



Faculty of Engineering  
Department of Textile Engineering

Thesis Topic On

“Analysis of consumption and costing of trims and accessories for knitted garments”.

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Advance in Apparel Manufacturing Technology.

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## Latter Of Approval

28<sup>th</sup> September, 2020

To

The Head

Department of Textile Engineering

DattaPara, Ashulia Savar, Dhaka.

Subject: Approval of Industrial Attachment Report of B.Sc. in Textile Engineering Program.

Dear Sir,

I am just writing to let you know that this project report titled as “Analysis of consumption and costing of trims and accessories for knitted garments.” has been prepared by the student bearing **ID’s** 161-23-4621, 131-23-110 **and** 123- 23-3246 are completed for final evaluation. The whole report is prepared based on the proper investigation and interruption through critical analysis of empirical data with required belongings. The student were directly involved in their project activities and the report become vital to spark of many valuable information for the readers.

Thusly it will profoundly be valued on the off chance that you mercifully acknowledge this task report and think about it for definite assessment.

Yours Sincerely



Sharmin Akter

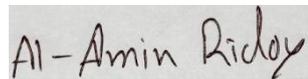
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## Declaration

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.



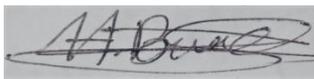
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Finally however not the least, we are wanted to recognize my folks for their endorsement, support and love and every one of our companions for their assistance and backing to finish the report.

## **Dedication**

From the beginning I have to give this cutting edge report to all-ground-breaking Allah for enabling me this opportunity to substantiate myself. Without god-like's help nothing would be possible. By then I have to dedicate my report to my people. I venerate them beyond a shadow of a doubt, for completing my assessment they accept an irreplaceable activity to wrap up. It's an uncommon enjoyment for me. Without their help it is extremely abnormal for me to complete this association so I'm grateful to them. My people were helpful to set up this association. Besides, I similarly need to submit this report to my reasonable instructor, Sharmin Akter, Lecturer, Department of Textile Engineering, and Daffodil International University, give us a very help and rule to arrange this association. I submit this report to my revered watchmen.

Committed to the pieces of attire worker, who works morning to night, contribute showing the wheel of country economy to persevering work. Much gratitude to you such a lot of, proceed, we are with you.

## **Abstract**

The clothing business is broad. The ventures inclusion and clarification chains are extending around the world. The development of clothing producing stays in the Asian nation and furthermore, the non-Asian non-industrial nation is developing their clothing business. The article of clothing costing is specifying the expense of each thing discern able to the creation of a specific article of clothing. The amount of these expenses in addition to the net revenue is the selling cost. The worldwide attire producers are fabricating their pieces of clothing by utilizing various strategies for costing. The examination plots techniques and results to build up the staggeringly basic framework for making the strategy of costing and last cost sheet, albeit loads of makers use programming for costing. It likewise sets up the complete arrangement of making last cost sheet from texture producer to distributor and furthermore to buyer. The research gives the unmistakable thought regarding piece of clothing costing for the youthful students, for scholastic turn of events, future research in garments costing and for the clothing producers. It additionally mirrors the foundation of a cost sheet for pieces of clothing and furthermore creation cost by request amount and value which improve the effect of the worldwide clothing business. Despite the fact that numerous items are accessible for dissecting item cost industry in taking a gander at a basic arrangement that can plainly distinguish benefit made in each style. Along these lines in this examination, it is recommended to have changes on to the current ERP programming as an extra model to cook explicit necessities of the attire business, for example, Cost investigation model. This Proposed Cost examination model can work freely as a module or it tends to be incorporated to existing ERP application as extra module by making an interface to existing data. This module empowers the attire business to catch the data identifying with creation hence assists with contrasting the consumption caused in creation each style with the request cost to show up at the genuine benefit made out of each style made in the business.

## Table of Content

SI No	Index	Page No
<b>CHAPTER - I</b>	<b>INTRODUCTION</b>	1
1.1	Introduction	2
1.2	History of Bangladesh garments industry	2
1.3	Recent Garments News time in Covid-19	4
1.4	Outcome	6
1.5	Objectives of the Study	6
1.6	Important and Scope of the study	6
1.7	Limitations of the study	7
<b>CHAPTER - II</b>	<b>LITERATURE REVIEW</b>	8
2.1	Introduction	9
2.2	Fabric Marker Section	10
2.3	Cutting Section	12
2.3.1	Cutting Process Procedure	12
2.3.2	Flow chart of Apparel Industry	12
2.3.3	The process flow is described briefly	13
2.3.4	Cut Panel Inspection	13
2.4	Sewing	14
2.4.1	Sewing Section Flow chart	14
2.4.2	Sewing Section T-shirt in Garments	15
2.4.3	List of operations involved in making t-shirt	16
2.5	Sewing M/C used In Process	17
2.6	Different types of defects and their causes and remedies	19
2.7	T-Shirt Finishing Process	23
2.8	Production process in the cutting room	23
2.9	Garments Costing	25
2.9.1	Cost Calculation System	25
2.9.2	Factors Considered Before Garments Costing	25
2.10	Accessories & trims	26
2.10.1	Consumption On basic t-shirt Garments	27

2.10.2	Method of Fabric Consumption Calculation of a Knitted T-Shirt	27
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<b>CHAPTER-III</b>	<b>MATERIALS AND METHODS</b>	28
3.1	Introduction	29
3.2	CM (cost of making) by SMV	29
3.3	PRICE OF THE PRODUCT	30
3.4	Costing parameters	32
3.5	Fabric consumption	32
3.6	Costing of a knitted garments basic T shirts	34
<b>CHAPTER – IV</b>	<b>RESULT AND DISCUSTION</b>	36
4.1	Measures to control cost lost in wastage	37
4.2	Seven type of wastages in apparel sector	37
4.3	Economic and Social	39
4.4	Technical, Legal: Design both for Reuse and Recycling	39
4.5	Zero waste idea	40
4.6	Use of articles of clothing waste	40
4.7	Environmental and monetary advantages of piece of clothing reusing	40
4.8	Low wastage in cutting time	41
4.9	Reduce the Ends of ply losses	41
4.10	Minimize the Selvedge losses	42
4.11	Reduce the Loss of fabric ends	42
4.12	Careful about Fabric Purchase	42
4.13	Identify Fabric defects	42
<b>CHAPTER – V</b>	<b>CONCLUSION</b>	43
5.1	Conclusion	44
	Reference	45

## List of Picture

<b>SI No</b>	<b>Pictures Name</b>	<b>Page no</b>
Picture 1	Seam Puckering	19
Picture 2	Open seam or broken seam	19
Picture 3	Broken Stitch	20
Picture 4	Drop stitch/Skipped stitch	20
Picture 5	Uncut/ loose thread	21
Picture 6	Distorted knitting	21
Picture 7	Seam slippage	22
Picture 8	Needle threads breakage	22

**CHAPTER - I**  
**INTRODUCTION**

## **1.1 Introduction**

Materials and dress will constantly be huge things for individuals. Turning and weaving were the main practices that drove the Industrial Revolution in the eighteenth century. Starting now and into the not all that removed the material business has been a fundamental industry in the basic time of industrialization in various countries in different time extends on the planet. Bangladesh is a huge creator and exporter of weave RMG thing. There are around 4500-5000 bits of pieces of clothing creation lines running in Bangladesh. Movement of bits of garments plants started in Bangladesh around 1980. In any case, truly in every way that really matters 82% of our outside cash is earned from RMG exchange. At present Bangladesh is passing on and passing on more than 60 things of bits of garments. Bits of garments are given to USA, Canada, Japan, Australia, Middle East and various countries on the planet. Most reasonable work cost is the best extraordinary situation for Bangladeshi bits of clothing creators and exporters.

Advancing is one of the most fundamental parts for bits of garments trade. Without publicizing this trade never be fulfill. Merchandiser approaches or handles everything from buyer to creation. He is inside for the sum of the assignments. In the wake of getting a mentioning, merchandiser figure everything, what he need to complete this deals and brief an unrivaled than typical technique by which he to can do the shipment in time with buyer's central.

In gathering plant level, merchandiser makes the total of the mentioning for embellishments necessities for a business like; surface need, sewing string, get, washing if central, holder, poly bag, shipment strategy, etc. Everything considered merchandiser development looks generally speaking ground. Adjusted Knowledge is especially essential for the heading of material structure and improvement.

Reasonable Knowledge makes us capable and immaculate to apply speculative data in sensible life. We gain learning on weave Garments Merchandising, Garments age, Quality control, Operation, Marker making, Cutting & Finishing area. We endeavored our best to get settled with this Project will bolster our future real life

## **1.2 History of Bangladesh garments industry**

The RMG business began in Bangladesh during the 70s yet it was then just exertion, the basic committal of knitwear trade as made in 1973 and the central dispatch of woven garments was made in 1977. In 1981-82 the duty of woven pieces of clothing in the full scale section was 1.10%. Sometime later it is a record of continued with accomplishment for the Bangladesh RMG regions. The knitwear domain has become during the time in geometric advancement and become the prime essential power of Bangladesh's affirmation pay. Inside 10 years the

devotion of woven to the cost repository got 42.83% (1990-1991) and the knitwear part's obligation 41.79% to national pass on pay toward the fulfillment of FY 2008-09(July-April).

The agents of the weave area meandered forward with their tendency in the late 80s .With their certifiable endeavors they had the decision to pass on US\$14.84 million out of 1990-90. Out of this, US\$ 2.02 million was passed on to US. The model proceeded with un the weave division in light of the market locate a functional pace to the LDCs under the abridged structures of inclination (GSP) advantage. Affirmation from Bangladesh Export from Bangladesh 1972-73 to 2009-2010 1972 Export from Bangladesh 1972-73 to 2009-2010 - 73 to 2009-2010

This is the revived start of the epic story of Bangladesh knitwear section that in clear sense has been conceivable because of gigantic industrialization in a reasonable manner with influence on all possible human movement edges which is the connecting some fragment of the story. The improvement of knitwear zone is stretching out at a developing rate. The solidified customary progression pace of the part is 20%, and it is constantly snatching more segments in the entry pie of Bangladesh .this is for the most part ascribed to the working environments gave under the EC GSP and ROO. The knitwear division is genuinely constrained by the extraordinary strategies and recognized the open method to build up a solid in switch linkage for the domain. Bangladesh RMG divide has sufficiently effectively completed some fundamental tests and is starting at now cruising with shafts: weave and woven. The sub-an area is correct presently in sound test among them to play the action of movement inside the nation.

In FY 2003-04, knitwear since passed on with 91.6 million bundles. Knitwear is so far driving with respect to aggregate passed on and is building up the opening a little bit at a time. Confirmation proportion of knitwear things stretched out to 241.59 million bundles which is 163.74% higher than the year 2003-04 to 2007-08. On the all-encompassing length of December of the FY s 2008-2009, by and large knitwear confirmation was 146.5 million bundles which is 30.58 million packs higher than a practically identical time of a year back. Relationship of Export Quantity. Bangladesh knitwear is playing out a well enlargement to the degree entirety which is a reasonable sign of expansion of limit at this moment.

In the year 2007-08, the obligation of woven wear to the cost getting was 36.17% and in knitwear was 38.97% .In the present year, the introduction of both the division are as indicated by the going with: • Knitwear trade US\$ 5231.01 million FY 2008-09(July-April) • Woven affirmation US\$4902.48 million FY 2008-09 (July-April) Therefore the devotion of knitwear in national entry expansion is 57.82%.

RMGs are the finished material thing from articles of clothing creation lines and the Bangladeshi RMG Sector is one of the snappiest creating zones in the Bangladeshi economy, with an advancement pace of 55% from 2002 to 2012. Tolls of materials, attire, and moment garments (RMG) spoke to 77% of Bangladesh's supreme item exchanges 2002. By 2005 the (RMG) business was the principle multibillion-dollar amassing and charge industry in Bangladesh, speaking to 75 percent of the country's salary in that year. Bangladesh's

admission trade is right now told by the moment garments (RMG) industry. In 2012 Bangladesh's garment conveys – predominantly to the US and Europe – made up practically 80% of the country's admission compensation. By 2014 the RMG business addressed 81.12 percent of Bangladesh's finished export. Much of the titanic improvement of the section and its activity as a financial powerhouse for the country is attributed to the availability of "humble" work. Of the 4,000,000 workers used by the RMG business, 85% are uneducated women from nation towns.

The work environments and conditions of the assembling plants that produce moment garments has encountered examination starting late concerning master prosperity and sensible wages. Subcontracting is a critical piece of the RMG business in Bangladesh. Various Western associations' contract different modern offices, simply referencing that particular segments be met at explicit events. Associations slant toward subcontracting considering the way that the degree of parcel obviously ousts them of danger of pay and work violations. It moreover makes it more straightforward to scatter creation over a combination of sources.

### **1.3 Recent Garments News time in Covid-19**

As Bangladesh's piece of clothing creation lines consistently return, producers are encountering weak overall enthusiasm for the middle of the pandemic. Enormous style brands are so far dropping solicitations, adding to the circumstance of material workers. Since the scene of the overall COVID-19 prosperity crisis, Rubana Huq has been vivaciously doing combating to uncover issues for those working at the base completion of overall deftly chain of materials. Because of Bangladesh that is an enormous number of piece of clothing sequential construction system workers ended or furloughed during the country's lockdown. The head of the Bangladesh Garment Manufacturers and Exporters Association (BGMEA) has reliably advised of the edgy aftereffects of those workers losing their adequately little income as overall style brands continue dropping solicitations.

There are fears that movement setbacks could provoke longing among the jobless and their families. About a fourth of Bangladeshis successfully live underneath the dejection line. The most minimal compensation allowed by law for Bangladeshi piece of clothing workers is about \$96 every month, which activist's state is under a living pay.

"We will have 4.1 million workers really going hungry if we don't all movement up to our obligation to the administration help of the workers," the head of the Bangladesh Garment Manufacturers and Exporters Association said in a March 23 YouTube request steered to overall buyers. "Generously don't surrender us. I appeal to your extraordinary resources not to permit us to down ... thoughtfully don't surrender our hands. "Bangladesh went under assessment for its garment workers' flourishing in 2013, after the Rana Plaza complex in the capital, Dhaka, folded, killing more than 1,100 people. That adversity incited work changes

and new security standards. Last week, Prime Minister Sheik Hasina proclaimed a \$588 million Covid improvement group for the country's attire industry. She mentioned that associations put the guide toward workers' salaries. But CGWR found that 72% of furloughed workers were sent home without pay. It in like manner found that 98% of buyers — an impressive parcel of them colossal overall clients — wouldn't add to the cost of inadequate wages for furloughed agents, as Bangladeshi law requires. Some style retailers, including H&M and Target, have zeroed in on paying for orders recently situated with Bangladeshi plants, CGWR found. However, others, including JCPenney, Kohl's and Walmart, have not.

Dropped orders are by all record by all account not the only issue standing up to Bangladesh's piece of clothing makers during the prosperity crisis. When in doubt, retailers in the west are mentioning limits on producer costs by and by, says Rubana Huq. "Close by scaling back the as of late situated solicitation, a significant part of the buyers have been mentioning limits up to 20% to half too. "German firms KiK and C&A are denying using terrorizing amidst the pandemic, as Huq surrenders that strain to cut down expenses was basically beginning from Anglo-Saxon retailers. "A segment of the critical associations that have shown unprofessional direct are Dunne's store, Peacocks, ASDA, Arcadia, Sainsbury and so forth. "Late talks with Peacocks owner Edinburgh Woolen Mill Group (EWM) have fail to make any results, the BGMEA president said.

"We are making a good endeavor to find a normally wonderful plan [with EWM], yet so far it shows up [to be] a lopsided effort by us with essentially no sign of utilitarian cooperation from the other end."BGMEA claims that new associations are similarly dropping solicitations that are starting at now in progress or finished. "Unfamiliar associations talk about fundamental opportunities and consistence. By then for what reason are they being nonsensical to us?" Huq said. "They are regardless, dropping solicitations that have shown up at their ports or have quite recently been transported Europe is Bangladesh's most noteworthy garment convey market with basically 60% of full scale usage. In the 2018-19 money related year, the South Asian country exchanged over \$19.6 billion worth of piece of clothing things to Europe. Huq requested that overall associations assist Bangladesh's with piecing of dress fragment during and requested that the German government take significant measures to help Bangladesh's with garmenting region.

"Your stores are closed. Our mechanical offices will close and we will have no business. Some 4.1 million experts will go hungry if we don't fulfill our guarantee to their administration help," Huq said in a video message, including that orchestrates that are starting at now in progress should not be dropped. She said Bangladesh would require maintain for at any rate three months to keep its creation lines running. IN a formed response to Huq, Germany's Development Aid Minister Gerd Müller said he needed to "find a procedure that will ensure the material business' continuance in both Bangladesh and Germany, since a considerable number of people work in that division

## **1.4 Outcome**

These techniques will give the estimated texture utilization merchandiser should see the pertinence of the utilization as per sort of style, kind of texture, coordinating parameter of the purchaser, cost impediment of the associations, texture cost and so on.

Trims utilization is another significant viewpoint article of clothing costing. A portion of the trims are extremely evident for utilization, yet a few trims like string utilization will influence the article of clothing cost essentially. Wrong computations of string utilization will prompt overabundance requesting of the string which will prompt more stock while less requesting will prompt break underway. From creation merchandisers perspective texture and trims utilization are the most significant viewpoint to comprehend.

## **1.5 Objectives of the Study**

This project paper defines frequently occurs the sewing defects and way to prevent breakage thread.

To find out about appropriate quality administration framework.

To plan new strategy for quality control on cutting section.

To find out about the deformities of articles of Fabric.

Applying specialized answer for evacuate or lessening deformity.

To know the reasons for string deformities and its cures.

## **1.6 Important and Scope of the study**

To break down the sorts of deficiencies in Cutting area.

To assume a perfect job in increment or decline generation ability.

To compute every hour blames in a cutting line effectively.

To limit cutting issue during generation.

To keep away from imperfections on articles of cutting spare time

## **1.7 Limitations of the study**

Limitation of time to research this topic.

Limitation of primary data sources.

Limitation of accurate data.

Input and output problem.

Respondent unwillingness.

Changing the style and arrangement.

**CHAPTER - II**  
**LITERATURE REVIEW**

## 2.1 Introduction

The Bangladesh moment piece of clothing industry is by and by, properly, experiencing extended solicitations from worldwide customers to address a more broad scope of issues related to the reasonability of the zone. We are generally familiar with customer necessities with respect to building security, workers' government assistance, and normal concerns, anyway a creating number of customers are beginning to make courses of action to develop the levels of consistence to cover domains that will require better waste organization, reusing of thing and the fragments used, demanding control of carbon outpourings, and more conspicuous control of little scope plastics. The rising two-cover question defying the RMG part today is: Are we arranged for this extended level in reasonable targets being set by our customers and where will the basic dare to execute the principal climbs to our industry begin from?

It is huge for us to comprehend that the RMG part can't ignore the rising solicitations of our customers for more raised degrees of practicality. More huge than simply adjusting to our customer's cravings is the fundamental reality that growing the acceptable accreditations of the zone conveys regular preferences to all of us - both locally and for the world all over the place - yet furthermore offers an unfamiliar opportunity to construct pay for the fragment.

Close by the subjects of carbon transmissions and little scope plastics, the issues enveloping better waste organization and reusing are setting off to the front. With customers attempting to deal with more necessities on their suppliers to achieve their own special objections of developing an undeniably sensible, round economy.

We are all in all careful that the RMG part and the nation all in all require to address the issue of carbon transmissions. We should all inspect ways that reduce our carbon impression, from equipping normal resources through to the appointment of hydrogen energy units for our open vehicle system and pivotal product transportation organizations. This isn't a zone that is the sole spare of the RMG portion, yet one that requires more unmistakable endeavor at a public and neighborhood government level.

This issue of scaled down scale plastics is another instance of an aftereffect of our lives today that impacts all of us. The RMG business needs to figure out how to restrict the impact of plastic defilement on nature, whether or not that be the introduction of continuously severe filtration control of profluent from weaving and washing plants through to the ordinary house-keeping of any waste that we produce. We are by all account not the only one in this.

Due to the methodology being referred to, decisively reused things don't need any shading, engineered applications and immaterial proportions of water, making it a viable response for tainting from garment age. Surfaces are isolated and joined to make different tints. The fibers are checked, spun, and thereafter changed into absolutely new material, every now and again offering a 15-30% worth favorable position versus surfaces delivered utilizing virgin yarns.

There are an arrangement of other new reusing advancements adequately open, with associations setting up or testing their first mechanical plants (Worn Again, Circular Systems, Tyton, Evernu, Re:newcell, Moral Fiber, Refibra from Lenzing, for example) that take the reusing of fiber to an absolutely new level of significant worth and enables the reusing of up to 85% of different pieces.

These are through and through various developments, with some requiring a more noteworthy endeavor. The normal impacts are extraordinary, and the market potential is remarkable, yet these developments make them thing in like way - they anticipate that support should thrive and to show up at more prominent market volumes.

It is one of the RMG part's most noteworthy market opportunities to work inseparable with those early progressions and welcome them to finish their assessment in Bangladesh by opening up the market data to them to empower them to work feasibly and present structures that would benefit the business by and large.

The material being alluded to are not waste. We need to rethink our approach to manage the waste thing we make and consider how we can best utilize it both for the earth and to end the resources gushing out of our industry constantly.

It is as of now an ideal opportunity for us as an industry to stand out and investigate ways that we can back and get a handle on these movements to the zone. It looks good, both for extending the practicality and circularity of our business, yet furthermore considering the way that they offer potential cash related streams that will commonly go dismissed.

With a rebate change in methodology towards piece of clothing waste, Bangladesh would have the alternative to show to its RMG industry customers that we are taking care of business concerning a viable round approach to manage the plan business.

## **2.2 Fabric Marker Section**

A texture marker contains perpetual shading (color, paint or ink) that is intended to not waste of time of attire or blur with washing. A normal marker pen named "perpetual" will probably not waste of time either, however these don't come in the same number of tones as texture markers do.

Texture painting with a marker pen or paint pen as opposed to brush and paint is especially helpful with regards to painting slender lines. Furthermore, there's no brush to clean a short time later! Texture markers and paint pens give you incredible control for "shading in," they work effectively with stencils, and they can be utilized with elastic stamps.

### **A. What Makes a Pen a Fabric Marker?**

A texture marker contains lasting shading (color, paint or ink) that is intended to not waste of time of garments or blur with washing. A normal marker pen named "perpetual" will probably not waste of time either, however these don't come in the same number of shadings as texture markers do.

## **B. Size Varieties**

Texture markers come in different sizes, from meager to thick to brush-style tips. The better the tip of the marker, the more slender a line you'll have the option to make. To get a more extensive line, don't push down on the tip as this can harm it. Or maybe tilt the pen so it's at a slight point, so you're making the line with the edge of the marker, not simply the tip.

## **C. Fabric Selection**

The grain of your texture affects how well a texture marker functions. A coarse grain or harsh surface to a texture implies there are "irregularities 'n knocks" the pen needs to go over. A fine grain or smooth texture is simpler to deal with. If all else fails, test the marker on a piece of texture or someplace far out, for example, an inside crease.

Be mindful so as not to stop or interruption with the tip of the marker laying on the texture as the shading will seep out into it. On the off chance that you wind up wavering, lift the marker off the texture while you consider what you're doing.

## **D. Lettering**

Lettering is simpler with a texture marker as opposed to a brush. Practice makes for neater letters, and a light pencil line gets the letters straight. Try not to fixate on it however, as the inconsistency is important for making something by hand instead of a machine. It's important for the personality of the last thing.

## **E. Enormous Areas of Color**

You can "shading in" with a texture marker, however it'll go through your markers rapidly. It's less expensive to utilize texture paint for huge zones. Make certain to let a zone of shading dry prior to utilizing another, something else, the tones may drain.

## **F. Stenciling**

Texture markers function admirably with stencils. For a layout, run the tip along the edge of a stencil, keeping the pen upstanding so it doesn't slip underneath.

To "shading in" a stencil plan, you can do it with the stencil set up or eliminate it. The previous makes it simpler to try not to unintentionally go over the edge of the plan, simply be cautious the stencil doesn't slip as you're working.

## **G. Stamping**

Texture markers turn out incredible for imprinting on texture with elastic stamps or any flattish, non-permeable thing. The procedure is basic: add tone to the stamp by running the texture marker over it, turn stamp over and put on texture, push down solidly and the shading falls off the stamp onto the texture.

The precarious piece is that you need to work rapidly so the shading doesn't dry on the stamp, yet that is anything but difficult to do if it's a little stamp. You can, obviously, utilize numerous tones on a stamp, not only one. Squeezing the stamp during a time will give you a

lighter picture as there'll be a little tone on it. Test on a piece bit of texture to figure out it prior to doing it "without a doubt."

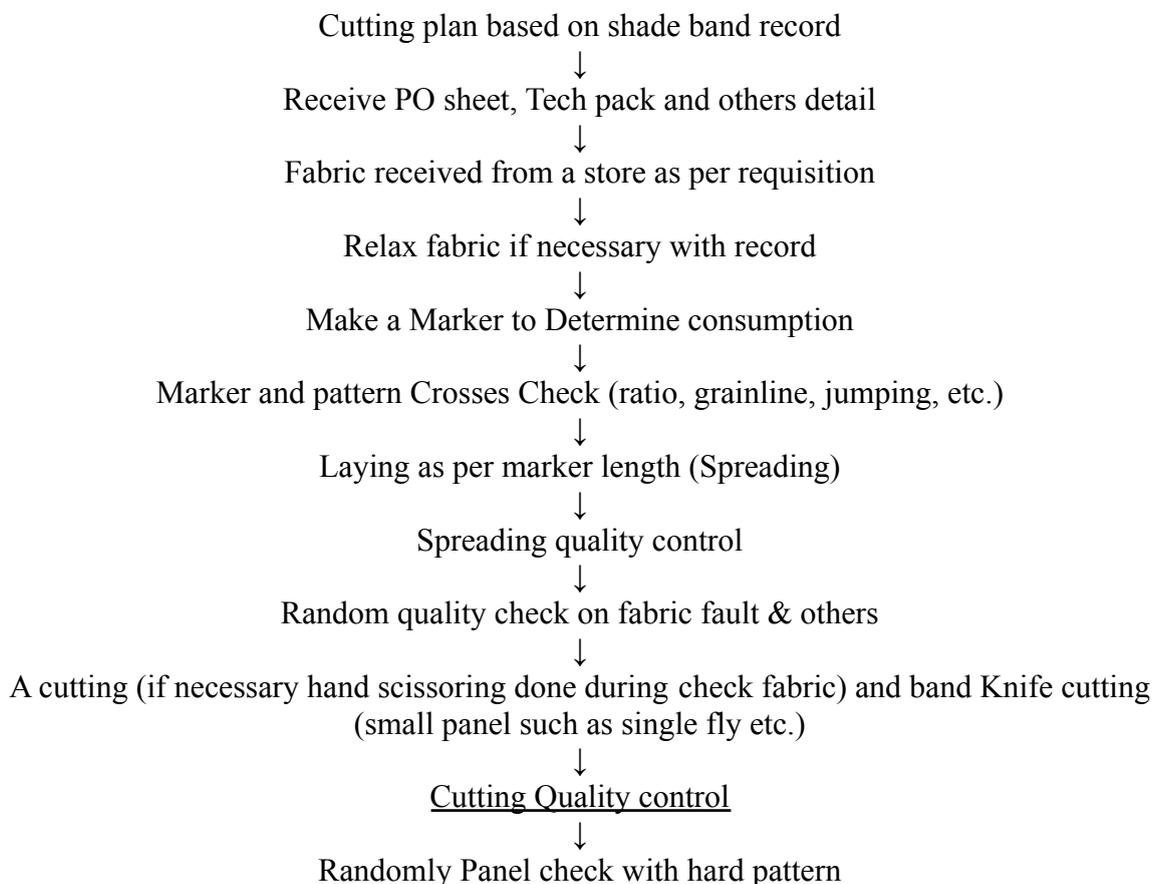
## 2.3 Cutting Section

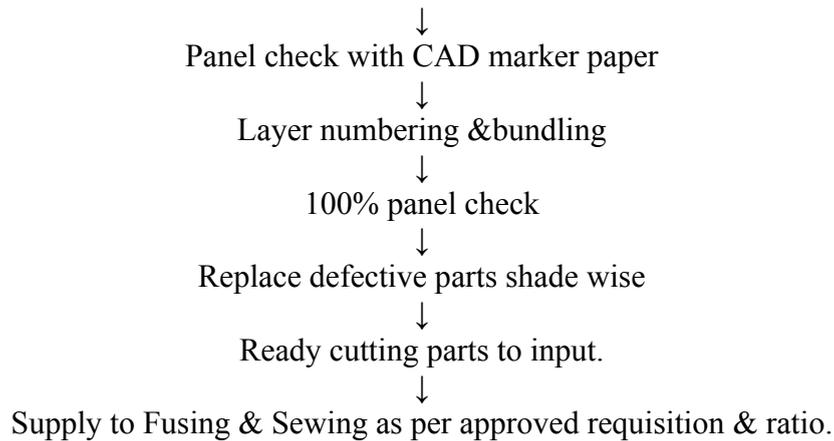
### 2.3.1 Cutting Process Procedure

Cutting room is a segment in the pieces of clothing industry where to cut textures according to the example, marker; slicing parts sew to get pieces of clothing structure. Cutting is the most touchy activity in the clothing business, shaper man work precision is the key here to keep up great cutting quality. On the off chance that you are identified with the attire business or clothing producing measure you should know cutting work exercises. Some specific principles and strategy need to keep up by cutting division I am giving cutting cycle stream outline bit by bit in underneath for your simple arrangement.

### 2.3.2 Flow chart of Apparel Industry

#### Cutting Working Process Flow chart





### 2.3.3 The process flow is described briefly

Spandex textures can be loose from 24 to 48 hours prior to spreading according to client necessities. Cotton texture unwinding will rely upon client prerequisites.

- Pre-Spreading a lot Quality control
- Example and marker checking utilizing affirmed test
- Example grain line
- Spreading table checking the long way with stipend
- Shade insightful spreading by utilizing textures conceal outline
- Spreading deserts like inclining, bowing, slant, restricted merchandise, and pressure and checking visual deformities.

### 2.3.4 Cut Panel Inspection

1. Quality a controller will check Panel utilizing Hard example after cut from three distinctive position Top, Middle, and Bottom
2. On the off chance that there any disparity, an adjustment will be prompt. In the event that the board discovered in addition to from hard examples, it should cut additional part. On the off chance that board discovered less from hard example, should put the texture under marker according to lay diagram to redo once more.
3. All slice boards will be assessed to distinguish any sorts of texture flaw if any damaged board found, will be supplanted from lay diagram savvy remainders by following the shade and example grain line.

- A. **Creation Order Sheet:** Cutting Section initially takes the PO sheet. They discover all itemized data in the PO sheet particularly size breakdown, size-wise and shading shrewd request amount.

Example gets: They get the affirmed design from the example segment

- B. **Marker Making:** After example accepting they make marker as indicated by the request sheet and example size.
- C. **Texture gets:** Fabric is the fundamental crude material in the cutting area. All achievement relies upon cutting. So the slicing area needs to become genuine when they get the texture. Is the correct texture for the correct marker or not.
- D. **Texture Spreading:** Before spreading the texture on table they loosen up the unrolled texture for 12-24 hr. Subsequent to finishing unwinding they spread the texture on a table with appropriate pressure.
- E. **Marker Placing:** Marker is a meager paper which conveys all the articles of clothing segments and put on texture lay for cutting. Prior to cutting the marker from CAD set on texture lay. Marker checked cautiously before arrangement on texture.
- F. **Cutting:** In this progression, cutting is finished by a shaper machine. Straight blade cutting machine, Round blade cutting machines are generally utilized for cutting.
- G. **Arranging:** After cutting the slice parts are arranged by conceal, size-wise.
- H. **Numbering and checking:** In this progression, the cut parts are numbering and checking cautiously with the goal that the single segments never botch. QC checks the cut parts. In the event that any deformity discovered they supplant the cut piece.
- I. **Packaging:** The cut pieces are packaged at long last.
- J. **Contribution to Sewing:** The packaged cut piece prepared for sewing.

## 2.4 Sewing

After get the articles of clothing segments from cutting segment, all the pieces of clothing parts are joined and sewn as consecutively. Clearly all the parts are sewn regards on purchaser prerequisite.

Sewing area is the main division of an article of clothing fabricating industry. Sewing machines of various kinds are organized as a vertical line to gather the pieces of clothing. Grouping of sorts of sewing machine game plan relies upon succession of gathering tasks.

### 2.4.1 Sewing Section Flow chart

Number matching front 2 back part (back on part on upper side)



Shoulder stitching (By over lock m/c)



Neck rib truck (By plain m/c)



Neck rib sewing by plain m/c



Neck rib joins with body part



Neck top

sin



Solder to solder back tip



Size label sewing



Solder to solder back top sin



Sleeve marking and number matching with body parts.



Sleeve tuck with body part (Sleeve mark point & solder mark point)



Sleeve joint with the body part



Side sewing and care label joint



Bottom hem tuck (at the end side)



Bottom hem sewing



Arm bottom hem joint



Inspection

n

## 2.4.2 Sewing Section T-shirt in Garments

On the off chance that you have not made a shirt before, you will be in quandary on the best way to begin making the shirt. I realize you will recruit tailors for making shirt and your tailors realize how to sew the total shirt. Notwithstanding, I need you to figure out how to make the shirt from texture boards. I have recorded activity succession to be followed making a shirt. I have additionally referenced machine types to be chosen for every activity.

Get one shirt as test or pick one shirt from your garments before you read following cycles. Having one example close by you will see rapidly what I am stating here. A round neck shirt has 5 parts

Front panel

Back panel

2 Sleeves

Neck rib

## 2.4.4 List of operations involved in making t-shirt

1. Shoulder Join: Join the two shoulders utilizing an overlock machine.
2. Neck rib fold: Join finishes of the rib utilizing a lock line machine. Neck rib length should be cut a for each neck outline. (An alternate strategy can be utilized for neck rib. In the accompanying figure, neck channeling is done first. Subsequent to connecting one shoulder, neck is shut. )
3. Neck rib join to neck: Fold the neck rib and append to the neck. While appending neck rib stretch both neck and rib. Connect neck rib utilizing overlock machine and top fasten utilizing lock line or chain join machine. Which machine to pick relies upon the shirt plan. (If there should arise an occurrence of neck funneling, it is finished utilizing Flat lock machine).
4. Name make: This cycle is discretionary. On the off chance that you have source fundamental name/care mark in the move structure, cut it and save prepared for the accompanying cycle. Some of the time you may have to join more than one mark together and later you will append to the name to the shirt. A solitary needle lock join machine is utilized for this activity.

5. Back Neck Binding/Neck tape: This activity is likewise a discretionary cycle. In quality shirt, you may show inside back neck overlock crease is cover up by official. For restricting you need a cover (one sort of organizer). A level lock machine is utilized for authoritative.

Rather than official with self-texture, you can conceal the back crease edge utilizing a twill tape. Utilize a solitary needle lock fasten machine to connect the tape a back neck.

6. Front neck T/S: Top fasten the front neck utilizing 2 needle level lock machine

7. Back Neck T/S: Finish neck restricting utilizing a solitary needle lock fasten machine. While completing the back neck tape/official, append the size mark. Adhere to the guidance gave in the techpack to position of the joining size name.

8. Sleeve Hem: Hem sleeve opening in the level lock machine. (On the other hand you sleeve sewing is after underarm overlock).

9. Sleeve join: Attach the two sleeves at the armhole. An overlock machine is utilized to connect sleeve.

10. Side crease with care name: Join side creases and under arm utilizing an ovelock machine. In the event that you need to connect the wash care mark, append it left half of the article of clothing, over 10 cm from base sew.

11. Sleeve Tacking: Tack sleeve at the overlock join to make sure about the line. Utilize single needle machine for this work.

12. Base Hem: At last trim the shirt base utilizing a 2 needle level lock machine.

## **2.5 Sewing M/C used In Process**

The shirt is one of the essential results of our dress reach. A shirt can be made by a solitary machine yet to develop a marked shirt (Quality Shirt), shirt-production manufacturing plants and fare houses utilize various kinds of machines to sew distinctive piece of the article of clothing (creases). Numerous production lines utilize uncommon machines additionally for the front placket and side crease and underarm sewing. The primary reason for utilizing various sorts and exceptional machines is to keep up a specific quality degree of the item and to expand efficiency.

Name of the distinctive sewing and non-sewing machines and tasks finished with those machines are appeared underneath separately. Note: Use of machine types may differ dependent on the styling of crease types in a shirt utilized in similar activities.

1. **Single Needle Lock Stitch (Plain, with/ without UBT):** Collar and Cuff making, Pocket hemming and pocket attach, Yoke attach, Shoulder attach, Sleeve placket make, Sleeve attach, bottom hem, Main label attach, top stitches etc.
  
2. **Single Needle Lock Stitch (Edge cutter):** Collar run stitch and Collar attach to collar band. The expression "single needle sewing", regularly found on dress shirt names, alludes to a lockstitch. A lockstitch sewing machine utilizes two strings, one in the needle and the other in a bobbin. The movement of the needle and the snare accurately coordinated, makes each join to be bolted. A solitary needle lock fasten machine is known as a plain needle sewing machine. A solitary needle lock line machine is generally utilized as a modern sewing machine. Current single needle lockstitch has a string trimmer which works at the most noteworthy speed of its sort. Lockstitch machine is the most usually utilized sewing machine in the attire business, particularly in woven articles of clothing. Here in this article, I will share Features of Single Needle Lock Stitch Machine with you for an away from of a solitary needle lock line sewing machine.
  
3. **Double Needle Lock Stitch:** Collar and Cuff Top Stitch and Armhole Top Stitch. In this machine there are two source of thread one is needle thread and another is Bobbin thread. Bobbin Thread is stored in a Bobbin which is placed under the Needle Bed of machine. Problems of Stitch Formation: In 2-needle lock stitch sewing machine the problem of stitch formation is the shortage of Bobbing thread. A double needle lockstitch machine works on the same principle as the single needle machine by using two needles and two bobbins thus resulting in two parallel rows of lockstitch. This technique of twin needle sewing is also popularly known as double needle sewing.
  
4. **Multi Needle Chain Stitch (i.e. Kansai Optional):** Front placket make and attach.
  - 1 Needle 2 Thread Cylinder Bed Double Chain Stitch Machine with Walking Pressor Foot, for Top Stitching of Display Tape
  - 1 Needle 2 Thread Cylinder Bed Double Chain Stitch Machine for Top Stitching of Display Tape
  - Needle 4 Thread Double Chain Stitch Machine for Attaching Tape
  - Needle 6 Thread Double Chain Stitch Machine for Lap Seaming on Jeans
  - Needle 6 Thread Double Chain Stitch Machine for Lap Seaming on Jeans, with Puller (P = Tooth Rollers)
  - Needle 7 Thread Double Chain Stitch Machine for Serging and Attaching Pocket Facing in One Operation
  - Needle 4 Thread "Speed and Dry" Double Chain Stitch Machine with Top Feeder at the Back of Pressor Foot, for Binding Tape on the Edge of Pocket Bag
  
5. **Feed off the Arm (optional):** Side seam and under arm. Feed of the arm machine is really a chain join machine for chain fasten plans working with sew and line. It contains looper rather than bobbin. By this machine, multi string chainstitch can be delivered on articles of clothing.

6. **Button Stitching Machine:** Attaching button to front placket and cuff.
7. **Button Holing Machine:** Making buttonholes.

## 2.6 Different types of defects and their causes and remedies

- a. **Seam Puckering:** Crease puckering alludes to the social occasion of a crease either soon after sewing or in the wake of washing causing an inadmissible crease appearance.



Picture 1: **Seam Puckering**

Causes:

- Lopsided extending on to utilize of texture during sewing.
- Ill-advised string pressure.

Remedies:

- Feed canine, eyelets and string aides should be checked occasionally for harms.
- Machine feed component must be better quality.
- Strain, SPI and presser foot weight ought not be tinkered with.
- 

- b. **Open seam or broken seam:** Segment of the piece of clothing that has not been covered by sewing string.



Picture 2: **Open seam or broken seam**

### Causes:

- Inappropriate treatment of the pieces of articles of clothing.
- Ill-advised setting and timing among needle and looper or snare and so forth

### Remedies:

- Clear markings for fasten line.
- Appropriate setting and timing among needle and looper or snare.
- Strain should be quantifiable.

.

- c. **Broken Stitch:** Non-persistent sewing string.



Picture 3: **Broken Stitch**

Causes: It shows up because of inappropriate managing or machine utilization.

### Remedies:

- Needle plate, presser foot and feed canine should be checked occasionally for harms.
- Strain and stringing ought not be tinkered with a lot.
- Legitimate managing.

- d. **Drop stitch/Skipped stitch:** Sporadic sewing along the crease.



Picture 4: **Drop stitch/Skipped stitch**

Causes: It shows up because of inappropriate treatment of cut pieces or machine utilization.

### Remedies:

- Setting of needle appropriately.
- Needle size and string size must be changed.
- The weight of weight foot must be changed precisely.

e. **Uncut/ loose thread:** Additional strings or free strings on crease line.



Picture 5: **Uncut/ loose thread**

Causes: It shows up because of ill-advised managing or wrapping up.

### Remedies:

- UBT/string trimmer should be utilized
- Administrator preparing.
- Pieces of clothing completing should be checked appropriately.

### Distorted knitting:



Picture 6: **Distorted knitting**

Causes: These imperfections can be recognized by taking a gander at the surface territory; they generally show up as sporadic on the texture.

**Remedies:**

- Better examination of texture and cut piece.
- Guarantee that texture and cut pieces that are not up to standard are not placed into line and creation is squandered.

**g. Seam slippage:**



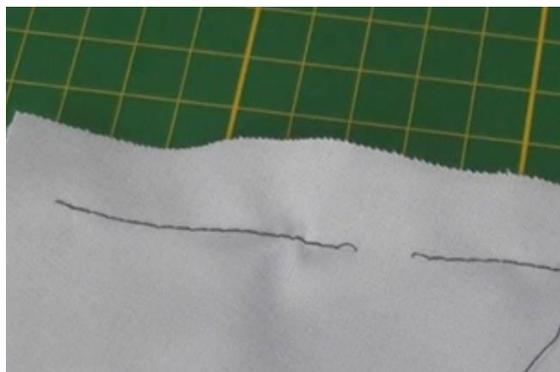
Picture 7: Seam slippage

**Causes:** This happens when the yarns in the texture are pulled out of the crease and are more incessant in textures produced using ceaseless fiber yarns

**Remedies:**

- French crease type can be attempted.
- Crease width can be expanded.

**h. Needle threads breakage:**



Picture 8: Needle threads breakage

### **Causes:**

- String gets caught at the string guide.
- Inconsistencies or harms in needle monitor, throat plate, bobbin case and needle eye

### **Remedies:**

- Utilize a froth cushion or a comparable gadget to keep the bundle from inclining.
- Guarantee that the re-stringing is done accurately.
- Supplant the needle with one of better quality.

## **2.7 T-Shirt Finishing Process**

Subsequent to sewing the T-shirt you need to complete it and pack (if apply) it preceding sending the shirts to retails store. Nature of pressing and introduction is as significant as the item quality. Following are measure you need to do in completing cycle.

**String managing:** Trim all string tails and eliminate free strings.

**Quality checking:** Check sewing quality. Follow the quality record for checking quality. In the completed piece of clothing texture deformities and sewing imperfections ought not be permitted.

**Squeezing/Ironing:** Press all pieces of clothing utilizing a steam press. By squeezing wrinkles on the shirt is eliminated.

**Collapsing:** Fold the shirt as per collapsing measurement.

**Labeling:** Attach hang labels, sticker prices utilizing tag-firearm.

**Pressing:** Pack singular shirts into poly sacks. Or on the other hand adhere to pressing guidance from your purchaser. See the accompanying picture for stuffed shirt.

## **2.8 Production process in the cutting room**

- Irrespective of size;
- All cutting rooms use the same basic system to produce cutwork, with the raw material going through the same operations in the same sequence.
- Cutting production starts with the receipt of inspected raw materials, production orders and graded patterns and finishes when bundles of cutwork are issued for **sewing**

## **How much does fabric cost**

Regardless of the way that I am resolute that you should take a gander at the absolute expense of your undertaking not the cost of the texture alone, I am continually provided a cost estimate for each yard greatest when I ask individuals what their spending plan is. Be that as it may, surrendering to mainstream estimation, we should discuss what texture runs per yard.

The principal thing to recall is that texture is typically sold by the straight yard not the square yard. I'm not catching that's meaning? That implies that you get the entire (ordinarily bigger than 36") width at the cost recorded. The subsequent thing to recall is that while yes to a degree you get what you pay for, and yes delightful things cost money...That like most different things the nonexclusive might be 100% the equivalent, yet cost much less.

There are two fundamental ways that texture is sold, the first is by the jolt. An organization my purchase 25, 35, 50, or even 100 yard (or meter) bit of texture and have it in their store (these textures are typically what is implied when an organization says "in stock" paying little heed to in the event that they can be reordered or not). The expense of the texture is extraordinarily scaled down considering either a low base value, a high rebate, or sometimes both. The second way that texture is bought is alluded to as "cut yardage". Texture that shows up as hanging tests, in books, or that is sold by organizations that don't have showrooms with electrical discharges is regularly bought in this design. A base yardage (regularly 2 yards, and often just in entire yard increases) is bought and sent to the originator, workroom, or customer. This ordinarily conveys a lot greater cost for every yard, except contingent upon the measure of texture required may at present work out to be considerably less costly than purchasing an unneeded jolt. That being stated, few out of every odd organization will sell the texture at a discounted cost if purchasing a jolt.

So what amount would it be advisable for you to hope to pay for texture? Jolt valuing on a sensibly evaluated curtain weight texture will be somewhere in the range of \$15-30. Costs can and positively move from that point, yet most places won't stock texture that runs essentially more than \$100-150/yd. Upholstery texture regularly runs between about \$25-50/yd at the sensible end, and indeed most places won't stock an electrical jolt/yard texture (most places, not all).

Extraordinary request texture is a smidgen more mind boggling. The most economical pieces from the most economical organizations typically run in the \$15-20/yard range. There are obviously linings and sheers that cost less, yet for most textures this is irrefutably the base. Truly you ought to hope to pay at the very least \$30/yard with a vastly improved choice between \$40-50/yard. Upholstery texture or texture from a mid-range organization will be \$45-80 except if it is one of their more costly pieces where you could hope to pay between \$80-150/yard. Very good quality or To the Trade just organizations will frequently begin close \$100/yard and can without much of a stretch go to between \$300-400. Finally there are the couple of textures out there that truly burn up all available resources. It isn't unfathomable for texture to be between \$1,000-3,000/yard (in spite of the fact that at that range I have just

observed them sold by the meter). These super costly textures are generally not delivered until they are requested and paid for, and there are no examples. An illustration of this is a noteworthy stripe from France a specific public site requested that I cost out once.

## 2.9 Garments Costing

Pieces of clothing costing is a significant factor in pieces of clothing trade business. Entire business is absolutely relies upon it. Precise costing can build the development of a business. For articles of clothing costing a merchandiser needs to have away from of the crude materials cost and Cost of Making count of pieces of clothing. Following variables are significant for articles of clothing costing.

### 2.9.1 Cost Calculation System

During the fixation of price following notes are to be followed carefully:

- Cost of texture/Doz
- Cost of frill/Doz.
- Garments C. M (Cost of assembling)/Doz. Articles of clothing
- Cost of transportation from plant to the ocean port or air terminal.
- Clearing and sending cost
- Overhead Cost.
- Commission/Profit.

### 2.9.2 Factors Considered Before Garments Costing

1. **Fabrication:** You should take clear thought with respect to the manufacture prior to taking the request from the purchaser/purchasing house. After at that point, you should guarantee that, you have solid wellspring of the followings texture.
2. **Size spec:** Make sure that, you have the right/most recent size spec with the estimation of the relative multitude of sizes, which will be arranged. Ordinarily we see that, PO sheet has accompanied new greater size which was not during the costing.
3. **Fabric shading:** Try to realize that, the number of tones the style has and additionally attempt to realize that, shading shrewd request qty proportion.
4. **Qty:** Take data with respect to surmised request qty.
5. **Shipment date:** Asked purchaser for the shipment date and check with your creation office that, they have enough space for sent out the followings qty inside the require transport date Or tell your conceivable date.

6. **Test necessity:** Let you realize that, the request has any test or not.
7. **L/c installments term:** Take a past l/c duplicate from them and talk about with your business individuals in regards to all the terms alongside installment terms.
8. **Inspection:** Pls get an affirmation from the purchaser that, who will examined the merchandise. In the event that outsider, at that point who will pay their charges.
9. **GSP:** Pls affirm that, purchaser has need the GSP or not.
10. **Price:** Price for the most part relies upon delivery line FOB, C&F, CIF.
11. **Print:** If the pieces of clothing have print at that point ensure that, you have an unmistakable craftsmanship of it. Watch that there plainly referenced the print quality, measurement and position. Send the work of art to your printers at a superior cost thought. Additionally let you know from your printers with respect to the challenges of the followings print. Commonly we found that, purchaser has requested so many sort/kind prints in same body which is so hard for creation. For example, if purchaser requested Flock + release and foil print in at a similar craftsmanship then it isn't workable for creation.
12. **Embroidery:** Discuss with your weaving provider with respect to the weaving and take value citation.
13. **Wash:** Take the wash value citation from washing plant.
14. **Test:** Confirm the charges of test from the testing organization.

## 2.10 Accessories & trims

1. **Sewing string:** Confirm that, which string you need 100% cotton, spun polyester or fibers. At that point guarantee the tally 50/2 or 40/2 or some other denier. Its may change on manufactures. As to shade color pieces of clothing we regularly utilized cotton dim shading cotton string. Figure the sewing string utilization part by part and add require wastage rate.
2. **Labels:** Take the citation from your provider for the whole woven and silk/paper mark.
3. **Tape:** Calculate the utilization of tape on the off chance that it has, for example, Velvet, herringbone or canvas and so forth
4. **Elastic:** Make sure which denier and width it need. At that point take the citation from provider.
5. **Zipper:** If the articles of clothing have zippers at that point affirm that, from where you will buy that. Many time the logo zipper need to import the form from abroad. Ensure the zipper quality, such metal, nylon or vislon zipper. Check the zipper estimation from your creation division and get costs from your zipper provider.

6. **Button:** Take the catch cost from your provider if the pieces of clothing have it.
7. **Interlining:** Calculate the interlining cost if the pieces of clothing need.
8. **Patch or identification:** Calculate the fix or identification or others metal thing if the pieces of clothing have.
9. **Finishing thing:** Tissue paper, silica gel, hang tag, standardized identification sticker, back board, h/label string, scotch tape, security tag figure the costs of these thing.
10. **Hanger:** Take the citation of holder.
11. **Poly:** Make the estimation of poly. Affirm the quality and with cement or not.
12. **Carton:** Find out the container estimation and take the costs from container provider alongside top, base and divider.
13. **Gum tape:** Confirm the gum tape quality that, regardless of whether it is typical straightforward or with any logo. At that point take the value citation.
14. **PP belt:** Take the value citation of pp belt if purchaser asked it.
15. **Carton sticker:** Take citation for sticker.
16. **Commercial cost:** Normally we add 3% of complete buy (Fabric cost+ other thing cost + Accessories cost) as business cost if the L/c installments terms is as sight. On the off chance that the l/c is 60 days conceded then you can add 7.5% extra expense of absolute cost and it will be 15% for multi day conceded.
17. **CM (Cost of making):** Calculate the CM after conversation with your creation division. It's fluctuate relies upon require machine qty and yield qty.
18. **Profit:** Normally we add 20% of CM cost with the cost as benefit.

### 2.10.1 Consumption On basic t-shirt Garments

An impressive parcel of us wish to know, "how to calculate a crucial T-shirt usage". Today I will confer the condition to you for basic understanding. The T-shirt what we ordinarily wear anyway we have no idea how to find its use. Other than this when we will locate another profession in the piece of clothing industry then we need to do focal point of T-shirt usage in many cases. It is a run of the mill task of a piece of clothing merchandiser to find use similarly as to prepare cost sheet. It is a huge endeavor of any garments industry to find the exact use of a thing. By and large income of anything for the most part depends on to find exact surface and additional items use. If we can't find out exact usage, by then we need to stand up to surface need issue during creation or titanic additional issue after creation closing. Surface insufficiency issue in progress or additional issue after creation closing both is frightful in piece of clothing industry

### 2.10.2 Method of Fabric Consumption Calculation of a Knitted T-Shirt:

Prior to heading off to the utilization count, you need to recognize the significant pieces of a weaved T-shirt. A weaved T-shirt comprises of the accompanying parts which need to tally during utilization making-

- Body parts (Front + Back)
- Sleeve (Left + Right)
- Armhole (Left + Right)

**CHAPTER-III**  
**MATERIALS AND METHODS**

### 3.1 Introduction

SAM (or SMV) implies the time (in minutes) that it takes a specialist to finish a particular activity or produce a particular piece of clothing. The SAM is frequently determined by utilizing a stopwatch. Once in a while it's finished by taking a gander at an uncommon table of times that have just been determined, for each errand expected to make an article of clothing.

On the off chance that we need to ascertain CM of pieces of clothing, at that point we need to realize work cost every moment.

1. **Labor cost per minute** = (Monthly salary of an operators/Total minutes available in the month) at 100% efficiency.

But no line can perform at 100% efficiency, so labor cost per minute increases when line efficiency goes down.

So, correct formula is,

2. **Labor cost per minute** = Total salary of the labors in a month / Total SAM produced by those labors in that month.

### 3.2 CM (cost of making) by SMV

Cost / min = (Costing for the total month) / (Actual minute worked in the month).

(Consider operator's min, not include lunch or other break).

Operators min = No. of operators X Working hr per day X Working days.

#### **Example:**

Operator min = (1000 X 10 X 26) hrs {here, no of o/p= 1000}.  
= 26,0000 hr X 60 {working hr = 10}.  
= 1 5,600000 min {working days=26 days}.

So, cost/min = {\$.561600 (Gas, Office Stuff, Electricity etc bill)} / (15,600000).  
= \$0.036/min.

#### **So, CM cost:**

Let, **Sewing** o/p time = 10 min

CM = 10min X cost/min  
= 10 X \$ 0.036  
= \$ 0.36/pcs  
= \$ 0.36 X 12  
= \$ 4.32/dz

## Variable Functions

1. Fabric Consumption
2. Fabric Cost
3. Accessories Cost
4. Print/Embroidery/Washing Charge
5. C.M.
6. Freight (C & F)
7. Payment mode (at sight deferred payment 60days or 90 days or 120 days, TT, Sales Contract)

### 3.3 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

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**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

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

Fabric name	Charge per kg(Tk)
Single Jersey	08-10
Single Jersey with Lycra	30-32
Single Lacoste	15-18
Double Lacoste	16-20

### 3.4 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.

### 3.5 Fabric consumption

The garments manufactured in many sizes to fit for everybody. Generally they are in sizes Small (S), Medium (M), Large (L), Extra-large (XL) and Double Extra Large (XXL). The quantity ratio or assortment can be any one of the following 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 the same for all these sizes of garments, the author have taken the centre size large (L) for average calculation. Generally, the quantity of L size will be higher or equal to the quantity of each of other sizes.

5.10 CM (Cost of manufacturing):

$$C \times T$$

We know, CM =

$$X$$

Here, C = Number of machine per line

$$X = \text{total output per line per day} = \text{Hourly output} \times \text{Working hour}$$

$$= 100 \times 8$$

$$= 800 \text{ pcs}$$

T = average cost per machine per day

Again we know,  $T = A/B \times 26$

Here, A = Direct or indirect cost per month

$$= 60,000$$

B = Total Number of machine = 200

26 = Working day per month

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

$$\downarrow \quad \text{CM cost} = 24 \times 11.54 / 800$$

$$= \$ 0.346 / \text{piece}$$



<b>Body length</b>	<b>74</b>	<b>76</b>	<b>78</b>	<b>80</b>	<b>82</b>
<b>Sleeve length</b>	<b>22</b>	<b>23</b>	<b>24</b>	<b>25</b>	<b>26</b>

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

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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

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$$10000 \quad (70 + 24 + 12) * (60 + 3) * 2 * 140$$

=

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10000

= 187 grams

Body & Sleeves: 187 grams

Neck rib: 10 grams (approximately)

Gross weight: 197 grams or 0.197/kg

Fabric consumption/ dozen =  $0.197 \times 12 = 2.364$  kg

Here, fabric price/kg= \$6

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

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

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Total FOB price = \$29.484 (including commission)

Here, total FOB price = \$29.484

Per dozen sea freight = \$ 1.34

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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 =  $(32.124 \div 12) = \$ 2.677$

**CHAPTER – IV**  
**RESULT AND DISCUSSION**

#### **4.1 Measures to control cost lost in wastage**

- In order to control cost lost wastage, the going with measures must be kept:
- Finish in time Minimum
- Changes in novel structure
- Least influence break/to alter
- Keep mind Labor and Material costs
- Avoid change in view of terrible quality
- Optimize usage of materials
- Enhance work productivity through mastery planning
- Efficient Management Information System (MIS) for helpful fundamental initiative.

#### **Improvement of waste administration in article of clothing industry**

For the money related conditions or preventions the reuse is compelled with insignificant exertion of material and brisk developing plan. There are in any case openings in that second hand may be a plan in itself and that the easygoing reused feature is to a gigantic degree working with no specific course of action instruments.

An extraordinary piece of the materials accumulated by generosity affiliations are not of a satisfactory quality to be sold and reused accessible. This is to some degree disentangled by charges to less mentioning markets outside yet also prompts consuming. So the improvement of waste organization in garment industry can be viewed essentially two districts.

#### **4.2 Seven type of wastages in apparel sector**

One prime objective of present day planning is to extend benefit by taking out waste and non-regard including undertakings from the collecting method. So it is central to know the wastes and non-regard incorporating limits that exist in garment creating.

There are various articles conveyed on lean collecting and 7 wastes related to lean amassing that generally shown instance of various undertakings. Examples of 7 wastes in the piece of clothing industry are extraordinary on the web. Perhaps that is the explanation I have been drawn nearer regularly to make a short note on this topic. In this article, I have explained 7 kinds of wastes of Lean with models related to on it.

##### **1. Transportation**

Right when work is moved beginning with one spot then onto the following is a non-regard included activity. Moving cuttings from cutting division to sewing lines, transporting sewed pieces of clothing from sewing floor to finishing office, Moving garment bunches in the line

using center table or streetcar. Where transportation can't be cleared out, think how transportation time can be diminished. By using overhead transportation rail in sewing lines, transportation of gatherings or single pieces can be robotized.

## **2. Overabundance stock**

Inventories of a mechanical office addresses those things which are either during the time spent gathering or inert resources (material) of a plant or materials in stock. Likewise, bounty stock strategies keeping or delivering stock for the going with method more than the premium of the going with methodology. Plenitude stock is found in surface and trim stores, cutting racks, finishing streetcars. Excess inventories are wastes for the preparing plant, as indicated by lean perspective. Stock is money. Right when stock amassed in stores and on floors, you are ruining your money and are discouraging your working space. Undoubtedly, even in a sewing line bounty work-in-measure (WIP) are considered as excess stock.

## **3. Overabundance movement**

In workstations where managers sew garments, press-men press pieces of clothing, workers finish and pack garments, wealth developments exists there. Wealth development at workstations is found due to poor getting ready of workers in working methods and affinity for working in standard habits. In the mechanical offices where there are building division to structures workstation plan, chairmen may use wealth development due to helpless workstation design.

## **4. Pausing**

This waste is described as people or things paying special mind to the accompanying action. This term has been inspected in a past conveyed article as one of the non-productive events in progress. In garment fabricating plant, holding up as waste is found in all strategies. Like, sewing heads keep things under control for cuttings (no supporting), bosses holds on for definitive direction and continue for quality supports. Merchandisers keep it together for buyer supports. Holding up is an observable waste in gathering as executives and various delegates produce nothing while they hold on for work or in light of various reasons. Very few unique examples of such waste are – delay in sourcing materials, cutting postponements due to surface supports and use underwriting.

## **5. Over Production**

This waste can be essentially portrayed as doing or making things those are not needed now. Over creation produce bounty stock. In the garment producing plants, over age is found in cutting division and in sewing undertakings. For example, if step by step creation demand from sewing is 5000 pieces, and creation line makes/cuts more than that that sum (demand), modern office is conveying excess units of pieces of clothing than needed by the going with

method for the day (wrapping up). Over-creation cause cumbersomeness in work in cycle (WIP).

## **6. Over handling**

This waste can be described as doing task or adding features to the thing those are not need from the customer. In piece of clothing advancement, a couple of exercises may not be fundamental to give the last look and improvement. Model: Multiple checking in finishing (starting checking, pre-last checking and last checking).

## **7. Imperfections**

Making deserts while benefitting and effort. As everyone in the preparing plant realize that no flawed piece of clothing can be dispatched then why to convey broken pieces? Distortions in garment delivering look like hide assortment, wrong cutting, sewing flawed piece of clothing, etc. If lacking pieces of clothing are made, modern office needs to change and fix those imperfect garments prior to offering over to the buyer. Fix work costs money and time. In lean collecting handling plants expect to make pieces of clothing right first time. For different sorts of deformations found in garments read this article.

## **4.3 Economic and Social**

The work cost of fixing a piece of clothing is habitually higher than the procurement of another garment. The uncommon case is where it is truly more affordable to buy another piece of clothing rather than to have it expertly cleaned.

## **4.4 Technical, Legal: Design both for Reuse and Recycling**

Plan of new materials can be isolated depending upon what the material should be used for. In case it is a transitory piece of clothing either in light of style or its intrinsic nature it should preferably be made of a regulated material which is proper for reusing. If it is a first rate garment which will be used for quite a while an inexorably perplexing surface may be used in specific.

## **4.5 Zero waste idea**

A Zero waste technique will prompt speedier headway and improvement far past continuous strategies that do bar an end point objective. The zero waste strategy drives us to look for inefficient angles in the usage of materials, essentialness and HR.

To achieve a sensible future, exceptional adequacy in the usage of all resource will be required in order to address the issues of the aggregate of the world's tenants. A zero waste framework authentically reinforces this essential.

The zero waste frameworks have been grasped by colossal and autonomous endeavor and by both outside and neighborhood governments. The result have consolidates extended advantages coming about due to vital cost saving, improved normal execution, and more grounded close by economies. The result will be financially stable affiliations, strong organizations, and sound condition for who and what is to come. Zero waste strategies reinforce all times of the reasonability improvement joins,

- Save money
- Faster progress
- Economic thriving
- Supports legitimacy
- Environmental affirmation
- Social thriving
- Improved material streams

## **4.6 Use of articles of clothing waste**

The unusable bits of articles of clothing are reused into waste cotton. Dozing cushion, cushions, cushions, seat stuffing and padding in vehicles and carts are commonly gotten done with these reused articles of clothing and took care of cotton. Bbandages are furthermore reproduced with staying white cotton surfaces. While gets, zippers, adaptable catch, holders and plastic sacks are traded to more modest than ordinary piece of clothing ruffle vendors. Gets, zipper, elastics fasten are generally gained by close by tailors, said an embellishment shipper..

## **4.7 Environmental and monetary advantages of piece of clothing reusing**

Garment reusing have major focal points similarly as natural similarly as pragmatic. Some are referred to underneath:

- Reduces the prerequisite for landfill space.
- Reduces tension on virgin resources.
- Aids the equality of portions as we import less materials for our necessities, which causes less tainting and essentialness save assets, as strands don't be dispatched from abroad.
- Benefits of recuperating fiber Savings on imperativeness usage when taking care of, as things don't should be re-shaded or scoured.
- Less profluent, as not at all like unrefined wool, it shouldn't be totally washed using huge volumes of water.
- Reduction of interest for tones and fixing administrators and the issues achieved by their usage and amassing.

## **4.8 Low wastage in cutting time**

Eliminating expects to cut the pieces of the garment from lays of the surface with the help of cutting model or marker. To make whole garments, cutting is fundamental. When in doubt, the marker is applied to the top handle of a lay. The essential inspiration driving cutting is to seclude surface parts from the spread of lay by the assessment of the marker with the ultimate objective of pieces of clothing making according to the model pieces.

- Cutoff the Wastage during Fabric Cutting,
- Reduce the Ends of employ misfortunes
- Minimize the Selvedge misfortunes
- Reduce the Loss of texture closes
- Careful about Fabric Purchase
- Identify Fabric abandons

## **4.9 Reduce the Ends of ply losses**

Some reward is needed around the completion of each cycle of surface during surface spreading by virtue of requirement of the pre-owned machine for surface extensibility and surface spreading and this settlement is regularly 2" in each end and on each handle 4" surface wastage.

- This wastage changes with the strength of the surface.
- This wastage can be decreased by watching and controlling circumspectly of how much payment necessity for various surface.

- Also, this wastage may be diminished for larger marker length and augmentation for tinier marker length

#### **4.10 Minimize the Selvedge losses**

- Every surface has two selvedges along its wide. Generally, selvedge part is eliminated. The proportion of cut out is viewed as 3% (around) close by wide.
- The proportion of surface wide to be used depends upon the idea of selvedge, width, equity and plan of selvedge.
- The more surface width, the less will be surface wastage.

#### **4.11 Reduce the Loss of fabric ends**

Moreover saw that surface length changes than surface various of lay length. Consequently, during the plan of surface lay the last or end rest of surface roll are secluded by cutting.

- Texture wastage extended for this unite or leftover portion.
- The brew surface length in a roll, minimal wastage by unmistakable evidence of participate in marker and genuine controlling and by reusing of the extra

#### **4.12 Careful about Fabric Purchase**

- Texture length is perceived by surface producer and supplier on surface roll.
- Some unfading surface is wound on a move than recognized length. So it should be assessed by surface purchase.

#### **4.13 Identify Fabric defects**

- There are two disfigurements as get-together hiding and running covering.
- In the occasion that social event covering is accessible in surface it must be excused.
- Be that as it might, if running hiding is accessible, the surface can be used by marker just with the

**CHAPTER – V**  
**CONCLUSIO**  
**N**

## 5.1 Conclusion

Waste the chiefs has essentially gotten critical in garments industry. Garment squander is absolutely not a gigantic waste stream by weight or volume anyway has an essential environmental impact related with the age of pieces of clothing. Genuine age orchestrating and control should be strengthened inside the affiliation. The leader of waste in pieces of clothing industry is achieve increase the economy of the business. Present day reusing should be tremendous scope and the material streams are as shown by the reusing association's absurdly little for a compelling reusing measure. More exploration is required to find ideal reusing methods. There are two choices to handle the test of the serious world started by the persistent weight of worldwide article of clothing chain. One can keep on existing in the opposition by embracing revered work frameworks or shameless practices. Be that as it may, it is unsure how long they can keep on existing. Regarding the piece of clothing industry of Bangladesh, we can say that this is the correct chance to follow a serious strategy, which improves quality. In the event that the MFA openings are disposed of, will it be doable to keep the intensity through low-wage-female work or through additional drop in female wages? Conceivably not. Since the work charges are negligible to the point that with such compensation, a laborer can't keep up even a group of two individuals. Improving the productivity of female specialists is the main answer for expanded rivalry. Appropriate schooling and careful preparing can help accomplish these positive outcomes. To manage the worldwide market, Bangladesh needs to emerge from low pay and low yield complex in the article of clothing industry. Bangladesh can improve work yield through consistent preparing, utilization of updated innovation and better workplace. Bangladesh should design a technique planned for advancing ability advancement, accelerating innovation move and improving efficiency tallness of the laborers.

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