is a reference to the buyer that the bulk is being produced as per specifications. Buyer wants to be assured that correct material is sourced & line workmanship conformed to the quality level.

**Shipping Sample:**

A sample is kept from every Pre -Shipping inspection to be referred, if required, after the order has been delivered. Usually for any disputes (e.g. Claim) shipping samples is important.

**Swatch:**

Swatch could be a presentation of all the materials (Fabric & Accessories) used for any specific style/order. Usually small piece of cloth and every piece of accessories are attached in board paper in a very systematic manner. Swatch is incredibly important for mechanical system to create the proper construction of a garment and QC department ensures it. Concerned merchandiser should confirm/approve the swatch.

.

**3.2 Trims:**

Trims cover all the things utilized in the garment except the essential fabric. There are many items went to manufacture the clothes, Proper selection of trims and its quality are vital for styling, otherwise the garment could also be rejected or returned by the shoppers.

Following may be a part of list that covers some names of the trims:

Zipper/Fastener:

Teeth : Nylon, Vision, Metal

Color : Tape Color, Teeth Color

Size: #3, #5, #8 etc.

Length: As per requirement 18 cm, 72 cm

End: Close End (C/E), Open End (O/E)

Slider: a way, Reversible.

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## 4. Important Documents for Garments Merchandiser:

### 4.1 Accessories quotation:

Specimen Local Accessories Price

Company Name and address

To

Company Name Address

Accessories Quotation:

SL	NAME OF THE ITEMS	QUANTITY	USD RATE	REMARKS
	MANUFACTURER'S ITEM			
01	POLY (EXAP.MEA.17"X 27"),PLAIN POLY(8MM)	1 DOZ	\$ 0.36/YDS	
02	HANGER	X	AFTER SEEING SAMPLE	
03	COTTON POLYESTER DRAWSTRING	1 YDS	\$ 0.028/YDS	
04	TWILL TAPE COTTON/POLYESTER	1YDS	\$ 0.030/YDS	
05	HANGTAG, BARCODE, LABEL	X	AFTER SEEING SAMPLE	
06	7 PLY BOTH SIDE LINER 5PLY BOTH SIDE LINER	PER SQUARE METER	\$ 0.78/S.M	
07	PAPER PRINTED LABEL 2.5"	1DOZ	\$ 0.05/DOZ	
08	SHEETING PRINTED LABEL 2.5"	1DOZ	\$.045/DOZ	
09	STOPER	1 DOZ	\$ 3.90/DOZ	
10	ELASTIC WHITE- W-1/2"	144YDS/ROLL	\$ 3.60/ROLL	
	W-1"	48YDS/ROLL	\$ 1.40/ROLL	
	W-1/2"	48YDS/ROLL	\$ 2.44/ROLL	
	SUPPLY ITEM			
01	ZIPPER PLASTIC(NO# 05 NORMAL PULLAR C/E O/C)	1 DOZ	\$ 1.30/DOZ	
02	SHANK BUTTON	1 GROSS	\$ 2.90/G	
03	SNAP BUTTON	1 GROSS	\$ 4.0/G	
04	NYLON BUTTON(14L AND 16L)	1 GROSS]	\$ 4.2/G	
05	HORN BUTTON(22L AND 24L)	1 GROSS	\$ 32.50/G	
06	COLLAR STAND ( L-18")	100 PCS/BUNDILE	\$ 1.50/BUN	
07	VELCRO TAPE-2.5"	1 YDS	\$ 0.40/YDS	
08	GUM TAPE-2.5"	48 YDS/ ROLL	\$ 0.46/ROLL	
09	SCOTCH TAPE	12 ROLL/PACKET	\$ 2.88/PAC	
10	METAL CLIP	200 PCS/PACKET	\$ 0.40/PAC	
11	TISSUE	500 PCS/PACKET	\$ 2.0/PAC	
12	TAGPIN	500 PCS/PACKET	\$ 2.24/PAC	
13	PP BAND	500YDS/ROLL	\$ 8.0/ROLL	
14	INTERLINIG NON FUSE	100 YDS/ROLL	\$ 25.20/ROLL	
15	REVEIT ANTOIQUE BRUSS	1000 PCS	\$10.98	
16	T/C SOFT	1 YDS	\$0.50	
17	EYE LET	1000 PCS	\$10.80	

Note: ALL PRICES TO BE NEGOTIATED

THANKS AND BEST REGARDS

## 4.2 Accessories:

- LABELS: Main, Size, Care, Content, price, patch etc.
- BUTTON: Horn, Metal etc.
- ELASTIC: Cotton, Polyester etc.
- EYELET: Antique Matching etc.
- VELCRO : Hook & Pile
- STRING/CORD: Cotton, Polyester etc.
- PLASTIC CLIP
- TAGS : Price tag, Hand Tag
- STICKER : Hook & Pile
- TAGPIN
- HANGER
- POLYBAG
  - Strength: Chemical Mixture
  - Thickness (micron/mm: 1 mm = 1000micron)
  - Elasticity, Transparent, LDPE (Low Density Poly Ethylene), PP (Poly Propylene)
- BLISTER BAG :(.05 mm) : Loaded capacity is higher than poly bag
- SCOTCH TAPE
- GUMTAPE
- CARTON: 3ply, 5ply, Size (L, W.H)

### 4.2.1 SEWING THREAD:

The thread we choose for any sewing project should be similar in fiber content to that of our fabric. Cotton, polyester & cotton/poly threads are the most widely used

### 4.3 COSTING SHEET FOR WOVEN SHIRT

Reference No. : GM/COST/2005 Date: 2 march 2005

Order sheet Rcvd Date: P/Ratio = 1/2

Fabric Description: Denim 6.05 oz. width: 59/60 inch

DESCRIPTION	CONSUMPTION PER YD/DOZ	UNIT PRICE PER DOZ	UNIT PRICE PER PC.	REMARK S
Fabric 1.60 yds/pcs	\$19.20	\$22.08		\$ 1.15/yd
Interlining		\$0.76		
Readymade color		\$0.50		
Collar Bone 2 Pcs X 2%		\$0.34		
Main Label		\$0.23		
Size Label		\$0.40		
Special Paper Label		\$0.46		
Button 14 L (9pcs+2%)		\$2.00		
Sewing Thread		\$0.60		
Tag		\$0.30		
Collar Stand		\$0.30		
Butter fly		\$0.40		
Neck Board		\$0.06		
Ball pin		\$0.10		
Poly Bag		\$0.10		
Gum Tape		\$0.04		
Master Cartoon with DVR	36Pcs/Cartoon	\$0.55		
Tissue paper		\$1.50		
PP Band		\$0.44		
Total Accessories Cost + 2% wastag e		\$4.08		
Embroidery		\$2.20		
Washing		\$2.50		
Screen Print		\$2.10		
Cost Of Manufacturing		\$7		
Total Cost In FOB		\$49.04		
Sea Freight		\$2.83		
Total Cost in C & F		\$51.87		
Invoice Price /pcs		\$3.20		
Extra Cost		\$3.20		
	Total USD	\$58.27		





**4.4 Pro-forma Invoice:**

**COMPANY NAME**

**COMPANY ADDRESS**

**Pro-forma Invoice**

No. GMC/GT/GIT/025/05

Date: 30/06/2005

Colors: Stone Wash as per last order.

Packing: Single Natural Poly bag in 36 Assorted Master Cartoon.

Assortment: M/6 -L/12-XL/12-XXL/6

Shipment date: Within 31/07/2005

Partial Shipments: Allowed

B/L: Clean Board ocean bill of lading issued to the order of negotiating bank and endorsed to the opening to the opening bank marked freight prepaid.

Advising Bank: Public Bank Limited, Kawran Bazar Branch, Dhaka -1215 Bangladesh.

Payment at sight by irrevocable and transferable L/C.

L/C must be available with any bank in Bangladesh. Clear reimbursement to be allowed.

For and on behalf of

Company Name

---

**Authorized Signature**

## **5. Costing and Consumption:**

### **5.1 Before costing parameter:**

- 1) Fabrication: there are clear idea regarding the fabrication before taking the order from the customer / buying house. After then, surety that strong source of the followings fabric.
- 2) Size spec: ensure that, get the correct/latest size spec with the measurement of all the sizes, which can be ordered. Again and again it's seen that, PO sheet has include new bigger size which wasn't during the costing.
- 3) Fabric color: try and know that, what percentage colors the design has & also attempt to know that, color wise order qty ratio.
- 4) Quantity: Take information regarding approximate order qty.
- 5) Shipment date: Asked buyer for the shipment date & see the assembly department that, they need enough space for shipped out the followings quantity within the require ship date or tell your possible date.
- 6) Test requirement: Let know that, the order has any test or not.
- 7) L/C payments term: Take a previous l/c copy from them & ask commercial people regarding all the terms together with payment terms.
- 8) Inspection: Get a confirmation from the customer that, who will inspected the products. If third party then who pays their charges.
- 9) GSP: confirm that, buyer has need the GSP or not.

### **5.2 Calculating Fabric Consumption:**

- 1) **Body Consumption:** Calculate the body fabric consumption at first. If possible calculate it after make the pattern. Be confirmed regarding the dia. Calculate the consumption with adding + 5 GSM extra which fabric is sells in kg (s/j, pique, rib etc.

1) **Rib:** Calculate the rib consumption carefully because sometimes the garments have rib at cuff opening & bottom hem. Some people mistakenly do the consumption considering one cuff.

2) **Neck tape:** Calculate the consumption of neck tape.

3) **Appliqué & others fabric:** Make sure that, you are not missing any appliqué & any other fabric.

4) **Estimate the wastage:** If it is with only front chest Print then 9% is ok but if with allover/rotary print, with heavy wash etc then you must increase the wastage. Moreover, if the garments with pigments dye then add minimum 25 to 30% wastage because in this pigment dye garments reject percentage is very high. For more details regarding consumption click followings link For Knit & for Woven shirt & For Woven Fabric.

#### **Others item:**

1) **Print:** If the clothes have print then confirm that, the sample have a transparent art work of it. Make sure there clearly mentioned the print quality, dimension & placement. Send the art work to your printers for an improved price idea. Also let know from printers regarding the difficulties of the followings print. Again and again it's seen that, buyer has asked for therefore many type/kind prints in same body which is so difficult for production. Such as, if buyer asked for Flock + discharge & foil print in at the identical artwork then it's impossible for production.

2) **Embroidery:** talk over with embroidery supplier regarding the embroidery & take price quotation.

3) **Wash:** Take the wash price quotation from washing factory.

4) **Test:** Confirm the costs of test from the testing company.

#### **5.3 Accessories & trims:**

Calculate the value of accessories individually it'll reduce your percentage of mistake. Please find below the list of some accessories item

**™ sewing thread:** Confirm that, which thread are need 100% cotton, spun polyester or filaments. Then make sure the count 50/2 or 40/2 or the other denier.

Regarding the pigment dye garments we normally

used cotton grey color cotton thread. Calculate the sewing thread consumption part by part & add require wastage percentage. For details of stitching thread consumption Thread Chart & Consumption Formula

**Labels:** Take the quotation from your supplier for the whole woven & satin/paper label.

**Tape:** Calculate the consumption of tape if it's, like Velvet, herringbone or canvas etc.

**Elastic:** ensure which denier & width it need. Then take the quotation from supplier.

**Zipper:** If the clothes have zippers then confirm that, from where you'll purchase that. Many time the brand zipper must import the mold from abroad. Confirm the zipper quality, such metal and nylon or vision zipper. Check the zipper measurement from production department and find prices from zipper supplier.

**Button:** Take the button price from your supplier if the clothes have it.

**Inter lignin:** Calculate the inter lignin price if the clothes need.

**Patch or badge:** Calculate the patch or badge or others metal item if the clothes have.

**Finishing item:** tissue, silica gel, hang tag, barcode sticker, back board, h/tag string, scotch tape, security tag calculate the costs of those item.

Hanger: Take the quotation of hanger.

Poly: Make the measurement of poly. Confirm the standard & with adhesive or not.

Carton: determine the carton means element & take the costs from carton supplier together with top, bottom & divider.

Gum tape: Confirm the gum tape quality that, whether it's normal transparent or with any logo. Then take the worth quotation.

PP belt: Take the value quotation of pp belt i f buyer asked it.

Carton sticker: Take quotation for sticker

#### **5.4 Commercial cost:**

Normally we add 3% of total purchase (Fabric cost+ other item cost + Accessories cost) as commercial cost if the L/C payments terms is as sight. If the L/C is 60 days deferred then you'll add 7.5% additional cost of total price and it'll be 15% for 90 day deferred.

#### **5.5 COSTING:**

Costing of clothes is vital task for a clothes merchandiser. Overall profit depends thereon. All manufacturing Companies sell their product to make profit. The profit on each product sold may be defined because the difference between the asking price of the merchandise and total cost of constructing the merchandise. Cost therefore plays a really important role within the product making and its important task for factory which runs for business purposes.

#### **5.6 GARMENTS COSTING:**

There are two kinds of garments, namely woven and knitted garments. Shirt, trouser, series, bed spreads, blankets, towels and made ups are woven. T -shirts, sweaters, undergarments, pajamas and socks are knits.

Costing is that the deciding factor for fixing of costs and therefore the important thing to follow all told stages like purchase, production, marketing, sales, etc. Also update knowledge about everything associated with garments, is crucial to form perfect costing. Costing includes all the activities like purchase of materials and accessories, processing and finishing of materials, sewing and packing of clothes, transport and conveyance, shipping, over heads, banking charges and commissions, etc.

We must be aware that there are always fluctuations within the costs of raw materials and accessories, charges of knitting, processing, finishing, sewing and packing, charges of transport and conveyance. The tactic of creating costing will vary from style to style. As there are many various styles in garments.

Hence allow us to take men's basic T -shirt style as example which is in regular in use.

Costing of the merchandise is finished by the consideration of the subsequent factors: (Costing of product depends on the subsequent matters):

- 1) Amount of raw materials consumed. /Raw material
- 2) Direct labor.
- 3) Indirect labor.
- 4) Factory cost
- 5) Office and administrative cost.
- 6) Sales and distribution cost.
- 7) Profit
- 8) Total utility cost & Depreciation
- 9) Wages & Salary
- 10) Bank liability
- 11) Transport cost Lunch Salary
- 12) Payment
- 13) Entertainment cost
- 14) Miscellaneous cost
- 15) Government cash incentive

### 5.7 PRICE OF THE PRODUCT:

Generally price of product is determined by the required profit adding to the total expenses.

So, Price of products= (Direct expenses + Indirect expenses + Factory Overhead) + Required profit

### COSTING OF KNITTING: (Circular knitting)

M/C depreciation cost	= 2.25 taka/kg
Needle cost	= 1.45 taka/kg
Sinker cost	= 0.20 taka/kg
Lubricant cost	= 0.82 taka/kg
Electricity cost	= 0.45 taka/kg
Spare parts cost	= 0.05 taka /kg
Knitting floor charge	= 0.33 taka/kg
Salary	= 1.85 taka/kg
Others	= 0.10 taka/kg
Knitting cost	= 7.5 taka/kg

**KNITTING CHARGE OF FOLLOWING FABRIC DESIGNS:**

Design	Rate/kg	Design	Rate/kg
S/J	8.00	Mash Fabric	50.00
S/J Dyed Yarn	20.00	Mini Waffles	35.00
S/J HFL	25.00	S/J(Eng. stripe)	100.00
Pique/ Lacoste	14.00	Lacoste(Eng. stripe)	120.00
1X1 Rib	14.00	FF LY S/J(Eng. stripe)	200.00
Plain interlock	17 .00	HF LY S/J(Eng. stripe)	150.00
2X1 Rib	20.00	FF LY Lacoste(Eng. stripe)	220.00
Fleece	18.00	HF Lycra Lacoste(Eng. stripe)	170.00

**KNITTING CHARGE OF DIFFERENT FABRICS:**

Fabric name		Charge per Kg (TK)
Single Jersey		08-10
Single Jersey with Lycra		30-32
Single Lacoste		15-18
Double Lacoste		16-20
Single Pique		15-18
Double Pique		16-20
1X1 Rib		18-20
Rib with Lycra		32-35
Interlock		28-32
Fleece		25-28
x	White	: 25/28 Tk.
x	Average color	: 80 Tk.
x	Black	: 40/45 Tk.
x	Royal blue	: 120 Tk.
x	TC(solid)	: 100/120 Tk.

Name of fabric process	Charge per kg(Tk)
1. Slitting only	5
2. Stented only	25
3. Compacting only	15
4. Stented + Compacting	35
5. Stented + Compacting+ wash	50
6. Tube Compacting	10

### 5.8 Costing parameters:

Fabric consumption.

Gross weight of other components of garment.

Fabric cost per kg.

Fabric cost per garment.

Other charges (print, embroidery, etc.).

Cost of trims (labels, tags, badges, twill tapes, buttons, bows, etc.).

CMT charges.

Cost of accessories (hangers, inner boards, polybags, cartons, etc.).

Cost of a garment.

Price of a garment.

### 5.9 Fabric consumption:

The garments manufactured in many sizes to suit for everyone. Generally they're in sizes Small (S), Medium (M), Large (L), Extra-large (XL) and Double size (XXL). The number ratio or assortment may be anybody of the subsequent approximate ratio. S: M: L: XL: XXL - 1:2:2:2:1

S: M: L: XL: XXL - 1:2:1:2:1

S: M: L: XL: XXL - 1:2:3:2:2

as the price is that the same for of these sizes of clothes, th e author have taken the centre size large (L) for average calculation. Generally, the number of L size are going to be higher or up to the amount of every of other sizes.

### 5.10 CM (Cost of manufacturing):

C X T

We know,  $CM = \frac{C \times T}{X}$

Here, C = Number of machine per line

X = total output per line per day = Hourly output X Working hour

= 100 X 8

= 800 pcs



T = average cost per machine per day

Again we know,  $T = A/BX26$

Here, A= Direct or indirect cost per month

= 60,000

B= Total Number of machine =

200 26= Working day per

month

∴  $T = 60,000 / 200 \times 26 = 11.54$

∴ CM cost =  $24 \times 11.54 / 800$

= \$ 0.346/ piece

### 5.11 Costing for knitted t-shirt:



Ratio	1	2	2	2	1
Description	S	M	L	XL	XXL
Chest	56	58	60	62	64
Body length	74	76	78	80	82
Sleeve length	22	23	24	25	26

**Description:** Men's Basic T-shirt-short sleeves- 100% Cotton 140 GSM Single jersey - 1 x 1 ribs at neck - solid dyed - light, medium and dark colors in equal ratio.

Sizes: S, M, L, XL, XXL Ratio: 1: 2: 2: 2: 1

Measurements in cm: (Finished garment)

Size: L

Chest - 60 cm

Length - 78 cm

Sleeve length - 24 cm

Neck rib width - 3 cm Hem - 3 cm

Patterns are generally made with the seam allowance and cutting allowance. Generally, 12 cm is added with the total of body length and sleeve length.

That is,

Fabric consumption/pc=

(Body length + Sleeve length + allowance) \* (Chest + allowance) \* 2

\* GSM 10000

$$\frac{(70 + 24 + 12) * (60 + 3) * 2 * 140}{10000}$$

= 187 grams

Body & Sleeves: 187 grams

Neck rib: 10 grams (approximately)

gross weight: 197 grams or 0.197/kg

Fabric consumption/ dozen = 0.197 X 12 = 2.364 kg

Here, fabric price/kg= \$6

Fabric price / dozen = 6 X 2.364 = \$ 14.184

Fabric price/ dozen = \$ 14.184

Per dozen CM cost = \$ 5.5

per dozen accessories cost = \$5.0

Per dozen overhead cost = \$1.8 (bank handling, carriage, forwarding)

Commission = \$3

---

Total FOB price = \$29.484 (including commission)

Here, total FOB price = \$29.484

Per dozen sea freight = \$ 1.34

---

Total C&F price (Hamburg)/dozen = \$ 30.824

Again, total C&F price / dozen = \$ 30.824

per dozen insurance cost = \$ 1.3

Total CIF price / dozen = \$ 32.124

∧ Total CIF price/piece = (32.124 ÷ 12) = \$ 2.677

5.12



**Description:**

Oxford stand up collar, long sleeve, button sewn, one chest pocket, front pocket, and box pleat at a center back yoke with loop, 100% cotton.

112 X 54

45 X 36

Total cartoon	Color	Size							total
		39	40	41	42	43	44	45	
		1	2	3	2	2	1	1	
25	White	25	50	75	50	50	25	25	325
35	Yellow	35	70	105	70	70	35	35	420
45	Blue	45	90	135	90	90	45	45	450
50	Black	50	100	150	100	100	50	50	600

**Specification:**

	1	2	3	2	2	1	1
Description	S	M	L	XL	XXL	3XL	4XL
1/2 Chest	56	58	60	62	64	66	68
Body length	79	81	81	83	84	85	86
Sleeve length	63	64	64	66	67	68	69

**Fabric consumption formula:**

$$\frac{\left\{ \frac{1}{2} \text{ chest X (Body length + Sleeve length)} \times 2 \right\}}{6.45 \times 36 \times \text{Fabric width}}$$

Here,

$$\text{Body length} = 81\text{cm} + 6\text{cm (SA)}$$

$$= 87\text{cm}$$

$$\text{Sleeve length} = 64\text{cm} + 6\text{cm (SA)}$$

$$\frac{1}{2} \text{ Chest} = 60\text{cm}$$

$$\text{Width} = 58 - 1 = 57$$

$$\begin{aligned} \text{Consumption/ piece} &= \frac{\{60 \times (87+70)\} \times 2}{6.45 \times 57 \times 36} + 5\% \text{ wastage} \\ &= 1.47 \text{ yds} \end{aligned}$$

$$\text{Consumption / dozen} = 1.47 \times 12 = 17.64 \text{ yds}$$

$$\text{Here, fabric price} = \$ 1.60/\text{yds}$$

$$\text{Fabric price / dozen} = 1.60 \times 17.64$$

Here,

$$\text{Fabric price/ dozen} = \$ 28.224$$

$$\text{per dozen CM cost} = \$ 5.5$$

$$\text{per dozen accessories cost} = \$ 5.0$$

$$\text{Per dozen overhead cost} = \$ 1.8 \text{ (bank handling, carriage, forwarding)}$$

$$\text{Commission} = \$ 3$$

---

$$\text{Total FOB price} = \$ 43.524 \text{ (including commission)}$$

$$\text{Here, total FOB price} = \$ 43.524$$

$$\text{Per dozen sea freight} = \$ 1.34$$

---

$$\text{Total C\&F price (Hamburge) /dozen} = \$$$

$$44.864 \text{ Again, total C\&F price / dozen} =$$

$$\$ 44.864 \text{ per}$$

---

$$\text{dozen insurance cost} = \$ 1.3$$

$$\text{Total CIF price / dozen} = \$ 46.204$$

$$\hat{U} \text{ Total CIF price/piece} = (46.204 \div 12) = \$ 3.850$$

### 5.13 Consumption Calculation of Woven Basic pants:



Formula:

$$\frac{(\frac{1}{2} \text{ waist} \times \text{Front rise}) + (\frac{1}{2} \text{ Thigh} \times \text{In seam beam length}) \times 4}{36 \times \text{Fabric Width}} \text{ Yds.} + 5\% \text{ wastage}$$

Let,

$$\frac{1}{2} \text{ waist} = 28\text{cm}$$

$$\text{Front rise} = 14\text{cm}$$

$$\frac{1}{2} \text{ thigh} = 18\text{cm}$$

$$\text{In seam length} = 72\text{cm}$$

$$\frac{(28 \times 14) + (18 \times 72) \times 4}{6.45 \times 45 \times 36}$$

$$\hat{U} \text{ Consumption / pics} = \frac{(28 \times 14) + (18 \times 72) \times 4}{6.45 \times 45 \times 36} \text{ yds} + 5\% \text{ wastage}$$

$$= 0.583 \text{ yds}$$

$$\hat{U} \text{ Consumption / dozen} = 0.583 \times 12 = 7 \text{ yds}$$

Here, fabric price = \$ 4.0/yds

$$\text{Fabric price / dozen} = 4 \times 7 = \$ 28$$

Here,

$$\text{Fabric price/ dozen} = \$ 28$$

Per dozen CM cost	= \$ 7.5
per dozen accessories cost	= \$5.0
Per dozen overhead cost	= \$1.8 (bank handling, carriage, forwarding)
<hr/>	
Commission	= \$3
Total FOB price	= \$45.3 (including commission)
Here, total FOB price	= \$45.3
Per dozen sea freight	= \$ 1.34
<hr/>	
Total C&F price (Hamburg)/dozen	= \$ 46.64
Again, total C&F price / dozen	= \$ 46.64
per dozen insurance cost	= \$ 1.3
<hr/>	
Total CIF price / dozen	= \$ 47.94
∪ Total CIF price/piece	= (47.94 ÷ 12) = \$ 3.995

#### 5.14 Sewing Thread Consumption:

The sewing threads are carefully aloof from a particular length of every different seam. We use the quantity taken from these seams to enable us to calculate a ratio, which might then be applied to the overall length of every seam. By dividing the number of thread by the seam length, we get the ratio of thread consumed. If we multiply this factor times the full length of seam, we determine the whole thread consumed for that seam. We usually add 15% for wastage of thread thanks to machine running conditions, thread breaks, repairs, etc.  $540 \text{ cms} \times 1.15 = 621 \text{ cms}$  or 6.21 meters of thread per seam including wastage. Perform the steps within the above example for every stitch type found within the garment.

#### 5.15 Using sewing Thread Ratio:

An easier method is to use the generally applicable Thread Consumption Ratios for the various stitch types that are listed in the table overleaf. By relating these ratios to the lengths of seams using each stitch type, total thread consumption can be calculated.

Stitch Class	Description	Total Thread Usage cms per cm of seam	No of Needles	% of Needles Thread	% of looper / Under Threads
301	Lock Stitch	2.5	1	50	50
101	Chain stitch	4	1	100	0
401	2-Thread Chain stitch	5.5	1	25	75
304	Zigzag Lockstitch	7	1	50	50
503	2-Thread Over edge stitch	12	1	55	45
504	3-Thread Over edge stitch	14	1	20	80
512	4-Thread Mock-safety stitch	18	2	25	75
516	5-Thread Safety stitch	20	2	20	80
406	3-Thread Covering stitch	18	2	30	70
602	4-Thread Covering stitch	25	2	20	80
605	5-Thread Covering stitch	28	3	30	70

### Example:

Length of seam = 100 cms or 1 meter

Stitch class 401 = 2-Thread Chain stitch

Total thread usage per cm of seam = 5.5 cms

Total thread consumption = 100 cms x 5.5 = 550 cms

Estimated Needle Thread = 550 x 0.25 = 138 cms

Estimated Looper Thread = 550 x 0.75 = 412 cms

Add 15% wastage = 550 cms x 1.15 = 633 cms or 6.33 meters of thread per seam.

### Sewing Thread Consumption per Body:

Sewing thread consumption is extremely important for the clothes costing. For quick costing we use our previous idea to calculate the stitching thread cost. Please find below an approximate sewing thread consumption list for a few common item. This list is predicated on minimum wastage. So, initially please check your percent of wastage & and take a look at to manage it.

### 5.16 Machine wise and body wise sewing thread consumption:

#### Machine wise sewing thread consumption/inch:

1.plain m/c	1 needle	2.5 inch
2.plain m/c	2 needle	5 inch
3.over lock	3 thread	13.25 inch
4. over lock	4thread	16.75inch
5.over lock	5 thread	18.75inch
6.flat lock	3 thread	16.75inch
7.flat lock	5thread	22.25inch
8.bar tack stitching	Per operation	Generally 7 inch
Button hole stitching		7 inch per hole
Button attaching		3 inch per button
Feed of the arm		7 inch for one needle
Kanchai Stitching		7 inch for one needle
Back Tack Stitching		7 inch for one needle

Item	Consumption of Sewing thread/body
Basic T-shirt	125 m
Basic Polo shirt	180 m
Basic L/slv Woven Shirt	125 m
Basic S/slv Woven Shirt	175 m
Classic L/slv Woven Shirt	150 m
Classic S/slv Woven Shirt	350 m
Basic shorts	450 m
Classic Shorts	350 m
Basic L/pants	450 m
Classic L/pants	500 m
Basic Nylon Jogging Suit	350 m
Basic Short all	400 m
Classic Short all	500 m
Basic Overall	450 m
Classic Overall	350 m
Padded Coverall	450 m
Basic Romper	350 m
Classic Romper	450 m
Night Dress	200 m
Pajama Set	450 m
Skirt	300 m
Panty	50 m
Brief	50 m
Brassier	100 m
Corp set	150 m
Tank Top	50 m
Denim 5 Pocket Pants	400 m
Basic Nylon Padded Jacket	350 m
Classic Nylon Padded Jacket	500 m
Denim Jacket	450 m
Twill Jacket	450 m
Basic Nylon Wind Breaker	300 m



## **6. Garments Washing:**

### **6.1 Introduction:**

A garment washing is that the technique by which the readymade garments are washed or partially dyed so as to get desirable motif and outlook together with softness/ hand. After making garments from any color are washed to modify the color and appearance. Washing process of garment is finished to form wash look appearance.

### **6.2 Purpose of Washing:**

By the washing technique, faded/old look, color or tinted affect is formed within the garments which also seem the most effective touch of garments.

Washing technique creates new fashion like tagging, grinding, destroy, Blasting, permanent wrinkle, deep dye, tie dye, P. P spray, hand crapping, P.P spooning etc. This also seems the simplest touch of clothes.

The most and important function of wash ing is to cut back size materials as a result the

Garment become size free and become soft hand feel.

When these soft garments are touched then it seems to best touch of clothes.

To attraction the customers/Buyer by differing types of Fashionable washing and market developments.

Thanks to washing, shrinkage occurs within the garments. There's no possibility of further shrinkage of the wash garments.

Any dirt, spot or germ if added within the garments during manufacturing is additionally removed thanks to washing.

### **6.3 Types of Washing:**

Normal wash/Garments wash/Rinse wash

Pigment wash

Caustic wash

Enzyme wash (Bio wash & Bio polishing)

Stone wash

Bleach wash (Ice wash& snow wash)

Stone Enzyme wash

Acid wash

Silicon wash

#### **6.4 Machine used in the washing plant are:**

Sample washing Machine (Horizontal / Vertical Type)

Washing Machine (Side loading)

Washing Machine (Front loading)

Hydro extractor Machine

Dryer Machine (Steam)

Dryer Machine (Gas)

Chemical Mixture Machine

Industrial Oven (Gas/Electric)

Boiler

#### **6.5 WASHING PROCESS OF NORMAL / GARMENT WASH:**

The Normal/Garment washing process of batch of 70 kg Twill/Canvas Garments are described below:

##### **First Step:**

Lot size:..... 70 kg Twill/Canvas Garment.

Add water at L: R = 1: 8-10..... .. 560 - 700Liter.

Machine Running.

Add detergent at 0.5 gm / liter ..... 280 -350 gm.

Temperature ..... Sometime cold & sometime 40°C to 60°C.

Time ..... 5 to 10 minutes.

Drop the liquor.

Cold wash.

**Second Step:**

Add water at L: R = 1: 6 ..... 420 liter.

Washing machine running.

Add Flax softener at 0.6 gm / liter ..... 252 gm.

Add Acetic Acid at 0.5 gm / liter ..... 210 gm.

Time ..... 5 to 10 minutes. Drop the liquor.

Unload the Garments on trolley.

**Third Step: Hydro extractor machine:**

Hydro-extraction the garments to remove excess water from the washed Garments.

**Fourth Step: Steam Dryer/Gas Dryer:**

Load on steam dryer - 50 kg.

Temperature - 60°C - 70°C. Time - 40 - 50 min for dry.

Time - 10 - 15 min for cold dry.

Load on gas dryer - 50 kg, running the machine.

Temperature: - 70°C - 90°C.

Time: - 30 - 35 min for dry.

Time: - 10 - 15 min for cold dry.

**Fifth Step:**

After drying it will be quality checking and good quality Garments will be delivery to Garments factory.

**NOTE:** - Flax softener (cationic or nonionic) diluted with hot water then use in the machine.

**6.6 Ultimate effect of Acid wash:**

During Acid wash, pumice stones are used. By the action of pumic stones, irregular fading affect is developed on the heavy garment s like denims, thick canvas/twill, and sweater.

The pumice stones act brushing action on the garment fabric surface.

the world where more brushing action takes place there more discolor or fading affect is developed and therefore the area where less brushing action takes place less brushing action and takes place less fading affect are developed.

The multi-layer fabric areas like collar, calf, pocket, placket, and side seam etc. area are brushed over the only layer areas.

As a result irregular fading affect are developed on the clothes fabric surface.

Thus during this way fading affect could also be developed on the garment by acid wash technique.

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**ACID WASH PROCESS:**

A processor Acid wash of 60 kg batch of Denim Trouser as mentioned below: -

**First Step: - Pretreatment/ Desiring.**

Add water at L: R = 1: 10..... 600 liter.

Start Machine.

Add desiring agent at 1 gm/liter..... 600 gms.

Add detergent at 1 gm/liter..... 600 gms.

Temperature ..... 60°c.

Time .....20 min.

Drop the liquor.

Rinse one for 3 minutes (cold).

**Second Step: - Hot wash**

Add water at L: R = 1: 10..... 600 liter.

Temperature ..... 60°c.

Time ..... 5 min.

Drop the liquor.

Here hot wash is used to remove the adhering materials from the garment surface.

Unload the garments from the washing m/c in the trolley.

Load the pretreated garments in the dryer m/c.

Dry the garment completely & unload the garments.

The pumice stones used for acid wash need to pre -treat in the following chemical solution:-

Water ..... 100 liter.

Potassium per manganite ..... 1000 grams.

Phosphoric Acid ..... 250 grams.

Stir the solution in a stainless steel tub with dry pumice stone.

Soak the stones with the chemical solution 10 to 15 minutes.

The stones will pick up the solution. Then the soaked stones are dried in the open air for ..... 2 to 3 hrs.

Then pre-treated garment 30 to 40 kg per batch load in the dry washing machine.

Load the per -treated stones (about 50 kg) in washing machine.

Start machine running for each batch ..... 7 to 10 min.

Stop machine running.

Unload the treated garment separately. Pumice stones with P.P. solution hit on garment surface as a result fading will be developed.

Then load the stones treated garment in another washing machine.

### **Third Step: - Wash for cleaning**

Batch wt. .... 70 kg.

Add water at L: R = 1: 8.....560 liter.

Add detergent at 1 gm/liter.....560 gms.

Temperature ..... 40°c - 50°c.

Time ..... 10 min.

Drop the liquor.

Here detergent is used to remove the breaking stone dust and chemicals from the garment surface.

### **Fourth Step: - Whitening/Neutralization.**

Add water at L: R = 1: 8 ..... 560 liter.

Machine running.

Add Metabisulphite at 5 gm/liter..... 2800 gm.

Cold temperature.

Time 5 min.

Drop the liquor.

**Fifth Step:-**

Add water at L: R = 1: 7..... 490 liter.

Machine running.

Add Acetic acid at 0.6 gm/liter ..... 294 gm.

Add Softener at 1 gm/liter ..... 490 gm.

Then unload the garments.

**Sixth Step: - Hydro extractor machine.**

Hydro-extractor is used machine to remove excess water from the garments.

**Seventh Step: - Dryer machine:**

After hydro extraction the garments are sent to drying m/c for complete drying.

**Eighth Step: - Quality & Delivery:**

After drying the garments go to quality checking & rectify washing fault and then good one.

**6.7 INTRODUCTION OF PUMIC STONE:**

**Pumic Stone:-**

The pumice stone are the perforated stones, produced from volcanic explosion.

At first these stones are soft but becomes cold, it becomes the stones with rough Surface, Pumice stones float on water.

Pumice stones come from Indonesia and Turkey.

Indonesia stone color is slightly brown and Turkey stone is white color.

Pumice stones are available in 3 size i.e. small 2 -3 cm, medium 3 -5 cm and large Size 5-7 cm.

Two to Three times can be used are pumice stone.

Every bag contain 22 kg to 25 kg and price 400/= to 425/=/ bag

**THE ACT OF PUMIC STONES DURING GARMENT WASHING:**

During different garments washing like stone wash, Acid wash, Stone Enzyme wash etc.

Pumice stones are accustomed create irregular fading effect on garments.

The pumice stones act a brushing action on the garment fabric surfaces.

The areas where more brushing action happen, there more fading or discolor affect are developed and Therefore the areas where less brushing action takes place, there less discolor affect are developed.

The multi-layer fabric areas like Collar, Cuff, Pocket, Placket, and Side seams etc. areas are going to be brushed quite the only layer areas.

As a result irregular fading is developed within the garments by the action of pumice stones.

**STONE WASH:**

A process of stone wash of 60 kg batch of Denim.

Long Pant as mentioned below:

**First Step: PRE-TREATMENT/DESIZING:**

Are same mentioned above?

**Second Step: - HOT WASH:**

Add water at L: R = 1: 9. .... 540 liter.

Temperature ..... 60°c.

Time ..... 5 min.

**Third Step: - BLEACHING:**

Machine running.

Add bleaching powder (k.c.i) at 10 gm/liter ..... 4800 gms.

Add soda ash at 5 gm/liter ..... 2400 gms.

Pumice stone at ½ vole of garments.

Temperature ..... 60°c.

Time (Depend upon the shade) ..... 12 to 15 min.

Drop the liquor.

Rinse twice, each 3 minutes

**Fourth Step:-NEUTRALWASH:**

Add water at L: R = 1: 9..... 540 liter.

Add sodium hyposulphite at 3 gm/liter ..... 1620 Gms.

Temperature ..... 40°C.

Time (Depend upon the shade) ..... 10 to 12 min.

Drop the liquor.

Rinse one.

**Fifth Step: - SOFT WASH:**

Add water at L: R = 1: 8. .... 480 liter.

Add Acetic Acid at 0.6 gm/liter..... 288 gms.

Cationic softener at 1 gm/liter..... 480 gms.

Time ..... 5 min.

Drop the liquor.

Unload the garments to trolley

**Sixth Step: - Hydro-extractor Machine**

Hydro-extraction the garment to remove excess water from the washed garments.

**Seventh Step: - Drying Machine**

- Load 40 kg garments.
- Set temperature..... 75°C to 85°C.
- Time ..... 35 to 40 min.
- Time ..... 10 minutes in cold dry.

**Eighth Step:**

After unloading garments from the washing machine then they are sent to hydro-extractor machine to remove excess water from the washed garments.

After dryer garment go to quality section for quality checking and good one delivery.



## **6.8 DIFFERENT TYPECS OF WASHING FAULTS**

Color shade variation.

Crease Marks.

After wash whole.

Very dark & very light.

Bleach Spot.

Bottom hem & course edge destroy.

Running shading.

Over blasting / low Blasting.

Over grinding / low grinding.

Bad smell due to poor neutralization.

Poor hand feel.

## **7. Introduction of Garments Dyeing:**

### **7.1 Garments Dyeing:-**

Garments dyeing are a new technology. First this technology applied on woolen and silk garments but now] appliedd on polyester, nylon, acrylic and also cotton garments. The garments merchandise should proper knowledge about garments washing.

In case of garments dyeing the garments are made from grey fabric. And then the garments are dye d in required color and shade. The garments which are dyed in garments dyeing are follows:

Active wear

Jeans wear

Panty hose

Shirt

Terry items

Leisure wear

Skirt

Sweater

### **7.2 Advantages of Garments dyeing:**

Lower cost of production for any item of any color and shade.

Comparatively less time required to provide and provide garments.

No possibility of shade variation on within the clothes.

Small many different items may be produced at lower cost.

Old garments are often re -dyed and hence becomes like new gar ments.

Desiring, scouring, bleaching, dyeing, and finishing may well be worn out the identical machine.

Comparatively lower capital investment cost to line up a clothes dyeing project.

Requires lower water, steam water and chemical consumption.

15% fabric is cut out as wastage during fabric cutting, so wastage cost are going to be saved.

### 7.3 DIRECT DYEING:

#### First Step: - Dyeing

Batch size ..... 60 kg ready for dyeing garments.  
Water at L: R = 1: 8. ....480 Liter.  
Machine Running.  
Temperature .....50°-80°c.  
SCARLET. BNL... at 1.00% ..... 600 gm.  
Dyes/CBA Orange TGL... at 0.3% ..... 180 gm.  
Salt..... At 20 gm/liter. ....9.60 kg (Light color)  
40 gm/liter ..... 19.20 kg (deep color)  
Add Leveling agent at 0.5% ..... 300 gm.  
Time ..... 30-50 mins.  
3 minutes cold water wash.

#### Second Step: - FIXING.

Batch size ..... 60 kg.  
Water at L: R = 1: 7.....420 Liter.  
Running the machine.  
Temperature .....50°c.  
Add Fixing agent at 0.8% .....480 gm.  
Time ..... 10 -15 mts.  
Drop the liquor.

#### Third Step: - Softening:

Batch size ..... 60 kg.  
Water at L: R = 1: 7. ....420 Liter.  
Add Acetic Acid at 0.6 gm/liter .....250 gm.  
Add cationic softener at 1 gm/liter .....420 gm.  
Time ..... 10 mts.  
Drop the liquor.  
Then unload the garments trolley.

**Fourth Step: - Hydro extractor machine.**

Hydro extractor machine is used to remove excess water from the garments.

**Fifth Step: - Drying machine.**

Load 50 kg garments to steam dryer.

Temperature set.....70°c.

Run about..... 40 -45 mts.

After run 10 to 15 mts. for cold dry.

**Sixth Step: - Quality & Delivery.**

After drying the garments go to quality checking & rectify washing fault and the good one delivery.

**7.4 REACTIVE DYE PROCESS:**

**First Step: - Dyeing**

Batch size ..... 60 kg ready for dyeing garments.

Water at L: R = 1: 8..... 480 Liter.

Machine Running.

Red 3BS..... 0.1% ..... 60 gm.

Blue -/F2RL..... 0.01% ..... 6 gm.

Leveling agent at 0.5 gm/liter ..... 240 gm.

Salt ..... at 40 gm/liter ..... 19.20 kg (deep shade) at 20 gm/liter 9.60 Kg (Light shade)

Soda ash...at 20gm/liter..... 9.60kg (deep color) at 10gm/liter.....480kg (Light color)

Temperature ..... 60°c.

Time ..... 40 -60 mts.

Drop the liquor.

**Second Step: - FIXING.**

Batch size ..... 60 kg.

Water at L: R = 1: 8. .... 480 Liter.

Machine running.

Add Fixing agent at 1 gm/liter.. 480 gm.

Temperature ..... 50°C.

Time ..... 15 to 20 mts.

Drop the liquor.

**Third Step: - Softening.**

Batch size ..... 60 kg.

Water at L: R = 1: 7..... 420 Liter.

Add Acetic Acid at 0.6 gm/liter ..... 250 gm.

Add cationic softener at 1 gm/liter ..... 420 gm.

Time ..... 10 mts.

Drop the liquor.

Then unload the garments trolley.

**Fourth Step: - Hydro extractor machine:**

Hydro extractor machine is used to remove excess water from the garments.

**Fifth Step: - Drying machine:**

Load 50 kg garments to steam dryer.

Temperature set ..... 70°C.

Run about ..... 40 -45 mts.

After run 10 to 15 mts. for cold dry.

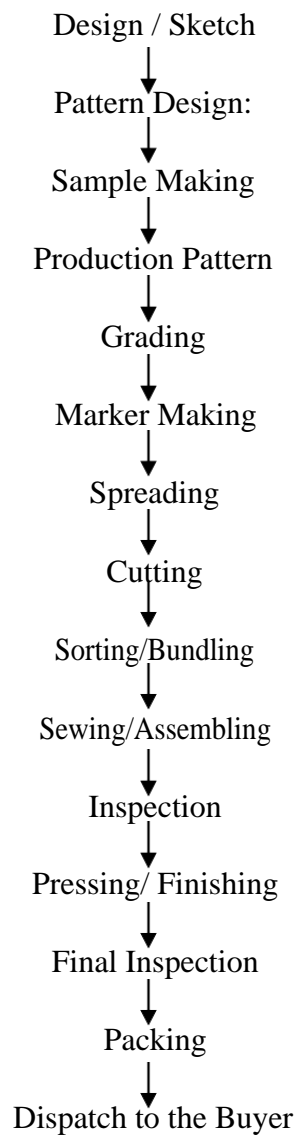
**Sixth Step: - Quality & Delivery.**

9 After drying the garments go to quality checking & rectify washing fault and then good one delivery.

## 8. Basic Information of a Garments Merchandiser:

### 8.1 Flow Chart of Garments Manufacturing:

#### Flow chart of Garments Manufacturing



### 8.2 Used fabric and GSM:

Yarn Count	Single Jersey	PK/Lacost (Single)	PK/Lacost (Double)	Lycra S/J	1X1 Rib	2X1 Rib	Lycra Rib	Interlock
40/1	100-115	140-150	150-160	160-170	160-170	120-140	190-200	190-200
36/1	115-125	150-160	160-170	170-180	170-180	140-160	200-210	200-210
34/1	125-135	160-170	170-180	180-190	180-190	160-180	210-220	210-220
32/1	135-145	170-180	180-190	190-200	190-200	180-200	220-230	220-230
30/1	145-155	180-190	190-200	200-210	200-210	200-220	230-250	230-240
28/1	155-165	190-200	200-210	210-220	210-220	220-240	250-270	240-250
26/1	165-175	200-210	210-220	220-230	220-230	240-260	270-290	250-260
24/1	175-185	210-220	220-230	230-240	230-240	260-280	290-310	260-270
22/1	185-195	220-230	230-240	240-250	240-25	280-300	310-330	270-280
20/1	195-210	230-240	240-250	250-260	250-260	300-320	330-350	280-290

### 8.3 Types of Knitted Fabric:

#### Single Jersey

- S/J
- ELASTANE S/J
- YARN DYED S/J
- POLO PIQUE
- SINGLE LACOSTE
- DOUBLE LACOSTE
- THREE THREAD FLEECE
- THREE THREAD ELASTANE FLEECE
- TWO THREAD FLEECE(TERRY FLEECE)

#### Double Jersey

- 1\*1 RIB
- 1\*1 ELASTANE RIB
- YARN DYED RIB
- 2\*2 RIB
- 2\*2 ELASTANE RIB
- 3\*2 RIB
- 5\*2 RIB
- FLAT BACK RIB
- INTERLOCK
- DROP NEEDLE
- WAFFLE
- MESH
- PANTODIROMA

**Note:** Color yarn yarn brand m/c, gauge, m/c brand and compact ok without compact to be GSM up-down.

#### **Fabric width:**

Two types of fabric width:

8.3.1 Open width

8.3.2 Tubular width

**Open width:**

Mark line contains for fabric cutting.  
Fabric dyes in open form.  
Open width is double than tubular width.  
For single jersey.

**Tubular width:**

No mark line.  
Fabric dyes in tubular form.  
Tubular width =  $\frac{1}{2}$  \* open width.  
For Rib, Interlock

**8.4 Types of Yarn:**

These yarn can be divided by the types of raw materials which we used for making the yarn. Such as-

100% cotton yarn.

CVC yarn (In this sort of yarn the mix of cotton of polyester are often varied reckoning on the customer requirement. like - 65% cotton + 35% polyester, 60% cotton + 40% Polyester etc. Also mainly during this kind of yarn the cotton part is usually remain greater than the Polyester). CVC mean cheap value cotton.

100% polyester yarn.

PC yarn (In this kind of yarn the cotton part is usually remain but the Polyester). PC means Polyester cotton.

100% Viscose yarn.

Grey Mélange yarn. During this type yarn we used a mixer of cotton & viscose. The share of cotton & viscose may vary depends on the need of buyer. Such as - 85% cotton + 15% viscose (Dark Grey Mélange), 90% cotton + 10% viscose (Grey Mélange), 95% cotton + 5% viscose ( Light Grey Mélange), 98% cotton + 2% viscose (Ecrú Mélange) etc.

**Systems of Count Measurement:**

There are two systems for the measurement of count.

- 1) Direct System
- 2) Indirect System



### 1) Direct System

It is used for the measurement of weight per unit length of yarn.

When count increases, fineness decreases.

Commonly used units in this system of measurement are: -

- 1) Tex (1 Tex = 1g/ 1000m)
- 2) Grex (1 Grex = 1g/ 10,000m)
- 3) Denier (1 Denier = 1g/ 9000m)

### 2) Indirect System:-

It is used for the measurement of length per unit weight of yarn.

When count increases, fineness increases. ( )  $\mu v \check{s} X$

Commonly used subsystems of indirect system are: -

- 1) English System (1 Ne = 1 Hank/ lb.)
- 2) Metric System (1 Nm = 1 Km/ kg)

For cotton yarn, length of 1 Hank = 840 yards.

Whenever the type of count is not mentioned with the count, it is understood that it is the English count.

**Staple Fiber:** Staple fibers are the fibers of limited strength (1 -4 inch approx.). To make a continuous length of yarn from staple fiber, they must be twisted together. The length of staple fibers may be 1 cm to many.

**Filament Fiber:** Filament fibers are of continuous length (more than 5 inch). That is to say the fabrics made from filament fibers are easier to make as the filament length are continuous.

### 8.5 Essential Properties of a fiber:

- Strength,
- Flexibility,
- Cohesiveness,
- Uniformity.

**Other Properties:**

Physical shape,  
Specific gravity,  
Lustier,

Moisture regain and content,  
 Elastic recovery,  
 Elongation,  
 Resilience,  
 Resistance to thermal behavior,  
 Resistance to chemicals,  
 Resistance to biological agents,  
 Resistance to environmental conditions

Length to Width Ratio: Fibrous material must possess adequate staple or fiber length and the length must be considerably higher (1000 times) than the width of the fiber.

**8.6 Pantone book:**

There are 4 types of pantone book is available:

1. TP ---- textile paper
2. TC ---- textile cotton
3. TPX -- textile paper for bright
4. TCX -- textile cotton for bright

**8.7 International Commercial Terms:**

Group	Term	Stands for
E	EXW	Ex Works
F	FCA	Free Carrier
	FAS	Free Alongside Ship
	FOB	Free On Board
C	CNF	Cost and Freight
	CIF	Cost. Insurance and Freight
	CPT	Carriage Paid To
	CIP	Carriage and Insurance Paid To
D	DAF	Delivered At Frontier
	DES	Delivered Ex Ship
	DEQ	Delivered Ex Quay
	DDU	Delivered Duty Unpaid
	DDP	Delivered Duty Paid

**Ex Works:**

EXW applies to goods available only at the seller's premises. Buyer is responsible for Loading the goods on truck or container at the seller's premises, and for the subsequent costs and risks.

**Free Carrier:**

The delivery of products on truck, rail car or container at the required point (depot) of departure, which is typically at seller's expense. The purpose (depot) at origin may or might not be a customs clearance center. Buyer is chargeable for the most carriage/freight, cargo insurance and other costs and risks.

**Free Alongside Ship:**

Goods are placed i n the dock shed or at the side of the ship, on the dock or lighter, handy of its loading equipment so they will be loaded aboard the ship, at seller's expense. Buyer is liable for the loading fee, main carriage/freight, cargo insurance, and other costs and risks.

**Free On Board:**

The delivery of products on board the vessel at the named port of origin (loading), at seller's expense. Buyer is accountable for the most carriage/freight, cargo insurance and other costs and risks. Under the principles of the INCOTERMS 1990, the term FOB is employed for ocean freight only. However, in practice, many importers and exporters still use the term FOB within the air freight.

**Cost and Freight:**

The delivery of products to the named port of destination (discharge) at the sell er's expense. Buyer is accountable for the cargo insurance and other costs and risks. The term CFR was formerly written as C&F. Many importers and exporters worldwide still use the term C&F.

**Cost, Insurance and Freight:**

The cargo insurance and delivery of goods to the named port of destination (discharge) at the seller's expense. Buyer is responsible for the import customs clearance and other costs and risks.

## **9. Inspections and Other Garments Related Terms:**

### **9.1 Introduction:**

Garments needed will be many inspections. If we work with the buyers directly, the quantity of inspections are going to be limited. The client may wish to see the inspection within the middle production or final inspection. Sometimes, the client may ask any third party (like SGS) to try to the inspections. It's better for the merchandiser to require responsibility for these inspections too  
Types of Inspection and outline:

### **9.2 Incoming material inspection:**

After fabric is received, the same should be inspected for the following purpose:

- GSM
- Dia
- Shrinkage
- Color Streaks
- Color matching etc.

### **4 point systems:**

Amount to select: Inspect at least 10% of the total rolls of the shipment.

Selection of rolls: Select at least one roll of each color. If more than one role must be selected, then choose the additional roles in proportion to the total number of roles per color received.

<u>Warp and weft wise defective length</u>	<u>points</u>
3 inches or less:	1 Point
Over 3 inches, but less than 6:	2 Points
Over 6 inches, but less than 9:	3 Points
Over 9 inches:	4 Points
For hole and opening	
1 inch or less	2 points
More than 1 inch	4 points

## **10. Conclusion**

Conclusion: Today's garments fully depend on merchandising. A good merchandiser can develop the quality of product and increase the sales of the product. Merchandising is a big job and is a complex one. It is so much important in our textile industry. The "Study on Knit Garments Merchandising" revealed that Textile of Bangladesh is fully depending on merchandising. It may an honorable professional for educated persons. For the development of merchandising there are many factors involved. Merchandising plays an important role. To increase the productivity of an organization effectively, efficient merchandiser will have to develop. Preparation of future business managers should provide for the development of managerial skills relating to merchandiser function. Colleges and universities offering Textile Engineering curriculum would do well to evaluate their courses as they relate to the findings of this study.

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