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APPAREL MADE-UPS HOME FURNISHING
SECTOR SKILL COUNCIL

Participant Handbook

Sector
Apparel, Made-ups and Home Furnishing

Sub-Sector
Apparel

Occupation
Sewing Machine Operator (Knits)

Reference ID: **AMH/Q0305, Version 1.0**
NSQF Level 4

Sewing Machine Operator (Knits)

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> Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission.

Shri Narendra Modi
Prime Minister of India

Acknowledgements

About this book

This Participant Handbook is designed to enable training for the specific Qualification Pack(QP). Each National Occupational (NOS) is covered across Unit/s.

Key Learning Objectives for the specific NOS mark the beginning of the Unit/s for that NOS.

- Plan and prepare for process of sewing of knit fabrics as per plan received from stitching/line supervisor
- Stitch knitted fabric as per plan
- Maintain health, safety and security in the production line
- Maintain workarea, tools and machines
- Comply with industry, regulatory and organizational requirements

The symbols used in this book are described below:

Symbols Used

Key Learning Outcomes	Steps	Time	Tips	Notes	Unit Objectives	Exercise

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1. Introduction and Orientation

Unit 1.1 - Introduction to Sewing and Apparel Sector

Unit 1.2 - Role and Responsibilities of Sewing Machine Operator (Knits)

Key Learning Outcomes

At the end of this module, you will be able to:

1. Familiarise with apparel industry.

2. Identify the role and responsibilities of sewing machine operator.

UNIT 1.1: Introduction to Sewing and Apparel Sector

Unit Objectives

At the end of this unit, you will be able to:

1. Familiarise with apparel industry.

2. Describe the home furnishing and made-ups sub sectors.

1.1.1 Introduction to Sewing

Sewing is a skill of tying and/or attaching objects using tacks made with a needle and thread. It is one of the oldest existing crafts in the world.

Sewing was originally a handmade craft for many years. It was the invention of the sewing machine in the 1800s and the growth of technology and computerization in 1900s that increased the mass production of machine made objects. However, sewing by hand is still a globally popular practice. In areas like haute couture fashion, custom dress creation and such, fine hand sewing is an ongoing demand. Fine hand sewing is thus pursued by hobbyists and textile artists equally.

1.1.2 Apparel Sector – Industry Overview

Indian Textile and Clothing (Apparel) industry is the second largest manufacturer in the world. The Indian textiles and clothing sector is expected to grow at 10.01 percent in the next 10 years from the current value of INR3.92 lakh crores in 2012–13 to INR10.54 lakh crores in 2021–22. Of these, the garments sector is estimated to grow at an average rate of 15.44 percent over the years, thereby accounting for about 70 percent of the total production The demand for domestic consumption for home textiles and garments is expected to increase rapidly . In fact, the garments sub-sector alone is estimated to increase by seven times from INR 51400 crores in 2012–13 to INR3.70 lakh crores in 2021–22.

The Indian textile sub-sector has traditionally been contributing significantly to the economy and manpower as well as to the structural changes in the manufacturing sector. As of 2012, the sector contributed 4 percent of the GDP, 32 percent of the manufacturing sector and 9 percent of total exports The sector's output is expected to grow at an annual average rate of 10 percent in the next 10 years, thereby increasing its worth to INR 10.5 lakh crores in 2022. Several factors that would contribute to the growth would include:

- Rising income levels are expected to increase the demand for home textiles and garments from domestic consumers is expected to increase.

- Free trade agreements provide India a comparative advantage in the export segment as compared to its competitors – China, Bangladesh and Pakistan – as they create opportunities for manufacturers to supply to potential markets in East Asia.

- Low production cost continues to be an advantage for the sector and, consequently, demand from existing foreign markets continues to increase.

- Structural changes in the sector, with a shift from vertically disintegrated to integrated large firms, with automated machines for yarn and fabric production.

- Increased spending on research and development to enter the specialized fabrics and technical textiles sector.

- Favourable policy environment to support domestic and foreign investments and the implementation of schemes to enhance the production capacity and improve technology.

Ready Made Garments

The ready-made garments section has grown rapidly in the last few years. Both exports and domestic demands shall drive sector growth in future.

The ready-made garments segment comprises men's, women's and kid's clothing, which may be used for either private (home/office wear) or commercial (uniforms for school, waiters and flight crew) purposes.

- Men's wear is the biggest segment in the ready-made garment segment, comprising about 43 percent of its share in the total revenue generated. This is followed by women's wear, with a share of 38 percent; 10 percent share of boys wear and 9 percent for girls wear in the total revenue generated by the ready-made garment segment.

- Changing lifestyles and consumption patterns are expected to drive the sector's supply of causal wear with an 11 percent growth, which would drive demand for workforce with specialised skills in western formals design, blended fabrics and increased application work on clothes.
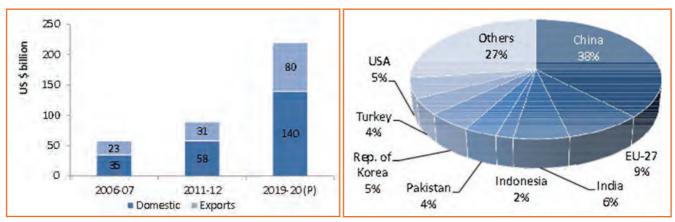
Fig 1.1.1: Major Textile Exporters to the World (% share)

Fig 1.1.2: Major Textiles and Clothing Regions in India

Source: Office of Textile Commissioner and IMaCS Analysis

Actual and Projected size of Indian Textile Industry

In 2011 global trade in textiles and apparel was around US$ 705 billion. This was approximately 4% of the total global trade of all commodities estimated at ~ US$ 15 trillion. During the period 2000 to 2010 the textile and apparel trade has grown at a modest CAGR of 6.4% per annum. Further, the Global Textile and Apparel, or T&A, trade is expected to grow to USD 1 trillion by 2020.

- **Gujarat and Maharashtra:** Most large companies across all sectors of the value chain, including spinning, weaving, home textiles and garments, are located here. Key players include Aravind Mills, Raymond, Welspun, Bombay Dyeing, Alok, Century Textiles.

- **Karnataka and Kerala:** Bangalore and Mysore have a few garment firms. Some major garment exporters include Gokaldas Exports and Shahi Exports.

- **Tamil Nadu:** Major cities that serve as textile hubs are Tirupur, Coimbatore, Madurai and Karur; known for apparels, spinning mills, silk and home textile units, respectively. Key players include Loyal Textiles, KG Denim, Asian Fabric. Tamil Nadu accounts for the largest textiles and clothing production of INR 761820 crores, which also employs the largest number of workers (2.63 million) in textile factories. This state is followed by Gujarat, which has an annual textile production valued at INR 49165 crores.

- **There are more than 70 textiles and clothing clusters in India** accounting for about 80 percent of the total production. There are 39 power loom clusters and 13 ready-made garment clusters in India.

- **Bhiwandi and Malegaon** are the two largest power loom clusters. Major ready-made garments clusters are located in Delhi, Mumbai, Gurgaon, Nagpur, Madurai and Salem, with annual turnover of more than INR 1000 crores since 2003. The state of Maharashtra has 10 textile clusters. Other major states in terms of the number clusters are Tamil Nadu, Andhra Pradesh, Karnataka, Kerala and Uttar Pradesh (seven clusters each).

Employment Scenario in the Sector

It also provides employment to approximately 35 million persons directly & approximately 55 million persons indirectly. India is among the very few countries which have presence across the entire supply chain, from natural and synthetic fibers right up to finished goods manufacturing. It has presence in organised mill sector as well as decentralised sectors like handloom, power loom, silk, etc.

Currently, 15.23 million people are employed in the textile sub-sector across yarn and fabric, home textiles, technical textiles and readymade garments. Fifty-one percent of the total workforce is engaged in the manufacturing of readymade garments, followed by yarn and fabrics with 26 percent. Human resource requirement in the sector is expected to reach.

21.54 million by 2022 translating into 6.31 million additional employment opportunities during the period 2013-22.

Sub Sector	Employment in Millions	
	2017	**2022**
Spinning Weaving and Finishing of Textiles	3.14	3.18
Manufacture of Other Textiles	10.64	13.78
Manufacture of Wearing Apparel	4.28	4.58
Overall	18.06	21.54

Fig 1.1.3: Sub-Sectors in Apparel Industry

1.1.3 Made-ups and Home Furnishings

The made-ups sub-sector is growing at a steadily increasing pace in the country. The wide variety of products that come under this sub-sector are not only include necessities but also functional and luxury products. Made-ups sub-sector is divided into three (3) broad categories:
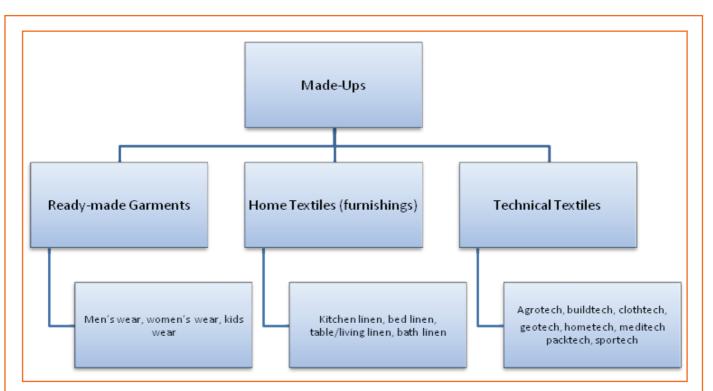
Fig 1.1.4: Made-ups and Home Furnishing Sub-sector

Indian is among one of the biggest exporters in Apparel and Made-ups industry. In Home Textiles India is second only to China in global exports, whereas in apparels, India is among the top 10.

Product	Total World Export	Major Contributor			India's Contribution		Other Competing Countries
		Country	Share & Value	Ranks	Share & Value	Ranks	
Apparel	193400159	China	61224360 (31.65%)	1	7429975 (3.8%)	7	Italy, Bangladesh, Hong Kong, Vietnam
Home Textiles	55921991	China	24015853 (42094%)	1	3973042 (7.10%)	2	

*Fig 1.1.5: Textile Exports by Major Countries and India ('000 USD) * Source NSDC Skill Gap Study – Textile & Clothing*

As evident from the Figs above, India is fast becoming one of the leading global players in the Home Furnishings/Textile. Home Furnishings industry offers wide varieties of products like bedspreads, furnishing fabrics, curtains, rugs, cushion covers etc. Indian Home Furnishings Market is forecasted to increase at an annual growth rate (CAGR) of 8 percent over next five years. The industry will reach a value of approximately US $5.29 billion by 2018. The Indian Home Furnishing industry provides a unique blend of modern technology and ethnic techniques to bring out products that are one of the best in the world. The increase in the spending power of the Indian working class is also expected to contribute in the growth of domestic consumption of made-ups and home furnishings industry

Fig 1.1.6: Home Furnishing
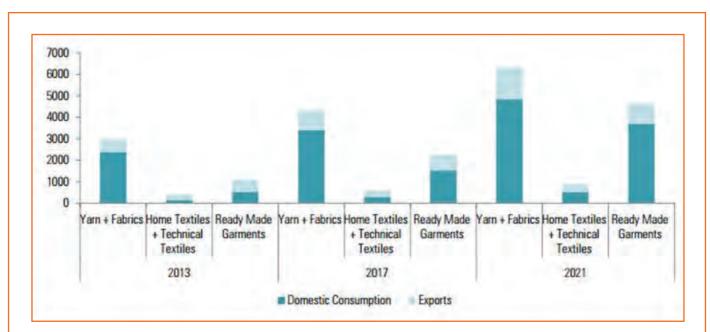
*Fig 1.1.7: Estimated Domestic Consumption of Indian Textile Production (in INR '000) * Source NSDC Skill Gap Study – Textile & Clothing*

With increased demand and completion from countries like China, the demand of skilled workforce/kaarigars in the Home Furnishings industry is bound to increase in coming years.

Fig 1.1.8: Apparel Made-ups

Exercise

1. When was sewing machine invented?

   a)   20th century

   b)   19th century

   c)   18th century

   d)   17th century

2. As of 2012, the Indian textile sub-sector contributed _____ percent of the GDP, _____ percent of the manufacturing sector and _____ percent of total exports.

   a)   4,32,9

   b)   32,4,9

   c)   4,32,8

   d)   4,33,9

UNIT 1.2: Role and Responsibilities of Sewing Machine Operator (Knits)

Unit Objectives

At the end of this unit, you will be able to:

1. Know who is SMO.
2. Understand the roles and responsibilities of SMO.

1.2.1 Sewing Machine Operator (Knits)- Job Description

Fabric Sewing Machine Operator (Knits), also termed a 'Machinist or Stitcher' is an important job-role in the Apparel, Made-Ups and Home Furnishing as well as their manufacturing sector making knit garments. The chief duty of a sewing machine operator (knits) is to stitch knit fabrics with due care to convert them into garment and apparel.

Fig 1.2.1: SMOs on the Job

Personal Attributes

A SMO (Knits) necessitates few definite characteristics job so that the task at hand can be completed in a proficient manner. Some important personal attributes are:

• Good vision

• Eye-hand-leg synchronization

• Motor skills

• Good interpersonal skills,

• Open to learning

• Basic appreciative knowledge of measurements

1.2.2 Roles and Responsibilities

The key roles and responsibilities of a Sewing Machine Operator - Knits are:

• Understand and identify different types of fabrics used in knitting

• Identify and work with various threads and needles used in knitting operation

• Operate various knitting machines and sewing machines used for knitting

• Ensure that tool/equipment and raw material are available as required

- Ensure proper storage of tools and equipment

- Perform basic maintenance of tools and machines

- Carry out various stitches required to perform knitting

- Identify various defects in fabrics and final garments

- Perform repair of basic defects

- Keep the supervisor informed about any problems or discrepancies in the sewing process

- Ensure that the product conforms to the design specification

Exercise

1. Sewing machine operators also adjust machine controls and regulate stitching speeds for every sewing project that they work on.

    a) True

    b) False

2. The primary responsibility of sewing machine operator (knits) is to stitch/sew knit fabrics with due care to convert them into garment and apparel.

    a) True

    b) False

3. What are the duties and responsibilities of Sewing Machine Operator (knits)?

    ....
    ....
    ....
    ....
    ....

2. Plan and Prepare for Sewing of Knit Fabrics

Unit 2.1 - Basic Materials for Sewing of Knits

Unit 2.2 - Machine and Equipment for Sewing Knits

Key Learning Outcomes

At the end of the module, you will be able to:

1. Understand the difference between machines according to instructions

2. Ensure machine parts like needles, foot, spools etc. are properly working

3. Ensure tools and material required for sewing of knit fabrics is available

4. Select appropriate material for the process

5. Inform supervisor in case any clarification is required

6. Recognize the different types of industrial sewing machines.

7. Familiarize with the feed mechanisms.

8. Determine the basic list of material and tools required for stitching.

9. Check the equipment is safe and set-up in readiness for use.

10. Recognize about the different types of threads, needles and fabrics.

UNIT 2.1: Basic Materials for Sewing of Knits

Unit Objectives

At the end of this unit, you will be able to:
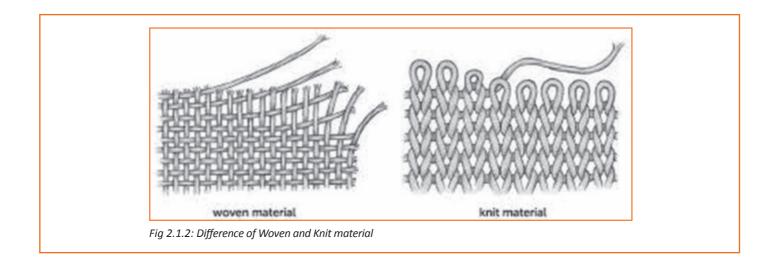
1. Understand the differentiation between Knit and Woven and various Knitting terms.
2. Comprehend the common knitting terminologies.
3. Recognize the different types of industrial sewing machines.
4. Familiarize with the feed mechanisms.
5. Determine the basic list of material and tools required for stitching.
6. Know about commonly used knit fabrics.
7. Equipment for sewing knits.
8. Various Industrial Sewing Machines.
9. Selection of needles for sewing of knits.

2.1.1 Basics of Knit Fabric- Definition

Knit fabric is a textile made by interloping of a set of yarn. Knit fabric properties are different from woven fabric in that, it is more flexibleand can be more easily constructed into small pieces, because it is constituted of simple rolled up thread in the form of lopes by curling on itself. Woven fabric, is composed by cris-cros of two set of yarn called warps and wefts.

2.1.2 Difference of Woven and Knitted Fabric

Woven	Knits
• Two types of threads are used	• One type of thread is used
• Long process	• Short process
• Yarn movement is restricted	• Yarn movement is not restricted
• Strong fabric	• Weaker fabric
• Less comfortable	• More comfortable
• Wrinkles easily	• Highly crease resistant
• Ironing is necessary	• Requires no ironing
• Thinner fabric	• Thicker fabric
• Less extensible	• More extensible
• Cutting waste cannot be reduced	• Cutting waste can be minimized
• Stable fabric	• Less stable fabric
• Examples are Twill Chiffon, Denim, Poplin	• Examples are simple jersey, Interlock, pique, rib

Fig 2.1.1: Difference of Woven and Knitted Fabric

Fig 2.1.2: Difference of Woven and Knit material

2.1.3 Common Knitting Terms
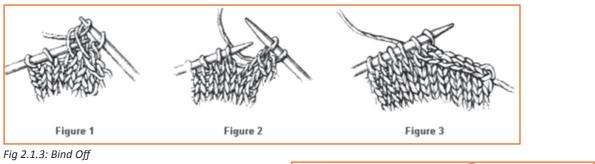
Do not be confusing if you hear a few fervent knitters talking among themselves about "To cast on" or "Dropping a stitch". As you get ready, to start your days of knitting, you perhaps are quite officious about what other knitting jargon exists.

Alternate

In Knitting, Alternate means 'every other row'. When you have to bind off stitches, you cannot do that at the end of the row. So you do it in the beginning of the row.
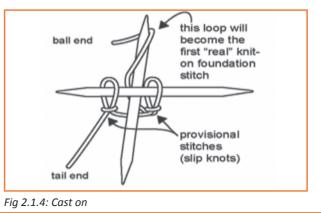
Bind Off

To finish or close off-line sews by finishing with a final row. By knitting two stitches; slipping the first stitch over the second stitch; recapping with every two stitches, till the one last stitch remains; and cutting yarn and coiling it from side to side to the last stitch.

Fig 2.1.3: Bind Off

Cast on

To begin by creating the leading stitch, or to add a stitch/stitches—by making a slip loop over left needle, placing right needle through the loop, passing yarn over and under right needle, illustrating yarn through loop, and moving loop to left needle.

Fig 2.1.4: Cast on

Course

A course is a row of loops, shaped by adjacent needles during the same knitting cycle. In weft knitted cloths, a course is made of yarns derived from a single supply and the length of the yarn to knit a course is known as a COURSE LENGTH. In warp knitting each loop in a course is composed of a separate yarn.
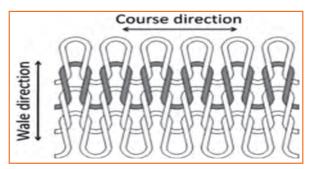
Fig 2.1.5: Course

Count

The number of wales measured along the width of the fabric is called wale count or wale density. Wale count is articulated as number of wales per inch or per centimetre(wpi/wpc). The number of course slowed along the length of the fabric is called course count or course ensity. In other words, it is the number of course per inch or per centimetre (cpi/cpc).

Fig 2.1.6: Count

Decrease

To work fewer stitches conferring to instructions for shaping or giving a structure to a piece—most typically by a) knitting stitches together; or b) slipping a stitch and passing over the slipped stitch while knitting the following stitch.

Fig 2.1.7: Decrease

Garter Stitch

A pattern using knit for every stitch and every row.

Fig 2.1.8: Garter Stitch

Gauge
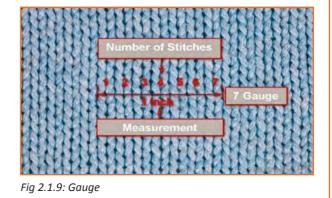
Gauge is a term used to describe the needle spacing, which is the number of needles per unit length. If two sets of needles are used, as in rile or interlock, the second set of needle is not taken into consideration in determining the gauge.

Fig 2.1.9: Gauge

Increase

To work extra stitches according to instructions—usually by a) creating two stitches from one stitch by knitting twice into the same stitch; b) creating two stitches from one stitch by purling twice into the same stitch; or c) using the right needle to pick up the yarn, place it on the left needle, and knit an additional stitch into the back of the new loop created.

Fig 2.1.10: Increase

Fig 2.1.11: Knit

Knit

The deed of knitting, but also the most common stitch. In patterns, knit is shortened as K and is followed by the number of stitches needed: K4 = knit four stitches.

Make 1
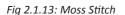
To work additional stitches according to pattern directions—commonly performed to shape a piece; or to create a hole and extra stitch (for a lacy pattern).

Fig 2.1.12: Make 1

Fig 2.1.13: Moss Stitch

Moss Stitch

The alternating of one knit stitch and one purl stitch in every row.

Purl

Purl is the second most common stitch. Though, in a knit stitch you put the right needle from side to side the stitch from behind, in the purl stitch you place the right needle into the front of the left needle stitch.
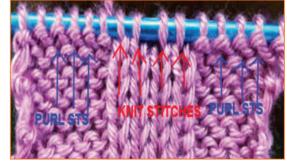
Fig 2.1.14: Purl

Pass Slipped Stitch Over

The procedure comprises of slipping one stitch, then knitting the following stitch (yarn under then over right needle and yarn pulled through); then slipping stitch off left needle—so that slipped stitch and knitted stitch are now on right needle. Lastly, the slipped stitch is lifted up and over the knit stitch and off the right needle.
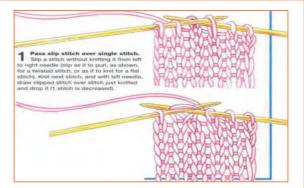
Fig 2.1.15: Pass Slipped Stitch Over

Fig 2.1.16: Reverse Shaping

Repeat

To do the same step or stitch as just previously instructed. If the instructions read [repeat], do the same action as you just did in the [previous bracketed instruction] step.

Reverse Shaping

The act of working the second side of the piece's shape at the opposite end from where it was worked for the first side. The process typically includes binding off.

Row

The completed series of stitches worked from one needle to the other, thereby making it time to transfer needles accordingly: from left hand needle in left hand to right hand, and right hand needle (with row) to left hand.

Slip

To transfer a stitch from left needle to right needle without adding yarn.
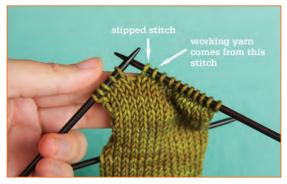
Fig 2.1.17: Slip

Stocking Stitch
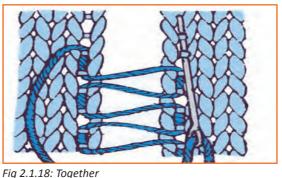
A stitch pattern made by alternating one row of knit and one row of purl throughout.

Through the Back of the Loop

The act of knitting or purling into the back of the loop on left needle, creating a twisted stitch.
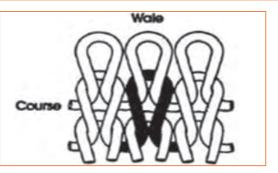
Together

On a knitting row, the needle pointing left to right, works with the next two stitches on the left needle, while the yarn is put under right needle, brought over the top, and pulled through both stitches at the same time; then the two stitches are dropped. On a purling row, the process is done in parallel fashion but with purling actions—right needle is put from side to side of the front of left needle stitches; and yarn is brought over the top of right needle point.

Fig 2.1.18: Together

Wale

A wale is a perpendicular column of loops produced by the same needle knitting at consecutive knitting cycle. In weft knitting fabrics, a wale is composed of diverse yarns. In warp knitting a wale can be formed from the same yarn if a warp guide laps around the needle at following needle cycle. Wales are joined to each other by the sinker loops in weft knitted fabrics and by the underlaps in warp knitted fabrics.

Fig 2.1.19: Wale

Yarn Back

The act of putting front-sitting yarn to back, between the two needles.

Yarn Forward

The act of bringing back-sitting yarn to the front, under the right needle.

Yarn Front

The act of leaving the previously front-sitting yarn at the front instead of moving it back for a back-sitting yarn stitch—an action which will instead build a loop or hole.
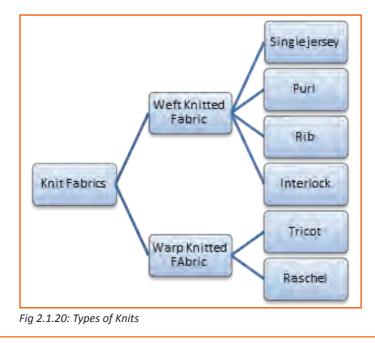
Yarn 'Round Needle

The act of preceding the next stitch by casing yarn around the right needle point, yarn starting and finishing at back for a knit stitch, yarn starting and finishing at front for a purl stitch—thereby creating a hole and an extra stitch.

2.1.4 Commonly Used Knit Fabrics

Types of Knits

Knit Fabrics can be classified as follows:

Fig 2.1.20: Types of Knits

Single Jersey

This particular fabric can be very stretchy, single knitting and usually lightweight jersey with one flat side and one piled side. When this is made with a lightweight yarn, the fabric is most often, used to make T-shirts.
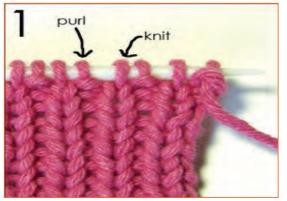
Fig 2.1.21: Types of Knits

Fig 2.1.22: Purl

Purl

In purl-knitted fabrics, both face and back stitches occur in at least one wale, and sometimes in all of the wales. Purl fabrics are usually fairly chunky and, when they are not extended lengthwise, they often show only back loops on both the face and reverse of the fabric.

Rib

Ribbing is a pattern in which vertical stripes of stockinet alternate with vertical stripes of reverse stockinet stitch. The two types of stripes may be separated by other stripes in which knit and purl stitches alternative perpendicularly; such plissé stripes add width and depth to ribbing but not more elasticity.

Fig 2.1.23: Rib
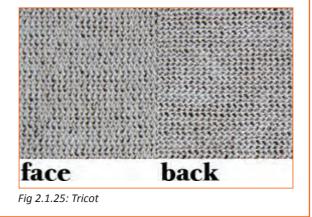
Interlock

Similar to a jersey knit except both front and back of the fabric look identical. Double knit read more » construction makes this a thicker knit fabric. Interlock is the snuggest knit, gives the evenest surface and the finest hand. The fabric is particularly soft, firm and permeable.

Fig 2.1.24: Interlock

Tricot

Tricot is a special case of warp knitting. The yarn Zig-zags perpendicularly, following a single column ("wale") of knitting. Tricot and its relatives are very resistant to runs, and are commonly used in lingerie.

Fig 2.1.25: Tricot

Raschel

All warp-knit fabrics are resistant to runs and relatively easy to sew. Raschel lace— a common type of machine made lace—is a warp knit fabric but using many more guide-bars (12+) than the usual machines which mostly have three or four bars.
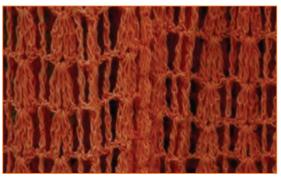
Fig 2.1.26: Raschel

2.1.5 Commonly Found Defects in Knit Fabrics

- **Skewed or Bias:** Condition where courses are not square with wale lines on knit. This basically happens when the fabric is loosely knitted. The balancing of course and wales are not at perpendicular. This normally leads to a lot of problems to follow the gain matching during cutting. Bias happens essentially in tube-like fabrics during processing.

- **Barre:** Occurs in circular knit. Caused by mixing yarn on feed into machine. Fabric will appear to have horizontal lines. In Barre we can see, diverse types of yarns which is running on the circular knits. Barre happens due to mixing of yarn lots. It can happen due to thick and thin in the yarn or mixing of dyed or differently coloured yarns.

- **Birdseye:** Caused by accidental tucking from malfunctioning needle. Usually two small distorted stitches, side by side.

- **Bowing:** Typically caused by finishing in knits the coarse lines lie in an arc across width of goods. Critical on stripes or patterns and not as critical on solid colour fabrics. Bowing is seen in loose knits and low GSM fabric, egg. If the fabric needs a GSM of 140gms, in 20s count knitted 20-gauge machine, the chance of bowing is more than 15%, so there is a possibility of the rejection of the fabric due to bowing. Also bowing can be visible when the TPI of the yarn, which is more than 16, is the maximum for the knitted yarn.

- **Broken colour pattern:** This kind of fabric defect is usually caused by colour yarn out of place on frame.

Spirality
Over twisted yarn

Fig 2.1.27: Broken colour pattern

- **Crease Streak:** Occurs in tubular knits. Results from creased fabric passing through squeeze rollers in the dyeing process.

Fig 2.1.28: Crease Streak

- **Drop stitches:** Results from malfunctioning needle or Jack which appear as holes, or missing stitches.

- **Hole:** Caused by broken needle.

Fig 2.1.29: Drop stitches

Fig 2.1.30: Missing Yarn

- **Missing Yarn:** Occurs in warp knit. Results from wrong fibre yarn (or wrong size yarn) placed on warp. Fabric could appear as thick end or different colour if fibres have different affinity for dye.

- **Needle Line:** It is caused by bent needle forming distorted stitches usually vertical line.
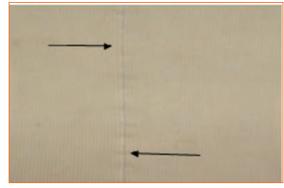
Fig 2.1.31: Needle Line

- **Pin Holes:** Holes along selvage caused by pins holding fabric while it processes through stenter frame.

Fig 2.1.32: Pin Holes

- **Press-Off:** When all or some of the needles on circular knitting fail to function and fabric either falls off the machine or design is completely disrupted or destroyed. Many knitting needles are broken and have to be replaced when bad press-off occurs. Bad press-off usually starts a new roll of fabric.

- **Runner:** Usually caused by broken needle, will appear as vertical line. (Most of the machines have a stopping device to stop machine when a needle breaks)

- **Slub (knit Fabric):** Usually caused by thick or heavy place in yarn, or by ling getting onto yarn feeds.

- **Straying End:** Caused when an end of yarn breaks and the loose end strays and is knit irregularly into another area.

Knit Fabric Defects

Defect	Explanation	Severity	Photograph
Defects of Knitted Fabric			
Drop Stitches	Results from malfunctioning needle or jack. Will appear as holes or missing stitches.	Major	
Hole	Caused by broken needle.	Major	
Missing Yarn	Occurs in circular knit. Caused by one end of yarn missing from feed and machine continuing to run.	Major	
Mixed Yarn	Occurs in wrap knit. Results from wrong fiber yarn (or wrong size yarn) placed on wrap. Fabric could appear as thick end or different color if fibers have different affinity for dye.	Major	

Needle Line	Caused by bent needle forming distorted stitches. Usually verticals line.	Major or Minor	
Runner	Caused by broken needle. Will appear as vertical line. (Most machines have a stopping device to stop machine when a needle breaks.)	Major	
Slub	Usually caused by a thick or heavy place in yarn, or by lint getting onto yarn feeds.	Major or Minor	
Askewed or Bias	Condition where filling yarns are not square with wrap yarns on woven fabrics or where courses are not square with wale lines on knits.	Major or Minor	

Pin holes	Holes along selvage caused by pins holding fabric while processes through stenter frame	Major if extents into body of fabric	
Straying End	Caused when an end of yarn breaks and loose end strays and is knit irregularly into another area.	Major	
Bowing	Usually caused by finishing in knits ,the course lines lie in an arc across width of goods.	Major on stripes o r patterns Minor on Solid color	

Fig 2.1.33: Knits Defects

Roughness in Fabric

There are several defects related to fabrics. It is said that approximately 70% of the apparel industry's cost is spent on getting an excellent or a good quality standard fabric to meet client expectations and market reputation or competition. Commonly found defects are mismatch in threads, or using an incorrect stitching technique, improper creasing of any garment etc, similarly a garment can also is called faulty when it has color defect or size difference. Sizing defect must be handled carefully as it can deteriorate a garment where they can't be repaired and has to send for a re-making of the product which could be time and cost consuming for the industry. Hence it is very important to look for the material carefully. The material to be used should be free from the following faults:

Fig 2.1.34: Abrasion Mark
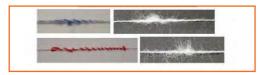
- **Abrasion Mark:** Abrasion mark is the mark which is formed where the fabric has been damaged on the outside due to friction that has occurred because of damaged operation through which it has been passed.

- **Misprinting:** misprinting is a common fault found in the making of a garment. It could be that, the garment is misprinted, or partially printed or over-lapped. For e.g. as highlighted in the Fig on the left, the circles printed are not of the same size and shape hence it's a misprint.

Fig 2.1.35: Misprinting

Fig 2.1.36: Double Pick

- **Double Pick:** Double pick can be explained as 2 yarns which are running concurrently, and regularly in the weft yarn. Refer to the image on the left to see the example of two yarns running parallel.

- **Oil Stains:** As shown in the Fig on the left, oil marks are something that leaves stain on the fabric making it look ugly, and must be treated immediately as the fabric with oil stains can't be left un-attended. It should be sent for the replacement.

  Hole or a Bow can be caused due to faulty needles like bent or dull needle, hence make sure to check needles and if there are any bent or rusty, dull needles they should be the first thing to be replaced.

Fig 2.1.37: Oil Stains

Fig 2.1.38: Skew

- **Skew:** Deformation or twist in the construction of the fabric i.e. in yarn that comprise the fabric. The picture shows how skew is identified.

- **Dye Stain:** An area of discoloration which occurs because of unequal absorption of dye hence, always make sure to check that the material you are about use should not have any sort of discoloration. If so, then make sure to get it replaced.

2.1.6 Sewing Thread

A small diameter yarn or twisted strand usually treated with a surface coating or lubricant or both, intended to be used to stitch one or more pieces of material or an object to material are referred to as sewing thread.

Knowledge of Sewing Thread

Natural fibers like cotton and silk has been used in sewing thread before Now a day however, chemical fibre products such as polyester thread, nylon thread, etc. are largely used in accordance with materials and applications. These treads are different from one another in construction and manufacturing. Spun thread (Cotton thread, Synthetic spun thread) Short staple fibers produced by a series of twist applied to the staple (Short fiber) is known as spun thread.

Mono filament thread this thread is just the same as long fibre that is spun by melting and a long yarn without twist.

Different type of Threads

1. **Rayon:** Rayon is the most popular fiber used for embroidering. Its shine and softness makes it a cheaper alternative for silk. Stiches made with rayon threads are smooth and are responsible for higher quality embroidery. However, using rayon is disadvantageous because over time, its quality deteriorates and is quite high in maintenance in that regards.

Fig 2.1.39: Rayon

Fig 2.1.40: Polyester

2. **Polyester:** Polyester is a fiber produced from the synthetic processing of polymer resins. It can be made to have a matte finish or a high shine finish, similar to silk. Unlike rayon, polyester does not fade or shrink when washed. It is economical and suitable for all type of sewing. Its color, fastness and strength are the major reason why it is the most preferred medium of stitching.

3. **Nylon:** This is additional unnaturally produced thread with good strength. However, the disadvantages are many, like, not being heat resistant, not colourfast (becomes yellow over time) and also become brittle through washing and exposure.

Fig 2.1.41: Nylon

4. **Cotton:** This is the only 100% natural fiber thread made for high speed machine. These threads perform beautifully in machines and have a soft sheen. Embroidery floss is made up of 6 strands that can either be separated or kept together.

Fig 2.1.42: Cotton

Fig 2.1.43: Wool
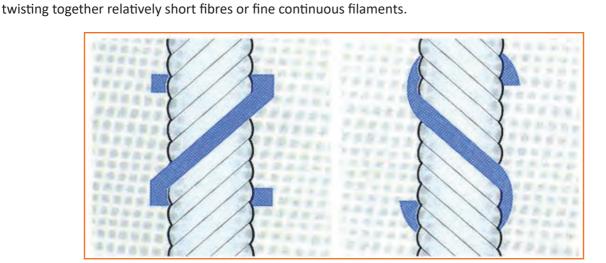
5. **Wool:** A popular animal fiber, wool has a very soft look when it is stitched. While it is not very reflective, it has a soft texture and a soft look when stitched.

Basics of Thread construction

All conventional sewing threads begin their production cycle as simple yarns. These basic yarns are produced by twisting together relatively short fibres or fine continuous filaments.

Fig 2.1.44: Basics of Thread construction

Some terms used in the context of thread construction are:

• **Twist:** The 'twist' of a thread means, the number of turns per unit length required to hold the fibers together to give the yarn the required strength and flexibility. A thread with an excessive twist is also likely to give trouble while sewing due to 'twist liveliness'. This can cause snarling, loops, knots and possible spillage that prohibit stitch formation.

• **Twist direction:** Direction of twist is identified as 'S' for left twist and 'Z' for right twist. Most single needle lock stitch and other machines are intended for 'Z' twist threads. 'S' twist thread untwists during stitch formation.

Ply and cord: Yarns with many components are twisted together to form ply thread. Most commonly used are 2, 2 or 4 ply threads. Threads are twisted together to give corded thread. used are 4, 6 or 9 cord.
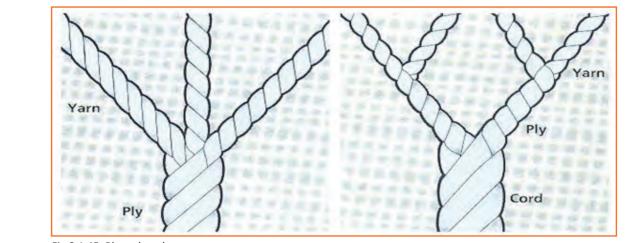
Fig 2.1.45: Ply and cord

Sewing Thread Numbering: The thickness of sewing threads is defined by Tex. or Tkt. (Ticket). And these two thread numbering terms are widely used.

Tex Numbering: Tex is a metric system of textile yarn and thread numbering. Tex is defined as weight of 1000 meters' thread in grams. For example, Tex 40 means a length of 1000 meters of thread will gives 40 grams of weight.

2.1.7 Recommended Threads for Knits of Different Types

Type of Knits	Recommended Sewing Thread
Light Weight Apparels :	
Intimate-Panties	**All operations** - Polyester/polyester core spun T-24 *(*Spun polyester T-21)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-18 *(*T-18, T-24)*
Pants - Stretch (Women)	**Zig-zag Lockstitch** - Polyester / polyester core-spun T-24 *(Same)*
	Alternative overedge & coverstitch - Textured (bulked) polyester or nylon T-24, T-35 *(Textured "bulked" polyester T-18, T-24)*
T-Shirts	**All operations** - Spun polyester core T-21 *(Same)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-18 *(Same)*
Underwear - "A" Undershirt	**All operations** - Spun polyester T-21 *(Same)*

Contd.....

*Sewing threads shown in bracket and in italic are to be considered for stitching where cost reduction is also an important factor.

Fig 2.1.46(a): Threads for Knits

	Alternative overedge & coverstitch - Textured (bulked) polyester T-18 *(Same)*
Underwear - Briefs	**All operations** - Spun polyester T-21 *(Same)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-18 *(Same)*
Light to Medium :	
Activewear like Lycra Pants, Shorts, Shirts	**All operations** - Polyester/polyester core spun T-24 *(Same)*
	Alternative overedge & coverstitch - Textured (bulked) polyester or nylon T-24, T-35 *(Textured "bulked" polyester T-18, T-35)*
Activewear- Tops (Women)	**All operations** - Polyester/polyester core spun T-24 *(Spun polyester T-21, T-27 or T-30)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-18, T-24 *(Same)*
Dresses or Skirts	**All operations** - Polyester/polyester core spun T-24 *(*Spun polyester T-27, T-30)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-18, T-35 *(*Same)*
Intimates - Camisoles, slips, Pajamas	**All operations** - Polyester/polyester core spun T-24 *(Spun polyester T-21)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-18 *(Same)*
Intimates - Bras/ Foundations	**Zig-zag Lockstitch** - Polyester/polyester core spun T-24, T-30 *(Spun polyester T-27, T-30)*

Fig 2.1.46(b): Threads for Knits

	Alternative overedge & coverstitch - Textured (bulked) polyester or nylon T-24, T-35 *(Textured "bulked" polyester T-18, T-35)*
Shirts - Polo & Golf	**All operations** - Polyester/polyester core spun T-24 *(Spun polyester T-21, T-27 or T-30)*
	(Alternative overedge & coverstitch - Textured "bulked" polyester T-18)
Sleepwear - Night Gown	**All operations** - Polyester/polyester core spun T-24 *(Spun polyester T-21, T-27 or T-30)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-18 *(T-18, T-24)*
Sweaters	**Most operations** - Sweater looping yarn *(All operations - Spun polyester T-27, T-30)*
	Other operations - Polyester/polyester core spun T-24, T-30 *(Alternative overedge & coverstitch - Textured "bulked" polyester T-35)*
Swim wears - Men & Boys	**Top stitch or Zig-zag** - Polyester/polyester core spun T-24, T-40 *(*Zig-zag lockstitch - Spun polyester T-40)*
	Alternative overedge & coverstitch - Textured (bulked) polyester or nylon T-24, T-35 *(*Textured "bulked" polyester T-24, T-35)*
Swim wears - Women	**Top stitch or Zig-zag** - Polyester/polyester core spun T-24, T-40 *(Zig-zag lockstitch - Spun polyester T-40, T-45)*
	Alternative overedge & coverstitch - Textured (bulked) polyester or nylon T-24, T-35 *(Textured "bulked" polyester T-24, T-35)*

Fig 2.1.46(c): Threads for Knits

Terry Bath Robes	**All operations** - Polyester/polyester core spun T-24 *(Spun polyester T-21, T-27 or T-30)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-24, T-35 *(Same)*
Medium Weight :	
Fleece - Sweat shirts/pants	**All operations** - Polyester/polyester core spun T-24 *(Spun polyester T-27, T-30 or T-40)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-24, T-35 *(Same)*
Sports wear - Jersey	**All operations** - Polyester/polyester core spun T-40 *(Spun polyester T-40 or T-45)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-35 *(T-24, T-35)*
Underwear - Thermal	**All operations** - Polyester/polyester core spun T-24 *(*Spun polyester T-27 or T-30)*
	Alternative overedge & coverstitch - Textured (bulked) polyester T-24, T-35 *(*Same)*
Heavy Weight :	
Sports wear - football Pants	**Zig-zag Lockstitch** - Polyester / polyester core spun T-40, T-60 *(Polyester T-40, T-45 or T-60)*
	Alternative overedge & coverstitch - Textured (bulked) polyester or nylon, T-35 *(Textured "bulked" polyester T-24, T-35)*

Fig 2.1.46(d): Threads for Knits

UNIT 2.2: Machine and Equipment for Sewing Knits

Unit Objectives

At the end of this unit, you will be able to:

1. Know about the industrial sewing machine and its types.

2. Understand the Feed Mechanisms.

3. Select the needles for sewing of knits.

4. Recognise basic list of material and tools required for stitching.

2.2.1 Industrial Sewing Machines

Fig 2.2.1: Industrial Sewing Machine

The industrial sewing machine is a heavy duty version of a standard home sewing machine, and it is used in the clothing and other related industries, such as upholstery One of the common uses for the industrial sewing machine is to perform the mass production sewing that involves heavy volumes, industrial sewing machine is a key requirement. These machines are designed to sew multiple layers of knits together along with handling of stretch in them.

2.2.1.1 Types of Sewing Machines Based on Stitch

Lockstitch Machine

The Single Needle Lock Stitch machine is the most popular and versatile sewing machine in the industry. It is designed to produce consistent results in sample and production rooms. The Lockstitch forms precise and secured straight stitches on the top and the underside of the fabric the needle thread and the bobbin thread lock each other each time the needle passes through the fabric.

Features:

- The lockstitch machine produces the tightest and the most secured stitch.

- It has same appearance on both sides.

- A complete garment can be sewn on a lockstitch machine.

Fig 2.2.2: Lockstitch Machine

Chain Stitch Machine

Chain stitch is a sewing and embroidery technique in which a series of looped stitches form a chain-like pattern. Chain stitch is an ancient craft – examples of surviving Chinese chain stitch embroidery worked in silk thread have been dated to the Warring States period. Handmade chain stitch embroidery does not require that the needle pass through more than one layer of fabric.

Fig 2.2.3: Chainstitch Machine

Applications:

- For sewing light to medium weight fabrics, knits and denim.

- Suitable for such operations as lap seam felling, hemming, binding, joining and plain stitching

- Designed for sewing stretchable seams

- For stitching such products as blouses, shirts, suits, knitted goods, ladies and children's dresses and skirts, coats, pants, uniforms, pajamas, work clothes, etc.

Features:

- Automatic lubrication

- Dial-type stitch length regulation

- Cam-type take-up lever minizies tension on the lower threads to allow stitches to stretch

- Stitches per minute; up to 5000+ *

- Moving presser foot eliminates slippage and puckering

Specifications:

Number of Needles	1 (Single)
Feeding Mechanism	Drop Feed

Workspace	Standard Workspace
Standard or Full Function	Standard Functions
Stitch Type	401
Speed, Max (S.P.M.)	5600
Max Stitch Length	5-1/2 s.p.i. (4.7mm)
Needle Bar Stroke	1-3/16" (30mm)
Needle Used	149x17
Work Space	10" (258mm)
Bed Size	7"x18-7/8" (178x478mm)
Clearance Under Foot	5/16" (8mm)
Two Needle	1/4 " Standard
Needle Distances	1/8"-1/2" on request 5/16" and 3/8" on request

Multineedle Sewing Machine

It is a flatbed, multi-needles, double chain stitch machine with horizontal looper movement mechanism. It is used in lap seaming, attaching waistbands and line tapes, and inserting elastic.

Fig 2.2.4: Multineedle Sewing Machine

2.2.1.2 Special Machine for Knits

Overlock Machine: The overlock machine is designed to stitch over the edge of one or two pieces of fabric to produce neat edging that will not fray. Usually an overlocker will cut off the untidy rough fabric edges as they stitch.

An overlock / overedge machine is a high speed sewing machine. This is the quickest performing machine for today's sewer. Its speed far exceeds that of other sewing machine plus it adds a non-fraying finish and sews seams at the same time.

Fig 2.2.5: Overlock Machine

Three Thread Overlock Machine: Stitch formed by interaction between vertical of needles and horizontal movement of two loopers.

- Stitch looks the same on both sides.

- To make a 504 stitch, the needle-thread stitches and flies together when it interlocks with the upper looper thread on the underside and upper looper thread on the top side.

- Used for finishing edges as a narrow, decorative, rolled edge on the napkin and scarves.

- Most useful for sewing knits and woven.

- Used for finishing edges as a narrow, decorative, rolled edge on the napkin and scarves.

- Most useful for sewing knits and woven.

- Stitch type 504,most common over edge stitch

Fig 2.2.6: Three Thread Overlock Machine

Fig 2.2.7: Four Thread Overlock Machine

Four Thread Overlock Machine: This machine stitches a chain stitch or a safety stitch and overcasts seams. Four-thread overlock machine has two needles and two loopers and this can be converted to both two and three thread overlock. All 4 threads are necessary to sew a serged seam. This type of machine is used for sewing blouses, shirts, skirts, dresses, pants, lingerie, action wear, swimwear, and even sleepwear.

It stitches chain stitch or a safety stitch as it stitches and overcasts seams.

- Two needles and two loopers.

- This can be converted to both two and three thread overlock.

- All for threads are necessary for sewing a serged seam.

- Suitable for sewing blouses, skirts, shirts, dresses, pants, swim-wears, action-wears, lingerie and even sleep-wear All kinds of knits.

- It is stitch type 514. (Refer to Types of Stitches Section in Unit-3)

Five-Thread Overlock Machine: This type of machine is used to stitch a 2-thread chain stitch combined with a 3-thread overlock. This machine has 2 needles and 3 loopers. In this sewing machine the left needle and lower looper form a 2-thread chain stitch. The seam is very durable, particularly for wovens. A very wide seam width is created when the chain is serged with 2 or 3 thread stitch.

- A two- thread chain stitch combined with a three- thread overlock

- Two needles and three loopers

- The left needle and the lower looper form a 2-thread chain stitch

- The seam is very durable, particularly for wovens
- A very wide seam width is ceated when the chain is serged with 2 or 3 thread stitch
- This stitch type is 516. (Refer To Types Of Stitches Section in Unit-3)

Fig 2.2.8(a): Five-Thread Overlock Machine

Fig 2.2.8(b): Five-Thread Overlock

Fig 2.2.9: Flatlock Machine

Flatlock Machine: Flatlock machines are specialized, high speed machines. These machines are extremely fast and efficient. In this machine the stitch is formed by two or more needle threads passing through the material, inter looping on the underside and interlocking on the upper side. These are mainly used for knits.
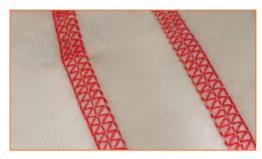
- It is high speed, and makes seams stretchy, flat and smooth.
- Provides extensibility and flexibility to the seams, with low bulk that can be worn comfortably against the skin.

Multi-Thread Flat Lock: Flatlock stitching is the stitching that looks like overlocking on both sides of a seam and is often used in swimwear, sportswear, on baby's clothes, or just as a decorative exposed seam. It creates a seam that is flat and has the same appearance both inside and out.

Fig 2.2.10: Multi-Thread Flat Lock

Fig 2.2.11: Coverstitch

Applications and Seam Appearances:
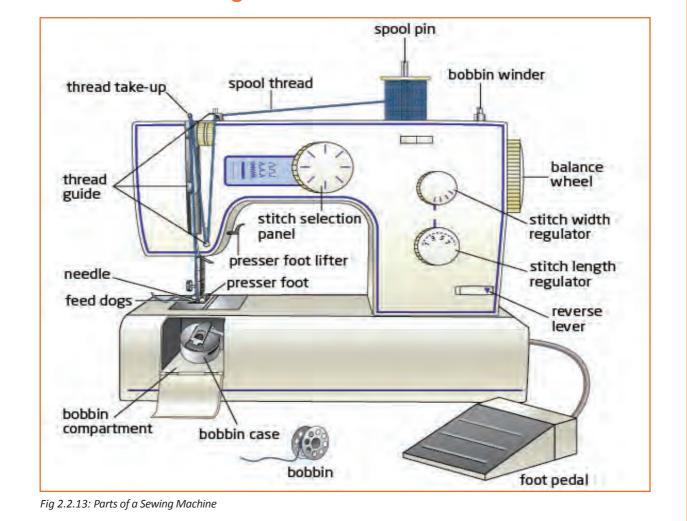
(Coverstitch) Often called a flat lock or flat seam stitch is used primarily on knits and lingerie. These stitches are referred to as top and bottom cover stitches and are commonly used to cover both sides of the seam.

Button Attach Machine: Clothes are held together by buttons, a button is one of the most basic elements of fashion. Button sewing work requires a machine, which provides flexibility (in terms of button design, fabric variation, thread thickness etc.) as well as a consistently good sewing performance.

- This machine sews on buttons at high speeds, with accuracy thus saving time and fatigue.
- It can be used for attaching neck wraps and labels as well.

Fig 2.2.12: Button Attach Machine

2.2.1.3 Parts of a Sewing Machine

Fig 2.2.13: Parts of a Sewing Machine

Needle: is one of the most important part of the machine, it carries thread through the fabric to the bobbin and completes stitch formation.

Fig 2.2.14: Needle

Fig 2.2.15: Hook

Hook: set is a devise in which bobbin and bobbin case can be fitted.

Bobbin Case: holds the bobbin and controls the thread tension.

Fig 2.2.16: Bobbin Case
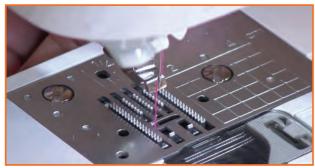
Bobbin: holds the lower thread or the bobbin thread.

Fig 2.2.17: Bobbin

Throat plate: or needle plate forms a smooth surface over which fabric can move, it has a hole and sometimes also a markings to guide the seam allowance.

Fig 2.2.18: Troat Plate

Feed dog: moves the fabric through a predetermined distance.

Fig 2.2.19: Feed Dog

Fig 2.2.20: Presser Foot

Presser foot: holds the fabric firmly against throat plate, and teeth of the feed dog, it prevents the fabric from rising and falling with the needle.

Fig 2.2.21: Reverse feed lever

Reverse feed lever: is used for backtack or back tacking.

Fig 2.2.22: Finger guard

Finger guard: is a safety device that prevents an operator's finger getting trapped or hurt by the needle.

Presser Bar: holds the presser foot.

Fig 2.2.23: Presser Bar

Fig 2.2.24: Tension post

Tension post: provides correct tension to the needle thread.

Presser foot regulator: is used to adjust the pressure depending on the type of the fabric.

Fig 2.2.25: Presser foot regulator

Thread take up lever: gives tension to the thread.

Fig 2.2.26: Thread take up lever

Oil sight window: indicates the presence of lubricating oil.

Fig 2.2.27: Oil sight window

Thread stand: used for supporting the thread package like spool bobbin etc.

Fig 2.2.28: Thread stand

Fig 2.2.29: Knee Lifter

Knee Lifter: is used to lift the presser foot with the use of knee.

Hand Lifter: is used to lift the presser foot.

Bobbin Winder: is used to wind thread in empty bobbin. It may be located differently in different types of machines.

Fig 2.2.30: Bobbin Winder

Fig 2.2.31: On-Off Switch

On-Off Switch: these are two switches, which are used to on and off the machines. The RED button is for switching the machine OFF and the BLACK/GREEN button is for switching the machine ON. Pedal: The machine does not start unless the pedal is depressed, it is majorly used for controlling the speed of the machine.

2.2.1.4 Part of OVERLOCK Machine
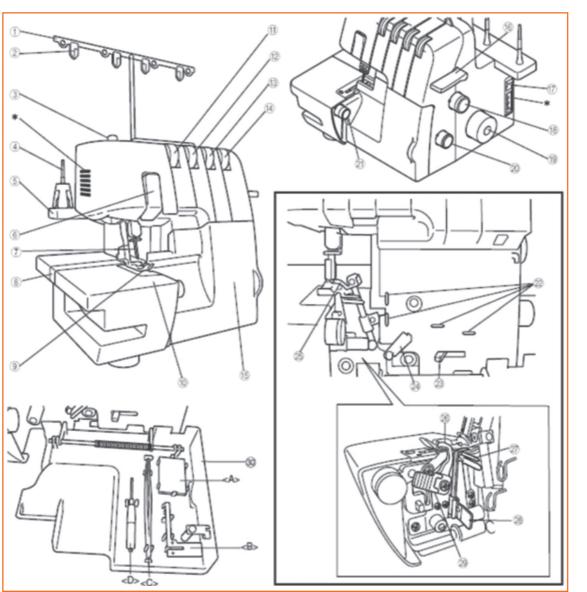
Fig 2.2.32: Part of OVERLOCK Machine

1. Thread tree
2. Needles
3. Thread plate
4. Presser foot pressure adjustment screw
5. Spool pin
6. Spool support
7. Thread take-up cover
8. Bed extensions
9. Presser foot

10. Material plate cover
11. Left needle thread tension dial
12. Right needle thread tension dial
13. Upper looper thread tension dial
14. Lower looper thread tension dial
15. Front cover
16. foot lifting lever
17. power and light switch
18. Stitch length adjustment dial

19. Hand wheel
20. Differential feed ratio adjustment dial
21. Stitch width dial

Inside of the front cover

22. Thread guide
23. Lower looper threading lever
24. Thread take up for loopers
25. Upper looper
26. Upper knife
27. Lower looper

28. Stitch finger
29. Knife lever
30. Front cover compartment

You can hold the included accessories and the removed Stitch finger in this front cover compartment.

- <A>: Needle set
- <B>: Stitch finger
- <C>: Tweezers
- <D>: Hexagonal driver

Threading has to be done in the following order.

1. Lower looper
2. Upper looper
3. Right needle
4. Left needle

Threading of lower looper
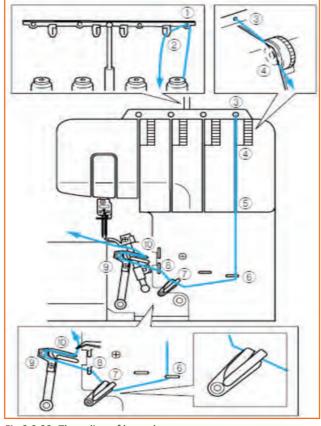
Fig 2.2.33: Threading of lower looper

Threading of upper looper
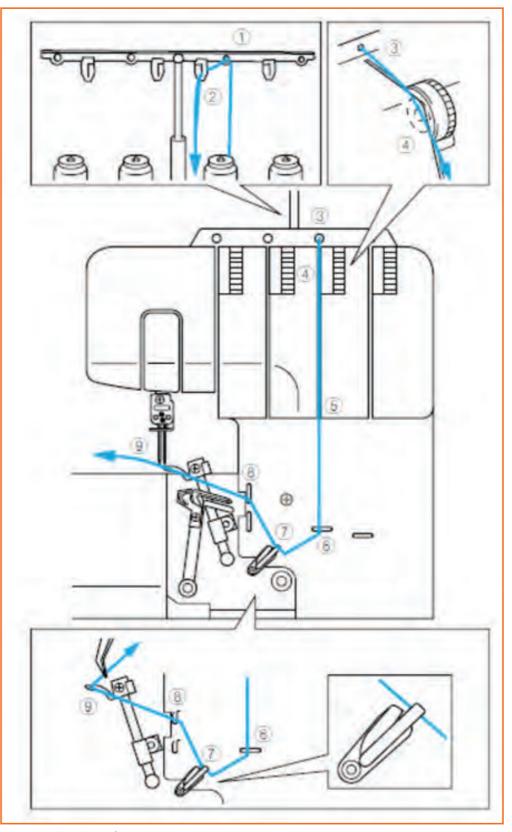
Fig 2.2.34: Threading of upper looper

Threading of right needle
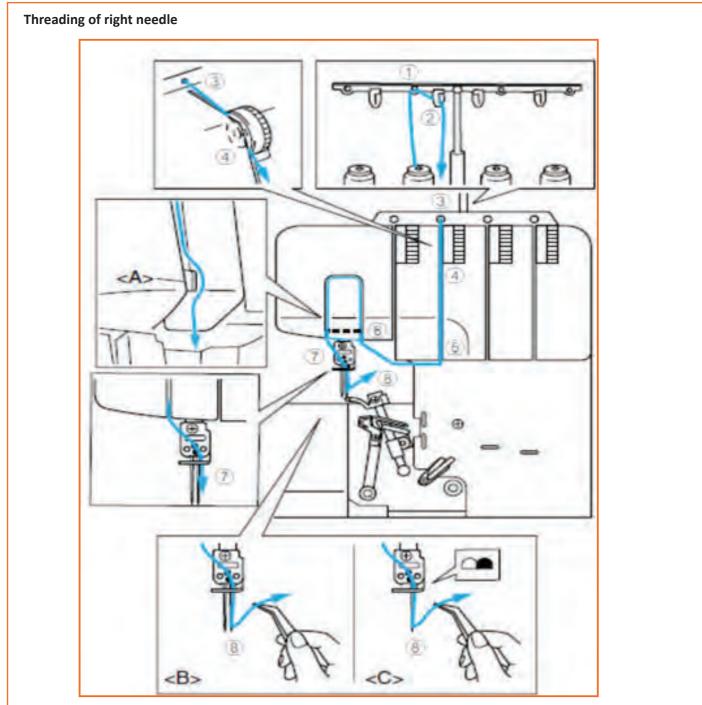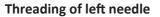
Fig 2.2.35: Threading of right needle

Threading of left needle
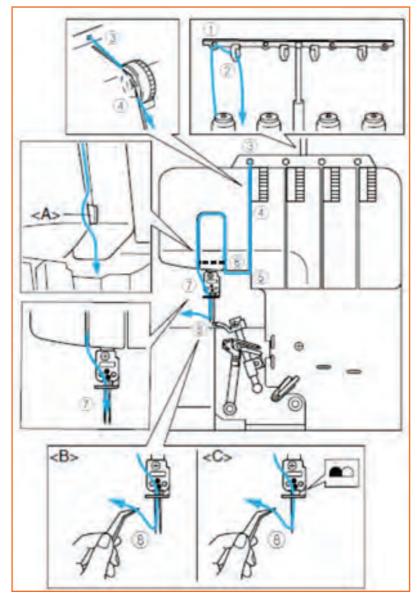
Fig 2.2.36: Threading of left needle

Step-1

Step-2

Step-3

Step-4

Step-5

2.2.1.5 Feed of Arm Machine (Suitable for Jointing Tubular Knit Fabrics)

Fig 2.2.37(a): Feed of Arm Machine
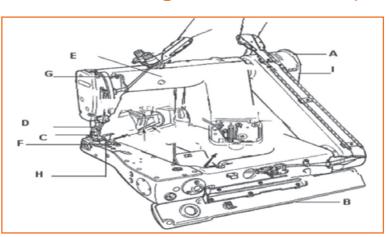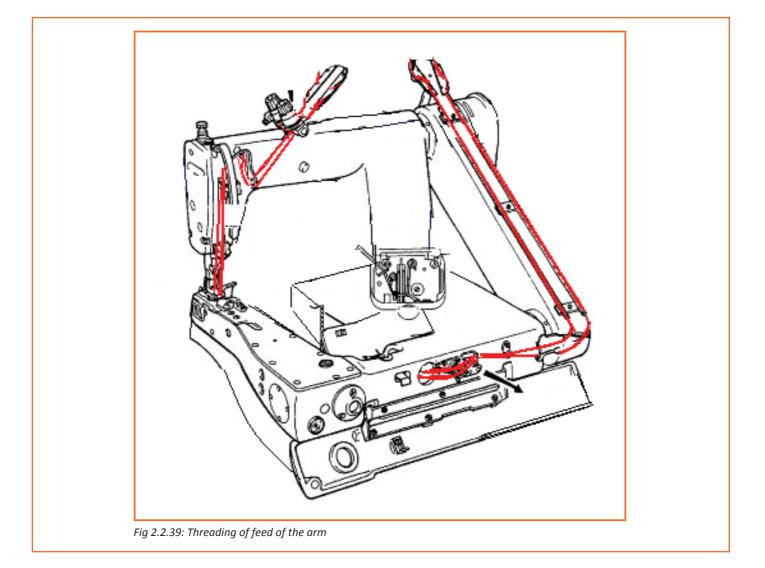
Fig 2.2.37(b): Feed of Arm Machine

Name of major parts

A Machine Pulley	B Front cover	C Presser foot
D Needle bar	E Upper thread guide	F Lapper
Safety devices		
G Thread take up lever	H Finger guard	I Pulley cover

Fig 2.2.38: Name of major parts Feed of Arm Machine

Fig 2.2.39: Threading of feed of the arm
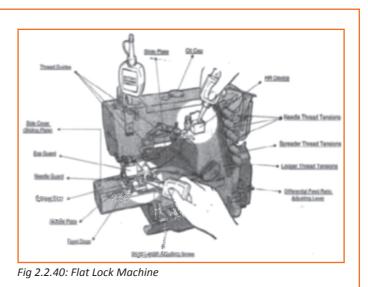
2.2.1.6 Flat Lock Machine

Flatlock stitching is the stitching that looks like overlocking on both sides of a seam and is often used in swimwear, sportswear, on baby's clothes, or just as a decorative exposed seam. It creates a seam that is flat and has the same appearance both inside and out.

Elements in Stitching

- Needle
- Looper
- Spreader

Multi needle machine may have more than three needles.

Fig 2.2.40: Flat Lock Machine

Needles right	Length 2-3	Width 3.0-5.0	Stitch Selector D
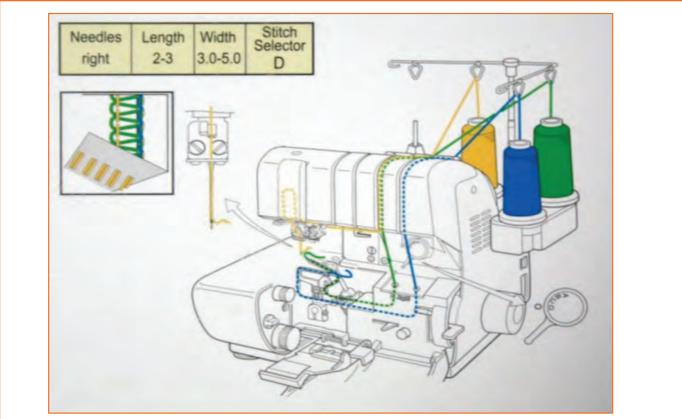
Fig 2.2.41: Threading in Flat Lock Machine

Threading of flat lock

Step-1

Step-2

Step-3
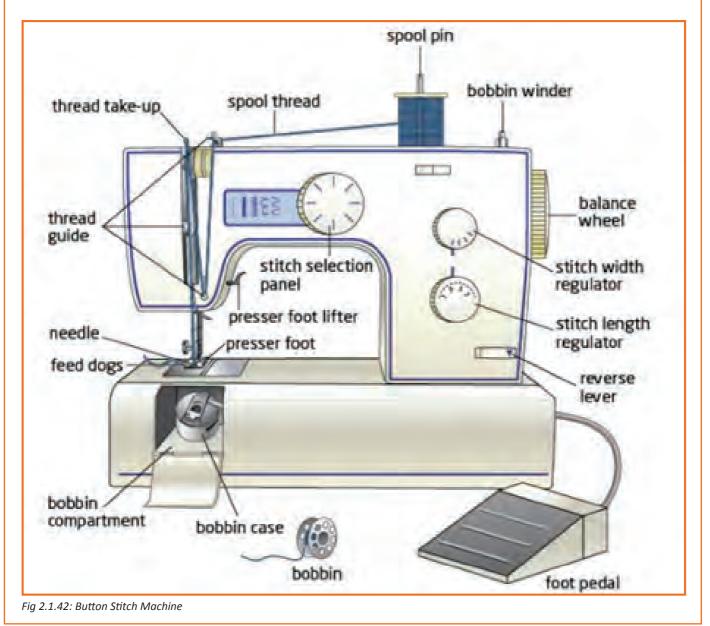
Step-4

Step-5

2.2.1.7 Button Stitch Machine

Fig 2.1.42: Button Stitch Machine

2.2.1.8 Feed Mechanisms

Feed mechanisms is the basic motion of needles, loopers and bobbins, the materialbeing sewn must move so that each cycle of needle motion involves a different part ofthe material. This motion is known as feed, and sewing machines have almost as many ways of feeding material as they do of forming stitches. Often, multiple types of feed are used on the same machine. The types of the feed mechanism are as follows:

1. Drop feed mechanism.

2. Differential bottom feed mechanism.

3. Adjust top feed mechanism.

4. Needle feed mechanism.

5. Unison feed mechanism.

6. Puller feed mechanism.

Drop Feed Mechanism

The simplest feed system of sewing of sewing machine still most common. It is also known as regular feed. Main components of drop feed mechanism are throat plate, feed dog and presser foot.
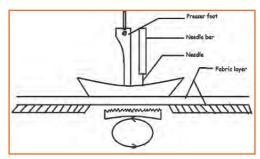
Fig 2.2.43: Drop Feed Mechanism
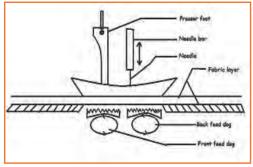
Fig 2.2.44: Differential Bottom Feed Mechanism

Differential Bottom Feed Mechanism

This is modification of the drop feed system. In the feed mechanism the feed dog consists of 2 section one at back & one at front of the needle. Mechanism of each section of feed dog is like the drop feed system. But the speed of each part can be adjusted separately. Extensively used for stretchy materials.
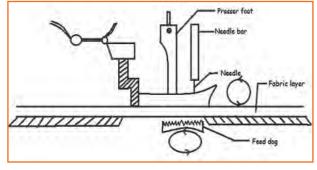
When the speed of the front feed dog is higher than the back feed

dog. " The bottom ply is pulled by the back feed dog but this will over come by the greater speed of the front feed dog. So less possibility of shifting".

When the speed of the front feed dog is less " we get lacy effect because the feeding speed in grater than the delivery speed". Stretching and gathering of fabric can be done by this system.

Adjustable Top Feed System

In general arrangement the presser foot is in two section. One holding the fabric in position while the needle form the stitch and the other having length on the lower side & moving or waking in such a w ay that the top ply is taken along, positively while needle is out of the materials.

Fig 2.2.45 (a): Differential Bottom Feed Mechanism
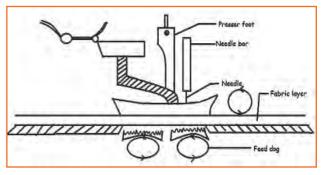
Fig 2.2.45 (b): Differential Bottom Feed Mechanism

In sewing machine, the feed mechanism can be used with both drop feed & differential bottom feed. Combination of adjustable feed & differential bottom feed can make top ply gathering or the gathering of bottom ply.

Needle Feed System Mechanism

Another name of needle feed mechanism is "Compound feed". Needle itself moves forwards & backward.

Needle penetrates the fabric enters into the note of the feed dog & for the advance movement of 1 stitch length of fabric feed dog & needle pass the fame distance at the same time. Then needle rise up & moves to form the next stitch with one step advance. Practically useful in bulky sewing situation such as when quilting through the fabric. wadding & for slapping fabrics For the change of stitch length, setting of bath needle & feed dog should be changed.
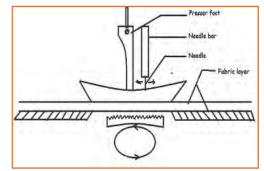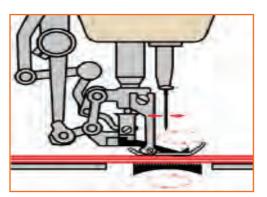
Fig 2.2.46: Needle Feed System Mechanism

Fig 2.2.47: Unison Feed Mechanism

Unison Feed

Unison feed is a further combination of feeding mechanisms, which provides needle feed in addition to positive top and bottom feeding.

Puller Feed Mechanism

This mechanism is modification of thedrop feed system. It is a pair of roller used. These rollers give a pulling motion on the fabric behind the presser foot.

Top roller is generally driven by machine whitest the lower one moves due to control & presser of the top roller. The surface speed of puller roller is slightly higher then the feed dog speed to presser ply shifting roping.
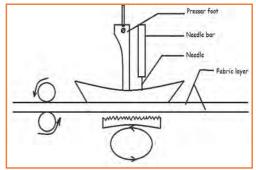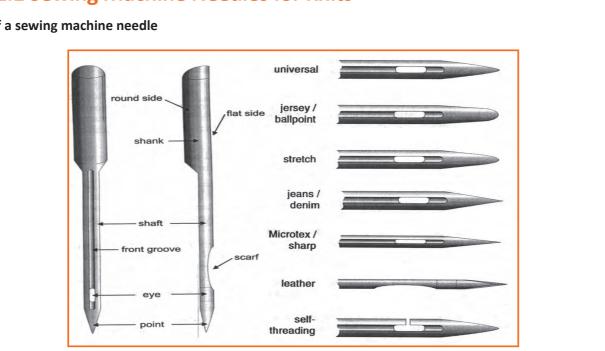
Fig 2.2.48: Puller Feed Mechanism

2.2.2 Selection of Needles for Sewing of Knits

Selecting the right needle is just as important as selecting the fabric, Stabilizer and thread. There are diverse sizes and types of needles for a variety of fabric. The European metric sizing system for sewing machine needles is numbered from 60 to 110. The American sizing system is numbered from 8 to 18. For both sizing systems, the lower the number the finer the needle and the higher the number the larger the needle. Most needle companies show both sizes on the package.

An easy way to remember is, the lighter the fabric the smaller the needle size and the heavier the fabric the larger the needle size. Many times the thread you will be using for your sewing assignment will also determine the type of needle you choose. For example, when using a fine, delicate thread, be sure to use a slightly smaller needle size.

2.2.2.1 Sewing Machine Needles for Knits

Parts of a sewing machine needle

Fig 2.2.49: Parts of a sewing machine needle

- **Shank:** Top of needle that inserts into machine; most often has round needle in right position.
- **Shaft:** Body of needle below shank. Shaft thickness determines needle size.
- **Front groove:** Slit above needle eye, should be large enough to "cradle" thread.
- **Point:** Needle tip that penetrates fabric to pass thread to bobbin-hook and form stitch. Shape of point varies among needle types.
- **Scarf:** Indentation at back of needle. A long scarf helps eliminate skipped stitches by allowing bobbin hook to loop thread more easily.
- **Eye Hole:** Eye Hole in end of needle through which thread passes. Needle size and type determine size and shape of eye.

Tip point	Symbol	Shape of the needle tip	Shape of point	Application and feature
Sharp and slim type point	Spi			Light -weight fabrics, light-weight leather
Regular type point	R			General fabrics Mainly for button sewing Slim shape and J point at needle tip, for high gauge knit
Butt type point	But			
	S			
Slim point				
J ball point	J			For general knit, suitable for standard material as well
B ball point	B			
U ball point	U			For relatively coarse knit, ball is Ø 1/3 trunk For elastic materials ball is Ø ½ of trunk
Y ball point	Y			
Flat tip shape	LL			45° twisted type knife needle mainly for leather goods 45° reversely twisted type knife needle mainly for leather goods
	LR			

Fig 2.2.50: Types of Needle Points

Selection of needles

When we select the needle for a specific fabric, we have to decide on two things:

• Needle thickness

• Point shape

Choice of Needle Thickness

We sew some rough cloth using different needles and check the seams. If the needle is not right, we can see the damage to the cloth by pulling it slightly.

Stitches in the knitting are damaged—test is continued with the next size down of needle thickness

No more material damage visible—correct needle thickness has been found
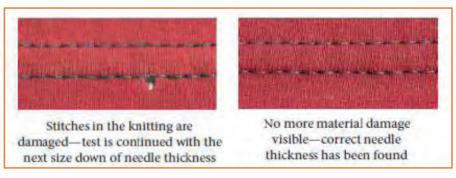
Fig 2.2.51: Choosing Needle Thickness

Choice of Needle Point

The needle points are of 2 types, cut points and cloth points.

1. **Cut points/Sharp point:** These points have a sharp tip to cut through the cloth. These are used for stitching leather products and clothes.

Fig 2.2.52: Cut Point of Needle

2. **Cloth points:** These have a slightly rounded tip and can cut through the cloth without damaging it. The cloth points can be round or ball points.

   » Round points: These are rounded at tip but are thin and sharp. Such points are used for woven fabric so that the needle can get through the fibers inside the weaves.

Fig 2.2.53: Round Point of Needle

   » Ball points: Used for knitted fabrics, these points are thicker and more rounded at the tip. They shift the yarns and pass through, avoiding holes and fabric damages.

Fig 2.2.54: Ball Point of Needle

Needle Numbering System

There are two number systems associated with sewing machine needles:

1. **European labelling system:** European sizes range from 60 to 120, 60 being a fine needle and 120 being a thick heavy needle.

2. **American labeling system:** The American system uses 8 to 19, 8 being a fine needle and 19 being a thick heavy needle.

American	European
8	60
9	65
10	70
11	75
12	80
14	90
16	10
18	110
19	120

Fig 2.2.55: Sew Machine Needle Size

NEEDLE	SPUN THREAD	FILAMENT THREAD	CLOTH MATERIAL
No.5	No. 120	No. 100	Glossy silk, Synthetic ultralight weight (satin etc.)
No. 7 to No. 8	No. 100	No. 80 to No. 100	Same as above
No. 9 to No. 10	No. 80	No. 60 to No. 80	Light-weight silk, satin, crepe de chine, georgette, voile, knit 20G to 26G
No. 11 to No. 12	No. 60	No. 50 to No. 60	Light-weight calico, broadcloth, light-weight wool, knit/double 16G to 20G

No. 13 to No. 14	No. 40 to No. 50	No. 50	Normal broadcloth, wool cloth, general fabric
No. 16	No. 30 to No. 40	No. 40	General heavy-weight fabric (overcoat, etc.) water-proof cloth
No. 18	No. 20 to No. 30	No. 20 to No. 30	Bed-clothes, bags, vinyl shoes
No. 19	No. 10 to No. 20	No. 10 to No. 20	Leather shoes, sheets
No. 20 to No. 21	No. 10	No. 8 to No. 10	Leather shoes, tents
No. 23 to No. 24	No. 8	No. 8	Extra heavy-weight materials, tent, sheet.

Fig 2.2.56: Materials to be sued as the product specification

2.2.2.2 Basic List of Material and Tools Required for Stitching

Scissors: Scissor are utilized for cutting the fabric and has a handle which is aligned with the blade which helps you do the cutting steadily by keeping the scissors even.

Fig 2.2.57: Scissors

Fig 2.2.58: Rotary cutter

Rotary cutter: The rotary cutter is something which has a blade to cut easily and smoothly through fabric. It's very efficient to be used to all different kinds of projects, however it is especially good for quilting. All you require is a rubbercutting mat and a rotary ruler so that when you are using a rotary- cutter the surface of the Fig can be prevented from getting cut. Also, keeping a mat helps in cutting a fabric in straight.

Thread: Various sort of threads are available, they are available in rainbow colors, including clear ones. For most of the sewing machines all you need is a need a spool of thread. The cone shaped threads are also used however they are for different kind of machine called a serger.

Fig 2.2.59: Threads

Fig 2.2.60: Measuring tape

Measuring tape: Measuring tape used for sewing to make it softer than that used for construction projects so that it can be used to fit clothing to the body.

Needles: A sewing machine requires diverse needles than which are used for hand-sewing. Machine needles have a bigger, blunter tip where they fit into the machine. Various types of needles are used on various kinds of projects.

Fig 2.2.61: Needles

Fabric: As different projects have different types of needle or thread requirements similarly as per the requirement different types of fabrics are also needed with different project for sewing.

Fig 2.2.62: Fabric

Pins: Pins are used to hold fabric together where it's supposed to be sewn and to be adjusted as per the required fitting during alterations.

Pincushion: Pincushions are very useful in keeping the pins in order and in place, it is usually in apple's pumpkin's or tomato's shape.

Fig 2.2.63: Pins and Pincushion

Iron and Ironing Board: An iron is used to press fabric, seams open and make darts. Your everyday iron is fine.

Seam ripper: The name says it all: It's used to rip seams. Especially comes in handy when you're a beginning sewer.

Fig 2.2.64: Iron and Ironing Board

Fig 2.2.65: Seam ripper

Pinking Shears: Pinking shears cannot be used like normal scissors since they will lead to inaccurately cut lines of fabric. They are, however, crucial for finishing seams, hem edges etc.

Fig 2.2.66: Pinking Shears

Fig 2.2.67: Cutting Table

Cutting Table: A flat board placed on a table where the fabric is laid out and cut. The fabric can be pinned securely to the cutting board/table to prevent it from slipping.

Sewing Gauge: A 6 inch gauge with a movable indicator convenient for measuring short lengths.

Fig 2.2.68: Sewing Gauge

Hem Gauge: A measuring device marked with various depths and hemline folds. It is practical when hemming straight on grain edges.

Fig 2.2.69: Hem Gauge

Yardstick/Meter stick: Is use to measure fabric and to check grain line. Itcan be used in marking a long straight lines and in measuring hemlengths.

Fig 2.2.70: Yardstick/Meterstick

Hip Curve: The Hip Curve is used in connecting or shaping slightly curve points. It has a measure of inches at the front and centimeters at the back part.

Fig 2.2.71: Hip Curve

L-square: It is useful in constructing perpendicular lines with divisional parts located in longer and shorter arms.

Fig 2.2.72: L-square

Tailor's Chalk: A thin piece of hard chalk used in tailoring for making temporary alteration marks on clothing.

Fig 2.2.73: Tailor's Chalk

Novelty Yarns: Novelty yarns include a wide variety of yarns made with unusual features, structure or fiber composition such as slubs, inclusions, metallic or synthetic fibers, laddering and varying thickness introduced during production.

Fig 2.2.74: Novelty Yarns

Fig 2.2.75: Masking Tape

Masking tape: Also known as sticky tape, is a type of pressure-sensitive tape made of a thin and easy-to-tear paper, and an easily released pressure-sensitive adhesive. It is available in a variety of widths. It is used mainly in painting, to mask off areas that should not be painted.

French Curve: A French curve is a template usually made from metal, wood or plastic composed of many different curves. It is used in manual drafting to draw smooth curves of varying radii. The shapes are segments of the Euler spiral or clothoid curve.

Fig 2.2.76: French Curve

Fig 2.2.77: Hand Needle

Hand Needle: Hand sewing needles are available in varying sizes with varying points. They guide the thread through fabric when you are hand sewing.

Punch Needle: A Punch needle is an easy to use tool that opens up a delightful world of dimensional needle art. It quickly and easily produces one-level or exciting three dimensional designs.

Fig 2.2.78: Punch Needle

Fig 2.2.79: Frame, Round

Frame, round: Used for creating designs through hand stitch.

Pattern making paper: Used for practising cutting and creating patterns.

Fig 2.2.80: Pattern making paper

Fig 2.2.81: Tracing paper

Tracing paper: Tracing paper is paper made to have low opacity used for creating designs.

Hand held thread trimmer: Used for thread trimming.

Fig 2.2.83: Bent neck, metallic Tweezer

Fig 2.2.82: Hand held thread trimmer

Bent neck, metallic Tweezer: Tweezers are small tools used for picking up objects too small to be easily handled with the human hands

Pencils (HB, 2B, 4B): The graphite grading scales used to measure the hardness of a pencil's graphite core. The higher the number the harder the writing core and the lighter the mark left on the paper.

Fig 2.2.85: Pick glass

Fig 2.2.84: Pencils (HB, 2B, 4B)

Pick glass: Handy Reed Pick glass helps in checking the reed pick of the fabric. It also helps in checking the weaving, dyeing & printing defects in the fabric if any is made.

Needle threader: A needle threader is a device for helping to put thread through the eye of a needle. Many kinds exist, though a common type combines a short length of fine wire bent into a diamond shape, with one corner held by a piece of tinplate or plastic.

Fig 2.2.86: Needle threader

Fig 2.2.87: Nonwoven Non-fusible Backing Paper

Nonwoven Non-fusible Backing Paper: It is made of man-made fibers bonded together to form a paper-like sheet. SFig nonwovens (no stretch) are best for medium- to heavyweight fabrics with a slight to very crisp hand. Nonwovens with a crosswise or all-direction stretch can be used for soft to moderate shaping. Fusibles today are fast, secure and easy to use.

Hand embroidery book: Used for learning hand embroidery.

Fig 2.2.88: Hand embroidery book

Fig 2.2.89: Fabric Glue

Fabric Glue: It provide temporary or permanent ways to attach fabric without sewing.

Surface ornamentation material (Beads, Sequins): Decorative material used for decoration of clothes.

Fig 2.2.90 (a): Beads

Fig 2.2.90 (b): Sequins

Buttons: are attached to garment by hand stitching or machine stitching

Fig 2.2.91: Buttons

Fig 2.2.92: Hooks

Hooks: are attached to garment with the help of needle and thread

Trims: Trim or trimming in clothing and home decorating is applied ornament, such as gimp, ribbon, ruffles.

Fig 2.2.93: Trims

Fig 2.2.94: Lace

Lace: A fine open fabric of cotton or silk, made by looping, twisting, or knitting thread in patterns and used especially for trimming garments.

Zipper: Attached in lower garments.

Fig 2.2.95: Zipper

Fig 2.2.96: Pant Hooks

Pant hooks: Attached in lower garments.

Sewing Mannequin: it is a type of a doll used by Sewing machine operators or tailors to display or fit clothing.

Fig 2.2.97: Sewing Mannequin

Greyscale: It is used for maching colors in the sewed garment against the specifications.

Fig 2.2.98: Greyscale

Thimble: It is a small hard cup warn for protection on the finger that pushes the needle in sewing

Fig 2.2.99: Thimble

Fig 2.2.100: Piping

Piping: Piping is a form of embellishment or trim that consists of a strip of folded fabric forming a pipe that is inserted into a seam. The piping defines the edges or style lines of a garment. Generally the piping fabric strip is made from either the same fabric as the garment/object to or made by using contrasting fabric. At times leather is alos used to create piping.

Commonly, piping is used on home furnishing items like pillows, but it is also used on clothing.
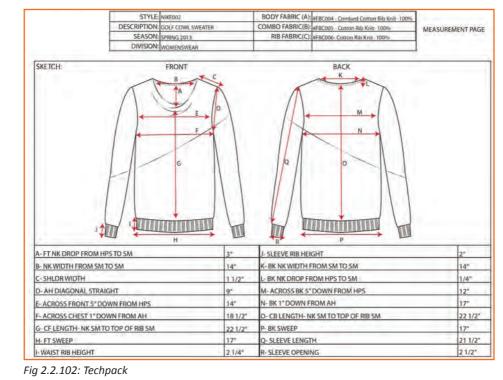
Rib Collar: Rib Collar is a form of fabric construction used for sleeve and neckbands. Rib collars are highly elastic and retain their shape. These are generally used in polo t-shirt collars.

Fig 2.2.101: Rib Collar

Techpack: A techpack is informative sheet that has all the specifications of the requirements before starting the garmet making process. It has all the details of specific style of the garment. A Techpack is generally made by the designer and finalized in discussion with the merchandisers, and then forwarded to the production department for the reference.

Fig 2.2.102: Techpack

Exercise

1. Which of the followings are the types of Industrial Sewing Machines?

   a) Feed off the arm

   b) Lockstitch Machine

   c) Flatlock Machine

   d) All the above

2. _____ is one of the most important part of a machine; it carries thread through the fabric to the bobbin and completes stitch formation.

   a) Bobbin

   b) Hook

   c) Needle

   d) Thread

3. What are the types of Feed Mechanism?

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4. What are the materials and tools required for stitching?

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5. What are the types of threads?

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6. When we select a needle for a fabric, what are the criteria to keep in mind?

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....

7. Name the 2 number systems associated with sewing machine needles.

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....

8. What is the function of a Thread-stand and a Knee lifter?

....
....
....
....

3. Stitch Knitted Fabric

Unit 3.1 - Stitch Components to Produce Apparels

Unit 3.2 - Contribute to Achieve Product Quality in Stitching Operations

Unit 3.3 - Stitching a T-Shirt

AMH/N0306

Key Learning Outcomes

At the end of the module, you will be able to:

1. Adjust the machine.

2. Ask questions to obtain more information.

3. Estimate the expected length of time for the process.

4. Perform a test sew run.

5. Know the different types of stitching and seam.

6. Selection of correct machinery as per the garment or made –ups and home furnishing product plan like single needle machine, top and bottom feet, differential feet, etc.

7. Selection of appropriate attachments according to the garment requirements like binder, folder, essential mechanism tools, etc.

8. Optimize positioning and layout of materials to ensure smooth and productive working.

9. Stitch the correct materials in the right sequence as required by the product specification as per the specified stitch type (stitch classes), hems and seamsPerform complex stitching operations with precision and accuracy.

10. Ensure stitched product meets specification as per the techpack and in terms of stitch per inch, labels and trimmings.

11. Ensure stitched product conforms to shape and size requirement.

12. Check the stitched components meet as per the standards and specifications mentioned in the job card.

13. Make adjustments promptly to ensure the stitching work matches the Specification.

14. Maintain the required productivity and quality levels.

UNIT 3.1: Stitch Components to Produce Apparels

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Adjust the machine.

2. Ask questions to obtain more information.

3. Estimate the expected length of time for the process.

4. Perform a test sew run.

5. Know the different types of stitching and seam.
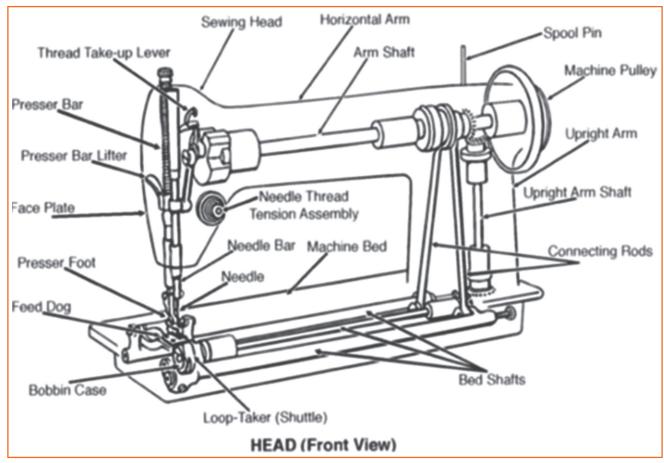
Fig 3.1.1: Sewing Machine - knits (Front View)

3.1.1 Adjusting the Machine

3.1.1.1 Threading

Step 1: This is where the thread goes. If you have a cap or stopper put it on after you put the thread on. Also put the side of the thread with the little cut to the back or bottom.

Step 2: Allow the string to unwind and put it through this hoop. Mine can also snap in from the back but usually with older machines this is a hoop.

Step 3: This can also be a loop but mine slides in through the back.

Step 4: From the tension bring the thread up and from right to left put it through the hole here.

Step 5: Then bring it down from the take up lever into the coiled thread guide.

Step 6: Then into the next thread guide.

Step 7: Then thread the needle front to back or right to left depending on your machine. Pull enough thread through so that it does not pull out when the needle moves 5-10 inches.
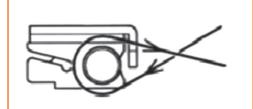
Step 8: Insert the bobbin.
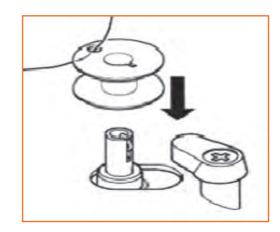
Step 9: Pull the string out tight and set the bobbin into the tray. Insert the thread into the metal notch and pull back.
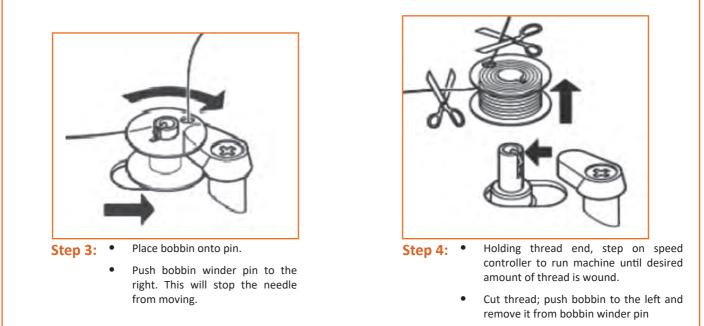
3.1.1.2 Using the Bobbin Winder

Step 1:
- Place spool of thread on spool pin.
- Slide spool pin holder/cap firmly over rim of spool to prevent thread from tangling.
- Push bobbin winder pin to far left if it is not already there.
- Pass the thread from spool through thread guide

Step 2: Pass thread end, from inside, through small hole in rim of bobbin

Step 3:
- Place bobbin onto pin.
- Push bobbin winder pin to the right. This will stop the needle from moving.

Step 4:
- Holding thread end, step on speed controller to run machine until desired amount of thread is wound.
- Cut thread; push bobbin to the left and remove it from bobbin winder pin

Treadles

A treadle is a part of a machine which is operated by the foot to produce reciprocating or rotary motion in a machine such as a weaving loom (reciprocating) or grinder (rotary). Many of the early machines were powered by a treadle mechanism. The treadle was operated by pressing down on it with a foot, or both feet, to cause a rocking movement. This movement spins a large wheel on the treadle frame, connected by a thin leather belt to a smaller driving wheels on the sewing machine.

Tension adjustment

To make a basic adjustment, adjust the bobbin spring; tighter if the bobbin thread shows on the upper layer, and looser if the needle thread shows on the under layer.

Fig 3.1.2: Bobbin Case

Fig 3.1.3: Bobbin
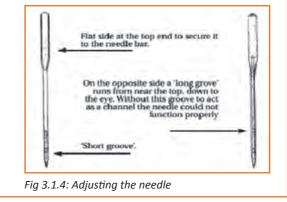
Adjusting the needle

Needle is chosen and adjusted as per the requirement, i.e. it depends on what thread and what material is been used. While selecting and adjusting needle for specific fabric, two things must be considered:

1. Thickness of a needle
2. Point-shape

Fig 3.1.4: Adjusting the needle
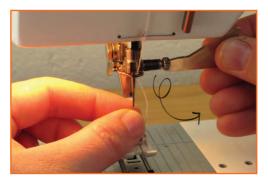
Choice of needle point
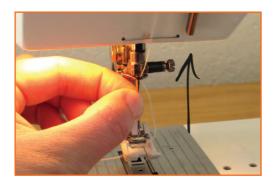
- **Cut Points:** These points have sharp tips to cut through the cloth therefore they are used for stitching leather products and clothes.

- **Cloth Points:** They have slight round shape and can cut through the cloth without damaging it. Suitability of thread and needle is also based on cloth material for e.g. for light weight silk, satin or crepe cloth point needles can be used as they cut through the cloth without providing them any damage.

3.1.1.3 Replacing a Needle

It always happens. You're pushing that fabric through, pushing that pedal to the grindstone, and it happens. You hear the loud pop and feel a tiny prick against your face or arm. You've broken a needle. But there's no use crying over a broken needle. They're fast and easy to replace, as long as you have some back up needles around. Nowadays, sewing machines use universal needles, which will fit just about every machine.

Step 1: Hold the needle with your left hand and undo the screw at the top of the needle with your right hand.

Step 2: Remove the needle by pulling down and away from the needle clamp.

Step 3: With the flat side towards the back, push the new needle up inside the needle clamp as high as it will go.

Step 4: Use your fingers initially and then your tool of choice to tighten the needle clamp screw. The tighter you can make this, the better. A loose clamp may leave the needle down in the fabric you are sewing.

Step 5: Re-thread your needle, pushing the thread from front to back.

Stitch Formation

The lock stitch uses two threads, an upper and a lower. Lock stitch is so named because the two threads, upper and lower,"lock" (entwine) together in the hole in the fabric which they pass through. The upper thread runs from a spool kept on a spindle on top of or next to the machine, through a tension mechanism, through the take-up arm, and finally through the hole in the needle. Meanwhile the lower thread is wound onto a bobbin, which is inserted into a case in the lower section of the machine below the material.

To make one stitch, the machine lowers the threaded needle through the cloth into the bobbin area, where a rotating hook (or other hooking mechanism) catches the upper thread at the point just after it goes through the needle. The hook mechanism carries the upper thread entirely around the bobbin case, so that it has made one wrap of the bobbin thread. Then the take-up arm pulls the excess upper thread (from the bobbin area) back to the top, forming the lock stitch. Then the feed dogs pull the material along one stitch length, and the cycle repeats

3.1.2 Pre-sewing Activities

Before sewing a garment, the sewing machine operator should:

• Ensure the materials used meet the specification matching. Go to through the spec sheet /Tech Pack and make sure the materials meet the specifications provided by the buyer.

Techpack: A techpack is informative sheet that has all the specifications of the requirements before starting the garment making process. It has all the details of specific style of the garment. A Techpack is generally made by the designer and finalized in discussion with the merchandisers, and then forwarded to the production department for the reference.

• Check that equipment is safe and set up in readiness for use. Perform a machine, needle and spool check. Do a sample run to check thread tension.

• Check that the materials to be used are free from faults. Go through all the material required for constructing the garment. Do fabric, thread and trims checking before sewing.

• Check and understand the material properties and type of construction required .

Aubree Joy

STYLE:	NXX2002		BODY FABRIC (A):	#FBC004 - Combed Cotton Rib Knit 100%	
DESCRIPTION:	GOLF COWL SWEATER		COMBO FABRIC (B):	#FBC005 - Cotton Rib Knit 100%	MEASUREMENT PAGE
SEASON:	SPRING 2013		RIB FABRIC (C):	#FBC006 - Cotton Rib Knit 100%	
DIVISION:	WOMENSWEAR				

SKETCH:

FRONT   BACK

A- FT NK DROP FROM HPS TO SM	3"	J- SLEEVE RIB HEIGHT	2"
B- NK WIDTH FROM SM TO SM	14"	K- BK NK WIDTH FROM SM TO SM	14"
C- SHLDR WIDTH	1 1/2"	L- BK NK DROP FROM HPS TO SM	1/4"
D- AH DIAGONAL STRAIGHT	9"	M- ACROSS BK 5" DOWN FROM HPS	12"
E- ACROSS FRONT 5" DOWN FROM HPS	14"	N- BK 1" DOWN FROM AH	17"
F- ACROSS CHEST 1" DOWN FROM AH	18 1/2"	O- CB LENGTH- NK SM TO TOP OF RIB SM	22 1/2"
G- CF LENGTH- NK SM TO TOP OF RIB SM	22 1/2"	P- BK SWEEP	17"
H- FT SWEEP	17"	Q- SLEEVE LENGTH	21 1/2"
I- WAIST RIB HEIGHT	2 1/4"	R- SLEEVE OPENING	2 1/2"

Fig 3.1.5: Techpack

3.1.2.1 Properties of Knit Fabric and Its Handling

- The pattern of Knit fabric is relatively complex: The yarn that has been knitted follows a looped path along its row, the loops of one row is pulled through the loops of the row below it.

- Since there is no single straight line of yarn anywhere in the pattern, a knitted piece of fabric can bounce in all directions. This elasticity is all but unavailable in woven fabrics which only stretch along the bias.

- The basic knitted fabric has a definite "right side" and "wrong side". On the right side, the visible portions of the loops are the verticals connecting two rows which are arranged in a grid of V shapes. On the wrong side, the ends of the loops are visible, both the tops and bottoms, creating a much more bumpy texture sometimes called reverse stockinette.
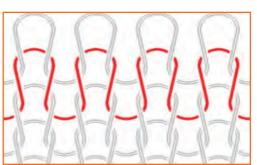
Fig 3.1.6: Properties of Knit Fabric and Its Handling

- The most common texture for a knitted fabric is that made by the flat stockinet stitch—as seen, though very small, in machine-made stockings.

Stitching of knits

Because of the high stretch in knits, knit garments are seamed with stitches that offer the best seam elasticity and coverage of the raw edge of the fabric .Therefore the overedge and/or coverstitch seam constructions should be done on these. If the stretch is not properly handled ,the problem that is common is the "broken stitches" or "stitch cracking" when the seam is stretch.

The sample sewn with the wider the needle spacing (1'4") has more elasticity the seam sewn with the narrower needle spacing (1/8")because it has more thread in the stitch. Therefore, when a narrow needle spacing is desired on high-stretch fabrics, the sewing machine should be set for more stitches per inch to minimize thread failure in the seam.

3.1.3 Ask Questions to Obtain More Information

Ask questions to obtain more information on tasks when the instructions are unclear and finalize the stitching option with supervisor in case of queries:

- It is important to ask questions rather to act like a dumb or a super heroic figure to the group or the team at your work place.

- It is important to play attention, while demonstration or details are been given/taught on how to perform your certain job role, however even if you haven't been told or maybe you were unable to understand at once, it's always suggested.

- As a sewing machine operator it is very important for you to be proactive at all times like pro-active in learning or asking things you aren't sure about and pro-active and swift in working as well.

- Flawless working can be attained only if you put in endless efforts of practicing or clearing all your doubts when and wherever you require.

- Even if you think it's the silliest thing ever which I have not understood or people would make fun of; ignore that thought right then and there. Ask! It's much better to ask rather to keep quiet.

- When you are not clear about the instructions like what and how you have stitch any particular garment it's always suggested to look for a team leader or a supervisor for guidance and help on the subject.

- If you feel hesitant in directly approaching your supervisor tell them to make you sit with someone who is efficient in the work so that you can learn from one of the group mates at your ease.

- More you ask, more efficient you become.

- Asking the query of any sort of doubt like non-understanding of the subject or any un-cleared / confusing statements can also help using the resources right way and not just wasting them trying rather than asking the expertise.

- It is okay to ask even after the training period if you are un-sure about any statement related to your role in the industry / company.

3.1.4 Estimate the Expected Length of Time for the Process

SAM

Standard Allowed Minute is used to measure work content of a fabric. This tenure is extensively used by manufacturing units and fabrication people in the garment manufacturing industry in sewing operations. For the calculation of the cost of making an apparel, SAM is very eminent. The researches were done by Fabric experts and apparel technicians, on how much time to be allowed to do a job when one follows standard method during performing the task. According to the research study minute value has been defined for each measure needed to achieve a job. Synthetic data is available for each movement.

Method 1: Calculation of SAM Using Synthetic Data

In this method, Predetermined Time Standard-PTS code is used to establish "Standard Time" of the sewing products.

- **Step 1:** Choice one process for which you want to calculate SAM.

- **Step 2:** Understand the motions of that process. Stand by the operator and see how he/she is doing it.

- **Step 3:** Make a list of all motions consecutively. State the synthetic data for Time Measuring Unit values. For synthetic data, you can refer GSD (without license use of GSD code prohibited but for personal use and study one can refer GSD code and TMU values) or Sewing Performance Data table (SPD).

- **Step 4:** Estimate SAM by summing up the bundle allowance and personal allowance to the basic time.

Standard allowed minutes (SAM) = (Basic minute + Bundle allowances + machine and personal allowances).

Method 2: Calculation of SAM through Time Study

- **Step 1:** Choose one operation for which you want to calculate SAM.

- **Step 2:** Take a stopclock. Stand next to the operator. Check the set time for that operation. (cycle time is the total time taken to do all the tasks, needed to complete one operation, i.e. time from pick up part of the first piece to next pick up of the next piece).

- **Step 3:** Presentation rating. Now, rate the operator at what performance level the operator was doing the job seeing his/her movement and work speed. Suppose that operator performance rating is 80%. Suppose cycle time is 0.60 minutes. Basic time = (0.60 X 80%) = 0.48 minutes.

- **Step 4:** Calculate SAM by the following formula:

Standard allowed minutes (SAM) = (Basic minute + Bundle allowances + machine and personal allowances).

Off Standard Time

Time is considered off standard when operator is not able to work due to:

• Unavailability of work

• Power Failure

• Machine Breakdown

In simpler terms the amount of time in a day when the standard conditions are not provided to operator for working is called off standard time.
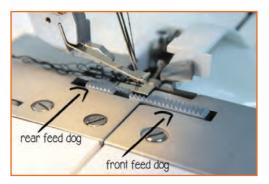
3.1.5 Perform a Test Run

Perform a test run if the sewing machine is running smoothly and with full efficiency. If not, then check the following and adjust the machine:

Step 1: Cleaning and oiling: Check if the machine is been cleaned and oiled properly. With the presser foot up, try to run the machine at full speed for one minute. If you hear a noticeable discrepancy in speed then the machine surely needs some lubrication. Remove the top cover (if machine has one.)If not, you should be able to find holes on top of it. Apply only a drop of SEWING MACHINE OIL (not 3 in 1 oil or any other kind of oil or rust inhibitor). Next, reach the bottom of your machine. After removing any dust, lint, broken needles debris and straight pins, apply a drop of oil to each moving part. By turning the hand wheel slowly (always towards you for 98% of them), you will see all the moving parts joints that needs to be oiled. Many parts already have a small hole especially for oiling.

Step 2: **Check feed dogs:** Remove the feed dog, clean the feed dogs. Try to pass a rag under them and with an old needle or narrow tool, remove the lint inside the feed channels. Put back the needle plate. If your machine is equipped with a FEED DROP, be sure the feeds are set at UP position. By turning the hand wheel (towards you), check to see if the feeds make their movement.

Step 3: **Look for upper tension:** Most sewing machine problems are caused by thread tension. Learn this basic principle right now: the upper tension determines your UNDER stitch. And the bobbin (bottom) tension determines your UPPER stitch. Unless you are experimented to dismantle the upper tension unit or if it's explained in your manual, follow this simple technique. Tension discs are often disrupted by pieces of broken thread, lint and dust. This cause a gap between the tension discs and no pressure is applied to the thread resulting of thread loops underneath. Take an 8" length of thread and make 3 to 4 knots in it (as pictured below). Thread your tension system with this piece of thread a few times in all directions. This will remove any lint residue between the tension discs. Try it for the first time with the presser foot UP and then with the presser foot DOWN. When the presser foot is down and the tension dial set at number 4, you should be able to feel a tension when pulling the thread. If so, the upper tension system is working properly.

Step 4: **The bottom bobbin:** Check also for the condition of the bobbin winder rubber tire. If you can see cracks and worn flat surfaces, replace it. This very popular item is available at any sewing shop for a dollar or so. When winding a bobbin, check to see of the thread winds evenly from each side of the bobbin. Then check the bottom of your bobbin case. Remove any lint pancake. Install your bobbin in it. By pulling the thread, you should feel a very soft tension on the thread. If not, some clogged lint may be laying between the small tension spring and the bobbin case itself.

Now perform the test run (Again) and must experience the following observations to make sure the machine is working properly.

- Firstly, run the machine at mediums peed for the first stitch row.

- Check underneath: the stitch should be identical to the top one. No loops, only a tight stitch. If any loops are found underneath, raise the upper tension slightly and make a second stitch row.

- Try also the reverse stitch a few times while sewing (do not stop to engage the reverse). Make sure the thread does not break. Check also for loops underneath on the stitches made with the reverse.

- If everything is good so far, run the machine at full speed making a few stitch rows. If your machine is equipped with the zigzag, try it. The zigzag stitch should be the same on top and bottom.

3.1.6 Check That the Material is Free from Faults

It is important to go through and inspect every garment which is produced in the garment factory. Stitching operations one of the important aspects of the garment factories and every single thing should be very minutely checked before sending for the final finishing or displaying. Any part of the machinery or the garment which you would be required to work on, should be checked that the material about to be used is fault-free. Any faulty material found, should be reported to the responsible authority immediately, it should be sent for replacement. While using the material the commonly seen faults are in: faulty needle, unusual thread, wrong stitching pattern however fabric defect over shadows all as it the most important of all in first place hence should be checked very clearly and thoroughly before making it in use.

3.1.7 Seam

Seam is a joint consisting of a sequence of stitches uniting two or more pieces of material(s) and is used for assembling parts in the production of sewn items.

Seam Classes

Class 1 – Superimposed seam

Class 2 – Lapped seam

Class 3 – Bound seams

Class 4 – Flat seams

Class 5 – Decorative/Ornamental stitching

Class 6 – Edge finishing/neatening

Class 7 – Attaching of separate items

Class 8 – Single ply construction

Types of Seam

Flat Seams: These seams, sometimes called Butt Seams, two fabric edges, flat or folded, are brought together and over sewn with a zig-zag lockstitch, chainstitch or covering stitch (Class 600). The purpose is to produce a join where no extra thickness of fabric can be tolerated at the seam, as in under wear or in foundation garments.
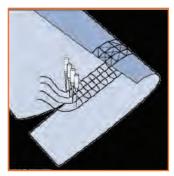
Fig 3.1.7: Flat Seam
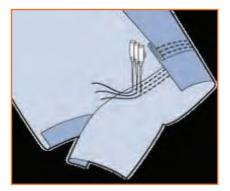
Fig 3.1.8: Superimposed Seams

Superimposed Seams: These generally start with two or more pieces of material superimposed over each other and joined near an edge, with one or more rows of stitches. There are various types of seams within the SS class. A superimposed seam can be sewn with a stitch 301 or 401 to create a simple seam. The same seam type can also be sewn with stitch class 500 (Over edge stitch) or Combination stitches (i.e. stitch class 516). The purpose is to create neat load bearing seams for lingerie, shirts, etc.

French Seam: French seaming involves 2 stitching operations with an intervening folding operation - a flat, folded seam with only one row of stitching visible on the top surface. French seaming involves 2 stitching operations with an intervening folding operation - a flat, folded seam with only one row of stitching visible on the top surface.

Fig 3.1.9: French Seam

Fig 3.1.10: Lap Felled Seam

Lap Felled Seam: The Lap Felled type, involves only one stitching operation - a strong seam with fabric edges protected from fraying. Commonly used for making up jeans or similar garments.

Bound Seams: These are formed by folding a binding strip over the edge of the plies of material and joining both edges of the binding to the material with one or more rows of stitching. This produces a neat edge on a seam exposed to view or to wear.
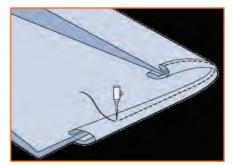
Fig 3.1.11: Bound Seams
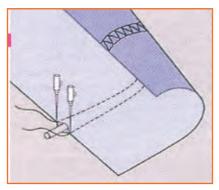
Fig 3.1.12: Decorative Stitching

Decorative/Ornamental stitching
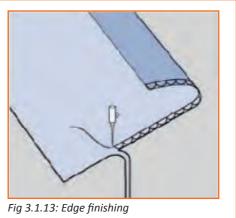
On a single ply of material, an ornamental stitch is created using along straight and/or curved lines or even while following an ornamental design. A more complicated process in this regard is the piping stitch, which includes many forms of producing a raised line along the surface of the fabric.

The result of using this stitch is decorative components like braiding, pin tucks etc. This seam is comprised of a minimum of one component.

Edge finishing/neatening

Edge finishing involves folding or covering a single ply of the material with a stitch.

Its applications include serging trouser panels, flys, facings, etc.

Fig 3.1.13: Edge finishing

3.1.8 Stitches

A Stitch in one unit of conformation of thread resulting from repeatedly passing a strand or strands and/or loop or loops of thread into or through a material at uniformly spaced intervals to form a series of stitches. Stitch classification is based on structure of the stitch and method of formation.

Stitch properties:

- Stitch size has three dimensions: length, width, and depth.

- Stitch length is specified as the number of stitches per inch (spi) and can be an indicator of quality. High spi means short stitches; low spi means long stitches. Generally, the greater the spi, the more the holding power and seam strength.

- Stitch width refers to the horizontal span (bight) covered in the formation of one stitch or single line of stitching. Stitches that have width dimensions require multiple needles or lateral movement of thread carriers such as the needle bars, loopers or spreaders. Stitch depth is the distance between the upper and lower surface of the stitch. It is a factor for blind stitches.

Overlock Stitch Application in Knit Garments

They require more thread in the stitch formation, but they also have more stretch. Overlock stitch used for knits are highly extensible and therefore makes an excellent seam for knit garments.

Four Thread Overlock Stitches: Are sometimes called "mock safety stitches". They are 4 thread overedge stitches that are formed with two needle threads and two looper threads. Some Mo k Safety stitches are stronger and more elastic and can be used for seam.

Five Thread Overlock Safety Stitch: Are the "Safety Stitches". These are combination of an overedge stitch and chain stitch. Chain stitch is used for closing the seam and is backed by another row of "tight" overedge stitches. This typ stitching is widely used by manufacturers of shirts, jackets, blouses and jeans.

Fig 3.1.14: Standard Stitching Patterns

Stitch classification: Stitch classification is based on structure of the stitch and method of interlacing.

100 Class stitch(Single thread chain stitch) : Using one needle thread and one blind looper.

Diagram	Stitch class	Thread count	Typical uses
FRONT / BACK	101 Class	One thread	Basting, or light construction
FRONT / BACK	103 Class	One thread	Blind stitch for hemming
FRONT / BACK	104 Class	One thread	Blind stitch for hemming
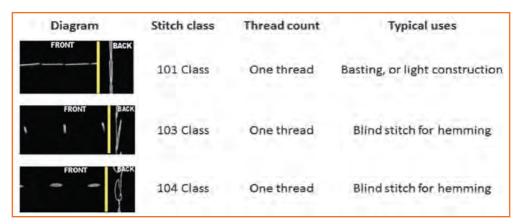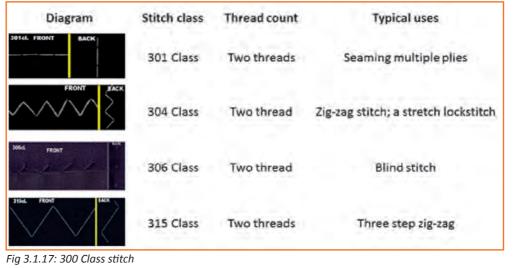
Fig 3.1.15: 100 Class stitch

200 Class stitch(Hand Stitch) - Single thread hand sewn stitch: Using one needle thread.

Diagram	Stitch class	Thread count	Typical uses
202 cl. FRONT / BACK	202 Class	One Thread	Basting, tacking or repairs
205 cl. FRONT / BACK	205 Class	One Thread	Pick stitch - topstitching

Fig 3.1.16: 200 Class stitch

300 Class stitch(Lock Stitch) - Two or more thread lock stitch: Using Needle Thread(s) and One Bobbin Hook Thread.

Diagram	Stitch class	Thread count	Typical uses
301cl. FRONT / BACK	301 Class	Two threads	Seaming multiple plies
FRONT / BACK	304 Class	Two thread	Zig-zag stitch; a stretch lockstitch
306cl. FRONT / BACK	306 Class	Two thread	Blind stitch
315cl. FRONT / BACK	315 Class	Two threads	Three step zig-zag

Fig 3.1.17: 300 Class stitch

400 Class stitch(Chain Stitch) - Multi-thread chain stitch: Using one or more needle threads and one or more looper threads.

Diagram	Stitch class	Thread count	Typical uses
401cl. FRONT BACK	401 Class	Two threads	Seaming multiple plies with moderate stretch
404cl. FRONT Back	404 Class	Two threads	Topstitching or seaming with stretch
406cl. FRONT BACK	406 Class	Three threads	"Bottom cover stitch; a (greater) stretch chain stitch

Fig 3.1.18: 400 Class stitch

500 Class Stitch(OverEdge Stitch) - Multi-thread over edge chain stitch: Using needle thread(s) and looper thread(s).

Diagram	Stitch class	Thread count	Typical uses
	501 Class	One thread	One needle over edge stitch for serging / "blanket stitch"
502cl. FRONT BACK	502 Class	Two thread	One needle over edge stitch for serging
503cl. FRONT BACK	503 Class	Two thread	Over edge stitch for serging with crossover on edge of fabric
504cl. FRONT BACK	504 Class	Three thread	Over edge stitch for serging and light seaming

Diagram	Stitch class	Thread count	Typical uses
512cl. FRONT BACK	512 Class	Four Thread	Mock safety stitch for seaming with wide bite and greater stretch for knits
514cl. FRONT BACK	514 Class	Four Thread	Over edge stitch for seaming with wide bite and greater stretch for knits
515cl. FRONT BACK	515 Class	Four Thread	True safety stitch for seaming with good stretch for wovens and knits
516cl. FRONT BACK	516 Class	Five Thread	True safety stitch for seaming with good stretch for wovens and knits

Fig 3.1.19: 500 Class Stitch - Multi-thread over edge chain stitch

600 Class Stitch(Flat Stitch) - Multi-thread cover stitches:
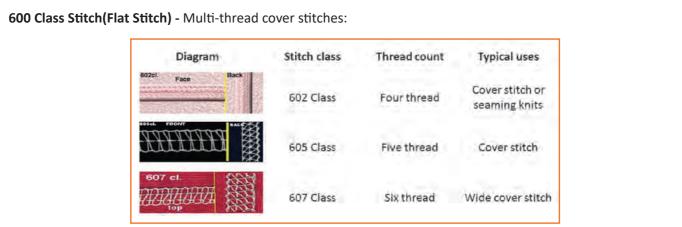
Fig 3.1.20: 600 Class Stitch - Multi-thread cover stitches

Stitches Per Inch for Woven Garments

The stitch length is measured by measuring the number of lengths of thread found within one inch. As you can see here, there are approximately 9 SPI sewn in this seam.

Fig 3.1.21: Stitch length measurement

When stitching knit fabrics, you should always check for unnecessary "seam beaming" of the seam; and also check for "stitch cracking". "Seam grinning" happens when thread stitch balance is too slack letting the seam to open up too much when stress is applied to it. "Stitch cracking" is checked by putting force on the seam in the stitching direction. If the thread strains are too tight or if you are not using enough stitches per inch, the threads will break as stress is applied on the seam. Therefore, the following recommendations have been made for the number of stitches per inch to be used on the following garments.

Knit Garments

Garments	SPI	Comments
Jersey T's/Polo	10-12	Using more SPI increases the chance of needling cutting.
Fleece	10-12	More SPI are required to provide the proper seam coverage on fleece.
For Middle-Heavy Sweaters	8-10	The more elastic the seam, the more SPI that should be used to minimize stitch cracking
Stretch Knit	14-18	More stitches per inch are required to provide the proper seam elasticity

Fig 3.1.22: Stitch length measurment table

3.1.9 Types of Pockets, Plackets and Sleeves

Pockets: A pocket is a bag- or envelope-like receptacle either fastened to or inserted in an article of clothing to hold small items
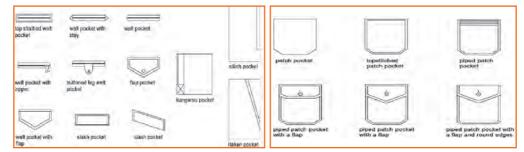
Fig 3.1.23: Types of Pockets

Plackets: A placket is an opening in the upper part of trousers or skirts, or at the neck or sleeve of a garment. Plackets are almost always used to allow clothing to be put on or removed easily
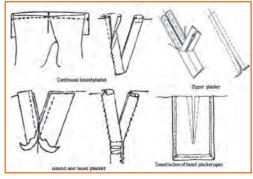
Fig 3.1.24: Types of Plackets

Sleeves: Sleeve is the part of a garment that covers the arm, or through which the arm passes or slips.

Fig 3.1.25: Types of Sleeves
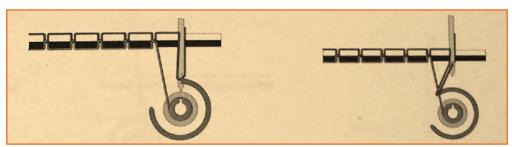
3.1.10 Carryout Test Sews

In order to be very good at stitching, one needs to practice it. Hence it is important to carry out stitching tests and practices time to time until reached perfection. Here are some of the most common and important types of stitching i.e. lock and chain stitch. Below are the steps which show how to work on a sewing machine by following simple steps given in the activity.

There are two main stitch types
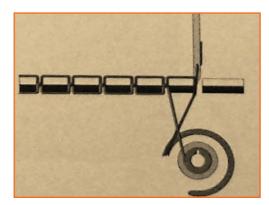
1. Lock stitch
2. Chain stitch

3.1.10.1 Steps for Lockstitch
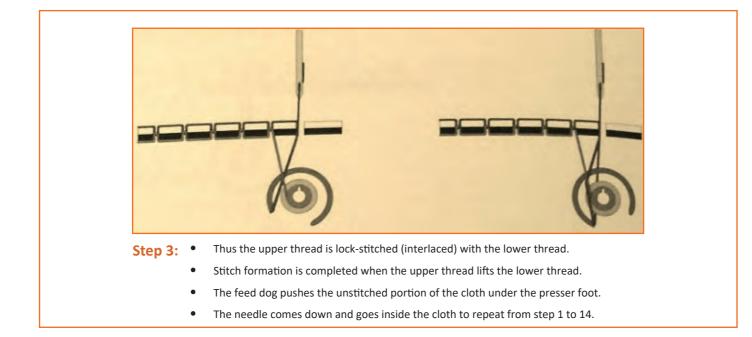
Step 1:
- Keep the slide plate open so that the hook-set is visible.
- Bring needle to its lowest position into the hole through which it reaches the bobbin by slowly moving the hand-wheel.
- Now, move the needle up using the hand-wheel
- Needle-thread (Upper-thread) becomes loose when the needle goes up from this lowest position.
- Blade point of outer hook of the bobbin assembly catches the loop-shaped upper thread ad pulls it.
- Upper thread is then separated at the inner hook thread separating portion.
- So the needle-thread is taken up by the opposite (or rear) inner hook.
- At the same time needle-thread on cloth side is separated to the right side of inner hook.

Step 2:
- Keep the slide plate open so that the hook-set is visible.
- Bring needle to its lowest position into the hole through which it reaches the bobbin by slowly moving the hand-wheel.
- Now, move the needle up using the hand-wheel
- Needle-thread (Upper-thread) becomes loose when the needle goes up from this lowest position.
- Blade point of outer hook of the bobbin assembly catches the loop-shaped upper thread ad pulls it.
- Upper thread is then separated at the inner hook thread separating portion.
- So the needle-thread is taken up by the opposite (or rear) inner hook.
- At the same time needle-thread on cloth side is separated to the right side of inner hook.

Step 3:
- Thus the upper thread is lock-stitched (interlaced) with the lower thread.
- Stitch formation is completed when the upper thread lifts the lower thread.
- The feed dog pushes the unstitched portion of the cloth under the presser foot.
- The needle comes down and goes inside the cloth to repeat from step 1 to 14.

3.1.10.2 Steps for Chain Stitch

Step 1:
- Needle is the lowest position.
- Upper thread becomes loose when needle goes up from its lowest position.
- Needle-thread (upper thread) becomes like a loop then the looper catches the needle thread.
- The needle enters the loop of needle-thread which is widened by the looper.

Step 2:
- The needle moves up and comes out of the cloth and the unstitched portion of cloth is pushed forward to form a stitch.
- The looper rotates and removes the loop of the needle-thread it had caught.
- Also the looper keeps pulling in the needle-thread as it rotates.
- Needle-bar goes up and needle-thread take-up lever lifts the thread up along with it.

Step 3:
- Looper keeps rotating and pulls thread towards its own centre
- Thread take-up lever tightens the earlier loop of thread which the looper removed in step 6.
- Cloth feed is finished (feed dog has finished one cycle of feeding) and a stitch is formed
- Needle again pierces into the cloth and continues to form the next stitch repeating all the step.

3.1.10.3 Stitch at the Normal Speed

The above activity was to conduct tests sews for lockstitch and chain stitch. Now let's see how to stitch at the normal speed:

- **Step 1:** Attach needle and thread the machine – needle-thread and bobbin-thread.
- **Step 2:** Adjust thread tension using a rough fabric.
- **Step 3:** Put the fabric sample at the left end of the machine.
- **Step 4:** Note the start time to start sewing exercise.
- **Step 5:** Pull the fabric sample with the left hand.
- **Step 6:** Raise the presser foot using the knee lifter.
- **Step 7:** Place the fabric sample under the presser foot such that the start point of the fine line is exactly below the needle point. (Fig 3.1.47)
- **Step 8:** Lower the presser foot.
- **Step 9:** Press the pedal down with the toe of the right foot.
- **Step 10:** Continue to press the pedal down with more force such that machine runs at normal speed (i.e. high speed).
- **Step 11:** Guide the sample with your hands as it moves forward.
- **Step 12:** maintain stitching line along the marked straight line.
- **Step 13:** Stop sewing-machine at the stop mark.
- **Step 14:** Press the back part of the pedal down with the heel of the left foot.
- **Step 15:** Raise the presser foot and pull the sample out.
- **Step 16:** Hold the trimmer in the right hand and trim the threads.
- **Step 17:** Practice by repeating from step 6 to 16 for all 10 lines on the sample.
- **Step 18:** After completion, remove the sample from the machine to the left side. (Fig 3.1.48)
- **Step 19:** Note the end-time.
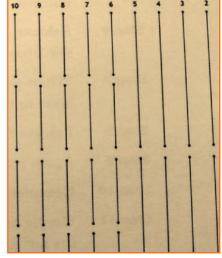
Fig 3.1.26: Stitching at normal speed

3.1.11 Practicing Corner Stitch and Curve Stitch

3.1.11.1 Corner Stitch

- **Step 1:** Attach needle and thread the machine- needle-thread and bobbin- thread.
- **Step 2:** Adjust thread tension using a rough fabric.
- **Step 3:** Put the fabric sample at the left end of the machine.
- **Step 4:** Note the start time to start sewing exercise.
- **Step 5:** Pull the fabric sample with the left hand.
- **Step 6:** Raise the presser foot using the knee lifter.
- **Step 7:** Place the fabric sample under the presser foot such that the start point of the fine line is exactly below the needle point.
- **Step 8:** Lower the presser foot.
- **Step 9:** Press the feed control lever (Reverse stitch lever) to its lowest position.
- **Step 10:** sew 2-3 reverse stitches at low speed.
- **Step 11:** Stop stitching.
- **Step 12:** Release the reverse stitch lever a that the machine can do regular sewing (forward direction).
- **Step 13:** Start sewing at normal speed i.e. high speed.
- **Step 14:** keep stitching along that line.
- **Step 15:** Slow down the speed when the corner comes near.
- **Step 16:** Stop sewing at the corner point.
- **Step 17:** Lower the needle at the corner.
- **Step 18:** Raise the presser foot.
- **Step 19:** keeping the needle in dropped position or lowest position (pierced inside the fabric sample), turn the fabric sample.
- **Step 20:** Align the fabric sample such that the stitching line drawing (after the corner stop point) is in line with the needle point and stitching line.
- **Step 21:** Lower the presser foot.
- **Step 22:** Sew straight stitches.
- **Step 23:** Repeat Step 14-22 at every corner. (Fig 3.1.49)
- **Step 24:** Stop sewing at the sewing end symbol.
- **Step 25:** Press the back part of the pedal down with the heel of the left foot.
- **Step 26:** Raise the presser foot and pull the sample out.
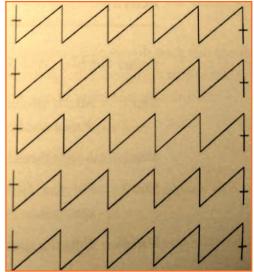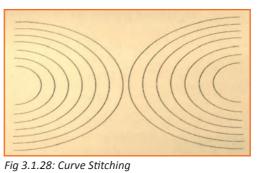
Fig 3.1.27: Corner Stitch

3.1.11.2 Curve Stitching (Left Curve and Right Curve)

- **Step 1:** Attach needle and thread the machine- needle-thread and bobbin- thread.
- **Step 2:** Adjust thread tension using a rough fabric.
- **Step 3:** Put the fabric sample at the left end of the machine.
- **Step 4:** Note the start time to start sewing exercise.
- **Step 5:** Pull the fabric sample with the left hand.
- **Step 6:** Raise the presser foot using the knee lifter.
- **Step 7:** Start sewing at the outermost semicircle of the curves on the left.
- **Step 8:** Place the fabric sample under the presser foot such that the start point of the first line is exactly below the needle point.
- **Step 9:** Lower the presser foot.
- **Step 10:** Press the pedal down with the toe of the right foot.
- **Step 11:** Continue to press the pedal down with more force such that machine runs at a normal speed (high speed).
- **Step 12:** Guide the sample with your hands as it moves forward to keep the stitching on the drawn curve.
- **Step 13:** maintain stitching line along the marked curve.
- **Step 14:** Stop sewing-machine at the stop mark.
- **Step 15:** Press the back part of the pedal down with the heel of the left foot.
- **Step 16:** Raise the presser foot and pull the sample out.
- **Step 17:** Hold the trimmer in the right hand and trim the threads.
- **Step 18:** Practice by repeating from step 6 to 16 for all 7 curves on the sample.
- **Step 19:** Now, practice sewing along the outermost right curve on the worksheet by repeating step 6 – 16 for all 7 right curves.
- **Step 20:** Note the hand movement that helps guide the fabric which must change according to the change in the direction of curve.
- **Step 21:** After completion, remove the sample form the machine to the left side. (Fig 3.1.50)
- **Step 22:** Note the end time

Fig 3.1.28: Curve Stitching

Industry Visit

The purpose of visiting an apparel manufacturing unit is to get hands on knowledge about various processes involved in the work of an SMO. During the visit you have to interact with Sewing Machine Operators and supervisors to understand how work is done in industry. Make sure that you keep a notebook handy and note down any important points that come up during your interaction at the apparel manufacturing unit. When you go to an apparel manufacturing unit, you should:

- Analyze how an SMO adjusts sewing machine for sewing like, threading a machine, attaching bobbin to machine and replacing needle etc.

- Understand the different types of stitches and which type of stitch suits to different fabrics.

- Ask questions to SMOs/supervisors if you have any query.

Exercise

1. _____ Stitches are usually caused due to needle defects

   a)   Staggered

   b)   Skipped

   c)   Both a and b

   d)   None of the above

2. The amount of time in a day when the standard conditions are not provided to operator for working is called off standard time

   a)   True

   b)   False

3. What are the types of Seam?

   ....

   ....

4. How to use Bobbin Winder?

   ....

   ....

5. Elaborate on types of seams preferred for knit

   ....

   ....

6. Elaborate on what is SPI?

   ....

   ....

UNIT 3.2: Contribute to Achieve Product Quality in Stitching Operations

Unit Objectives ◎

At the end of this unit, you will be able to:

1. Familiarize with the product quality.

2. Coordinate with seniors and others.

3. Understand the sewing process flow.

4. Learn about the production system.

5. Inspect stitched products against specifications.

6. Identify, mark and place rejects in the designated locations.

7. Carry out alterations.

8. Sew and apply trims by hand and machine.

9. Maintain workflow and meet production target.

10. Familiarize with the quality department and its role in production.

11. Understand the inspection and possible defects.

3.2.1 Product Quality

What is quality? If a product fulfills the customer's expectations, the customer will be pleased and consider that the product is of acceptable or even high quality. If his or her expectations are not fulfilled, the customer will consider that the product is of low quality. This means that the quality of a product may be defined as "its ability to fulfill the customer's needs and expectations".

Quality needs to be defined firstly in terms of parameters or characteristics, which vary from product to product. For example, for a mechanical or electronic product these are performance, reliability, safety and appearance. For pharmaceutical products, parameters such as physical and chemical characteristics, medicinal effect, toxicity, taste and shelf life may be important. For a food product they will include taste, nutritional properties, texture, shelf life and so on.

Fig 3.2.1: Product quality process

Fixing product specifications

A specification is the minimum requirement according to which a producer or service provider makes and delivers the product and service to the customer. In setting specification limits, the following should be considered:

• The user's and/or customer's needs.

• Requirements relating to product safety and health hazards provided for in the statutory and regulatory requirements.

- Requirements provided for in national and/or international standards.

- The competitor's product specifications, in order to gain marketing advantages.

- In designing the product, the capacity of processes and machines should be kept in mind.

- It is also necessary to maintain a balance between cost and value realization. The clearer the specification, the better the possibility of creating and delivering quality products. Preparing product design.

- The specifications and drawings produced by the designer should show the quality standard demanded by the customer or marketplace in clear and precise terms.

- Every dimension should have realistic tolerances and other performance requirements.

- Product quality should have precise limits of acceptability so that the production team can manufacture the product strictly according to specification and drawings.

To achieve the above, those responsible for design, production and quality should be consulted from the sales negotiation stage onwards. The overall design of any product is made up of many individual characteristics. For example these may be:

- Dimensions, such as length, diameter, thickness or area.

- Physical properties, such as weight, volume or strength.

- Electrical properties, such as resistance, voltage or current.

- Appearance, such as finish, colour or texture; Functional qualities, such as output or kilometre per litre.

- Effects on service, such as taste, feel or noise level.

Manufacturing drawings and specifications are prepared by the designers and these should indicate to the production team precisely what quality is required and what raw materials should be used. Preparation for manufacture After the design, including the manufacturing drawings, has been reviewed and finalized, it is time to plan for manufacture.

This will include the following steps

1. **Deciding on the method of manufacture:** Methods must be devised that permit the operators and processes to make the product in the quickest, easiest and most foolproof way, including preparation of manufacturing instructions, setting up procedures, listing various operations and so on.

2. **Providing the necessary machines, plant, tooling and other equipment:** Everything that is required for manufacture must be selected, taking care that all the elements are capable of achieving the standard of quality demanded.

3. **Obtaining satisfactory raw materials:** No one can make a good product from unsatisfactory raw materials, so every material must have a precise written buying specification so that the purchasing department can buy exactly what is required. Often purchasers are expected to buy from suppliers who have been assessed and approved by them and when supplies arrive the goods should be checked before acceptance into stores. Quality requirements and manufacturing processes should be discussed with the suppliers, as well as the inspection activities to be carried out by the purchaser on the goods on arrival.

4. **Obtaining and training operators:** Operators who are willing and able to do the work in a satisfactory manner must be chosen and given whatever training they need.

5. **Planning inspection and shop floor quality control:** Plans for inspection activities should be prepared, proper workplaces provided for inspection staff, written inspection.

3.2.1.1 Guidelines

A guide for small and medium-sized enterprises procedures prepared, inspection equipment provided, checking and calibration of inspection equipment planned for, inspection personnel selected and trained and prepilot and pilot runs carried out. One should never attempt to solve a quality problem by carrying out more inspections. The manufacturing can begin only when the design and planning have been completed. If the planning is carried out systematically, things should run smoothly. During manufacture the following are the most common factors that can affect quality:
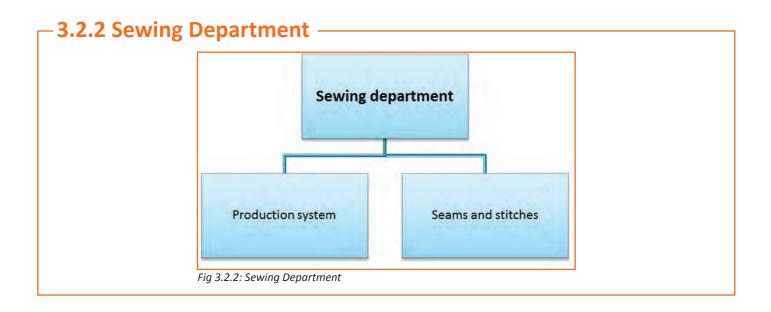
- **Set-up:** Some processes, such as punching, cutting, printing and labelling, are so consistent that, if the initial set-up is correct, the whole lot will conform to the specifications. However, the initial set-up has to be checked by carrying out first-piece inspection.

- **Machines and tools:** From time to time changes can occur in machine or tool settings, which can then lead to defects. Processes of this type include machining, resistance welding and filling. Here it is necessary to carry out periodic checks by patrol inspection.

- **Operator:** There are some processes where the result depends on the skill and attention of the operator, such as welding, hand soldering and painting processes. For such processes it is necessary at the manufacture planning stage for the operator's working methods to be decided upon.

- **Materials and components:** It is important to ensure the quality of raw materials and components by undertaking regular checks on the suppliers' processes and also where necessary by carrying out incoming inspection.

Correction of quality deficiencies: Rework and scrap are a by-product of human effort, sometimes because quality cannot be attained. This could be caused by errors in quality planning and possibly during the manufacturing process. It is crucial that these errors are located and correctly diagnosed in a way that they don't happen again. The following are obvious possibilities:
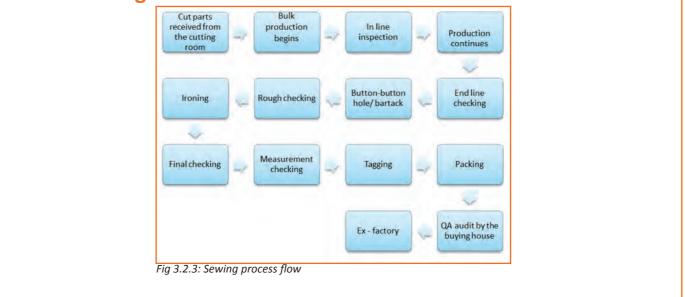
- The shop-floor operators had no clear idea what standard of quality was required.

- The method was such that it was very difficult to get the job right, but very easy to get it wrong.

- The machine and equipment were incapable of achieving the tolerances required.

- The incoming materials and components were unsatisfactory.

- The operators were untrained and not up to the job; Shop-floor quality control was either not properly planned or not properly executed, or both.

3.2.1.2 Coordination

It is obvious from the above steps that everybody in the company, that is, the salesmen, designers, purchasing, stores and methods staff, plant engineers, jigs and tool personnel, production planning and production staff, operators, inspection and testing staff, packaging, dispatch and so on, are responsible for product quality. Indeed, quality is everybody's business. Unfortunately, if care is not taken, it ends up being nobody's business. It is therefore important to ensure that everyone is quality-conscious and that they all work together on matters related to quality.

3.2.2 Sewing Department

Fig 3.2.2: Sewing Department

3.2.2.1 Sewing Process Flow

Fig 3.2.3: Sewing process flow

3.2.3 Ensure Stitched Products meet Specification

It is essential to analyse the meet specification in terms of labels and trimmings. There should be various quality check points and before sending the product for final finish it should be thoroughly crosschecked that it has correct labels them. The stitched products should be checked in sewing section and well as printing, labeling or finishing section as well.

Trimmings & labels play an important role in making a good quality garment. Usually trims are randomly inspected. It is usually inspected against standards on the following parameters. Please note that these parameters may differ in other trims.

- **Matching Shade:** It is essential that the trims' color should match with base fabric rather than color code or pantone card. Also, the trims those are with Dye to Match requirement is checked after attaching trims on the fabric swatch. Check shade of the trims whether shade is matched or not. This test is always required for shade matching of sewing threads, embroidery threads, etc.

- **Shrinkage:** If the shrinkage percentage of the trims differs from the fabric's (base material) shrinkage percentage, then it is definitely going to cause a defective garment. Trims such as tapes, laces must be tested for its shrinkage percentage.

- **Color bleeding:** Dyed trims like Buttons, sewing threads, dyed tapes and laces are checked for color bleeding. In this test, trim samples (one by one) are washed with white fabric for a number of cycles as mentioned in testing methods. If the white fabric is got tainted with trims color then these trims should not be used in production. Prior to use, trims must be processed for color fixing to stabilize the color.

- **Width & Thickness:** Measure width of the trims such as tapes, elastics, laces etc. It would be good if you take measure after wash.

- **Size & Numbers:** Thread numbers, button size, length of zippers etc. need to check against standards.

Labels and tags
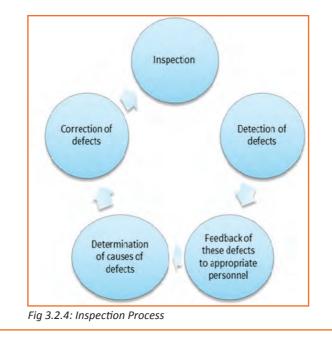
Texts printed in the trims for e.g. hang tags, price tags, brand labels, case labels etc. play a vital role. It is very important to make sure that all the information and details must match with the fabric type, the fabric type and the label should not mismatch. Also, the content or text used should be only the one which is approved by the concerned authority. Also, the fibre content printed in care label must match with test report made for fibre content.

3.2.4 Principle of Inspection (Inspection Loop)

Inspection can be defined as the visual examination or review of raw materials,partially finished components of the garments and completely finished garments in relation to some standards, specifications, or requirements, as well as measuring the garments to check if they meet the required measurements.

How much to inspect ?

- No inspection

Fig 3.2.4: Inspection Process

- 100% inspection

- Spot checking- inspecting random shipments

- Arbitrary sampling-10% sampling

- Statistical sampling or acceptance sampling-flexibility with regard to the amount of inspection to be performed

Inspection terms

- **Sample:** A sample consists of one or more units of a product drawn from a lot or batch, the units of the sample being selected at random without regards to their quality. The number of units of a product in the sample is the sample size.

- **Lot or batch:** Means 'Inspection lot' or 'Inspection Batch', that is a collection of units of a product from which a sample is to be drawn and inspected.

- **Lot or batch size:** The lot or batch size is the number of units of a product in a lot or batch:

$$\text{Percent defective} = \frac{\text{Number of defectives} \times 100}{\text{Number of units inspected}}$$

Identification of defects

- **Major Defect:** A defect that, if conspicuous on the finished product, would cause the item to be second.

- **Minor Defect:** A defect that would not cause the product to be termed as a second either because of severity or location.

- **Second:** A 'Second' is a garment with a conspicuous defect that affects the saleability or serviceability of the item.

These faults have to reported immediately to the supervisor .In case of not reporting, the defects will not be rectified and result is rework.

Make sure to check the garment thoroughly

- There should be no stain like oil stain, or any other stain on the fabric.

- Always assure and check that the finest quality of thread for embroidery (if needed) is used.

- The product should have proper finish, there should be no loose or uneven threads or any other faults should be there in the stitching of the fabric.

- Make sure to look promptly that everything is in the place labels, tags, warning tags, instructions or price tags.

- There shouldn't be any non-conformity in the stitching in context with particular measurements if any, replace the product if it is not matching the given (suggested) dimension or if the fitting is not accurate in context with notches or unmatched seams i.e. armhole, sleeve head or neck band etc.

- Look for any sort of distorted grading .

- Look for any puckering, shrinkage seams.

- Make sure there isn't any shade defect in the stitched fabric, if there isn't the color matching the base fabric then it should be sent for replacement. There should be no skipped stitches, uneven stitches or shrinkage.

3.2.5 Identify Mark and Place Rejects in the Designated Locations

- Always examine your working surroundings and then the work station where you are working. Inspect if there are any unwanted hazardous materials scattered around your work station or the work area.

- Keep the work area clean and tidy all the time, once this is accomplished look for any unwanted or faulty item.

- While looking for a faulty item make sure to identify it properly, mark it clearly and label it promptly as rejected.

- Place the rejected item in the assigned or designated locations only.

- Place the fabric or other rejected items which are torn, damaged broken, stained etc in the rejection box (designated area) of the work-place.

- If we talk about garments in particular then it can be said that the garment can be rejected after been tested and declared failed in terms of conformance and specifications.

- Always check the raw-materials to identify if there are any signs of discoloration or if there are any other defective signs present in the raw material, if yes label it as reject and take it to the designated location for all rejects and place it there.

- Examine garments at different stages of production for correct positioning of parts appearance.

- Tag items as rejected items so that if possible, they can be reworked on.

- Items tagged as rejects, should be disposed if they can't be re-worked on.

- Always maintain inspection records to compute level of quality control achieved.

3.2.6 Carry out Alterations

Making a product which is of customer's choice and expectations is one of the best ways to run the business or any industry successfully. Hence, it is important to make sure that the material used for making a product should be compatible with that product's specification. Product's accuracy and finishing always depends on what materials are been used on it, what quality fabric is it and are these matching the product's specification or not? This defines the brand.

Make sure to carry out alterations if they are not meeting the specification as per the customer requirements. Many a times alterations are required when the fabric is not been stitched properly i.e. it contains missing stitches also known as skipped stitches or staggered stitches etc. below, some of the common issues discussed where the alterations might be required if they are not meeting the customer's requirements.

Some of the common defects which are found during the stitch are as - Puckering, Seam Grin, Seam Slippage, Skipped Stitches, Unbalanced Stitches, Uneven SPI. After identifying the defects it is important to carry out alterations, without a delay. Reworking on the defects is important however it is more important to understand why the defects occurred, so that it can be avoided in future.

Skipped Stitches: Skipped Stitches are usually caused due to needle defects like bent needle or incorrect sewing tension in the needle or under thread or poor loop formation hence it can be avoided by using a reinforced needle, also make sure to check needle clearance and reset the needle guard. Adjust thread tension to avoid problems occurred due to needle defects.

Staggered Stitches: They are caused when the needle isn't working properly, i.e. if the needle is side-tracked or not sharp enough to work. Or size of the needle &thread are not compatible with one another.

CAUSES	SOLUTIONS
Needle vibrating or deflecting	• Increase needle size • Use reinforced needle
Incorrect or blunt needle point	• Change needle
Incorrect needle-to-thread size relationship	• Change needle thread size to appropriate size

Unbalanced or variable stitches: Incorrect sewing tensions or incorrect threading path can lead to unbalanced or uneven stitches on the cloth. One should check for the right thread path and do the stitching according. Before starting to stitch always check for the needle points, thread and the spring, make sure that everything is set up accurately in its place and then the stitching shall begin.

CAUSES	SOLUTIONS
Incorrect sewing tensions	• Adjust top or bottom thread tension as necessary for balanced stitches
Incorrect threading	• Check for correct thread path
Variable thread tension	• Check for correct thread path • Make sure spring is properly set • Check thread lube consistency
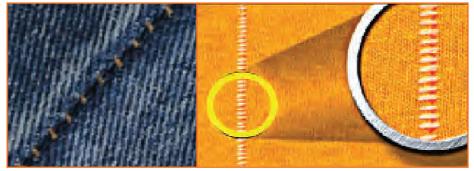
3.2.7 Pass the Stitched Item to the Next Stage after Validation

Once the garment is been stitched and prepared it is necessary to send it further for manufacturing process once it is been validated. Usually, after the garment is been stitched and completely prepared it checked for fabric quality like no loose threads or uneven stitches and labelling (or tags). It is important to have all tags in place i.e. price tag, warranty tag (if any) washing instructions, brand label etc. should all in intact and be at their specific place. The content displayed should be the one approved by the concerned authority, there should be no false statement or mismatch in the language or misprinting. Once they are checked, confirmed and validated then the garment is been sent for the finishing-process of the garment where it is washed, cleaned, pressed. Any activities related to the garment was left un-finished in the previous process i.e. left or missed by any chance it is done at this stage. After finishing it is packed, and distributed to their respective retail stores through the appropriate logistics system and network.

3.2.8 If Stitching Items do not Meet Production Specification

While stitching, many a times there are unwanted and unknown faults which are not good for garments. Hence they are also needed to be rectified so that the garments can be sold or displayed flawlessly. Here are some of the faults which are found while stitching.

Seam Grin: Seam Grin is when two pieces of fabric are pulled at right angles to the seam, a gap is revealed between the two pieces of fabric revealing the thread in this gap. As shown in the image below.

Fig 3.2.5: Seam Grin

Now as shown in the above picture, there is a gap between the two pieces of fabric however this can be avoided by taking the corrective measures. I.e. if you will increase stitching tensions and use a higher stitch rating seam grin in the garments can be avoided.

Seam Slippage: Seam slippage is a fabric related issue which occurs in fabrics which are with low noumber of warp and weft yarns. The fabric on either side of the seam distorts as the fabric yarns slide away resulting in the permanent gap as shown in the image below.

Once you increase seam allowance, use a higher stitch density and opt for a lapped fell seam.

Fig 3.2.6: Seam Slippage

Seam Pucker:

Bad tension

Bad feet

Fabric Thread instability

• Uneven shrinkage during finishing

• Thread bloat from washing

Structural jamming/ inherit pucker

• Tight weaving does not have enough room between yarns for thread

Fig 3.2.7: Seam Pucker

• Sewing caused yarns to be pushed out of place
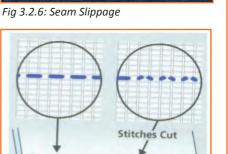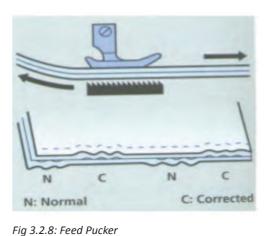
As shown in the images above, seam pucker usually occurs when synthetic threads are used. After sewing the threads recover from the stretched state pulling the fabric with it. This can be avoided if thread tensions are kept as low as possible.

Feed Pucker: Feed pucker usually takes place while very fine fabrics are sewed. The piles of fabric tend to slip over each other which results in uneven feed hence it leads to pucker. The image below shows Normal and correct pattern of a stitch. However feed pucker can be avoided by opting for advanced types of feed systems like compound.

Shrinkage Pucker: Shrinkage pucker occurs during the process of washing the thread in the seam, shrinks, pulling the fabric with it. Usually it takes place while using cotton threads. Shrinkage Pucker can be avoided by using threads with low shrinkage properties.

Fig 3.2.8: Feed Pucker

Fig 3.2.9: : Shrinkage pucker occurs during the

3.2.9 Sew and Apply Trims by Hand and Machine

Trims can be applied either by hands or by machines however it is important to check when to use hand trim for e.g. for fixing a button or to use a machine trim for e.g. modifying the stitch.

- Always choose the right method of repairing the production and make sure to re-make it as per the requirement and specification of the customer and of a company.

Fig 3.2.10: Seam Pucker

- Check if the machines are set up and are in good working conditions. To attain production targets machines should be working efficiently all the time.

- Sometimes, Hand sewing is required when there is a need repairing re-welting or piece welting. You need to know whether the repair is to be made by hand or machine, the main equipment used and their capabilities and what problems may occur when undertaking the repair and how to prevent/ rectify them. As adhesives will be used you need to know how to use and store them safely.

3.2.10 Maintain Workflow and Meet Production Target

Here are some of the tips with which work should be carried out so that the workflow can be maintained and production target can be achieved:

- Fabric's pieces and lining must be pinned or sewn together as per the requirement and they should be set in such a way that they are ready for assembly.

- One production's workflow should not affect the workflow of other production, handling of material should be very careful to keep away material from the risk of damage.

- All the production sections should work in synchronization with each other i.e. trimming should work in a way that spreading and cutting can work in sync with stitching and stitching can maintain coordination with embroidery, printing and so on. By doing so, a production target and quality products can be produced.

- Working in sync can improve efficiency in work.

- Always sort your work in such a way that it is in readiness for assembly.

- Each production should sort and place their work in such a way that it can be easily used at the next stage of production for e.g. if you are working at embroidery section then the fabric's embroidery should be placed in such a right order that it should not be a problem for a person in a stitching operation to arrange and stitch the fabric.

- One must be thoroughly aware about the tools, settings and equipment that are required to work on and how to handle materials without damaging them. They should know what a finished product looks like, so that they can have perfection in their working.

- Make sure to check the materials available in the stock, if it is not sufficient inform the concerned department to arrange one; it should not disrupt the workflow of other production.

Fig 3.2.11: Work flow at work place

3.2.11 Defects

Classification of defects

Certain defects are acceptable to some while unacceptable to others. Fabric for curtain inner lining may not generally be judged with stringent dealings. Whereas that for high grade dress wear may be rejected on the basis of a minuscule imperfection.

- Classification is the categorization of defects into major and minor. Defects have been classified depending on several factors. In some cases defects may not be defects in the first place. For instance: Barre in knitting appears in the form of sequential horizontal lines on the fabric. This could easily be used as an effect and usefully incorporated in products. Laddering can be achieved as an effect by deliberately deactivating a needle in the bed.

- Sometimes the classification defends on the frequency of the defect. A small hole in the fabric may not cause problems but repeated small holes will obviously be problematic and thus a major defect.

The classification of defects depends on degree of visibility. For instance registration issues can be ignored if there is only minor misalignment. Variation in matching of dyed shade is acceptable within certain limits. Defects are classified as under:

1. **Major Defect:** A defect that, if conspicuous on the finished product, would cause the item to be second.

2. **Minor Defect:** A defect that would not cause the product to be termed as a second either because of severity or location.

3. **Second:** A 'Second' is a garment with a conspicuous defect that affects the saleability or serviceability of the item.

These faults have to reported immediately to the supervisor. In case of not reporting, the defects will not be rectified and result is rework.

Marker Making Defects

- Size Mixing. Components not correctly labelled in marker.

- Patterns facing incorrect direction on napped fabrics.

- Patterns facing in different direction (either way) on a one-way fabric.

- Garment Components omitted during marker making
- Patterns misaligned with respect to the fabric grain.

- Line definition poor (e.g., too thick chalk, indistinctly printed line) leading to inaccurate cutting.

- Mismatched checks and stripes.

Fig 3.2.12: Marker Making Defects

Common Spreading Defects

Plies misaligned:

- Incorrect tension of plies

- Fabric spread too tight or too loose, causing parts not to fit in sewing and finished garments not to meet size tolerances.

- Spread distorted by the attraction or repulsion of plies caused by excessive static electricity.

- Plies not all facing in correct direction (whether —one way‖ as with nap, or —one way either way as with some check designs)

- UnaccepFig damages situated in garment parts

Fig 3.2.13: Plies misaligned

Common Cutting Defects

- **Inaccurate cutting:** Distorted garment parts. Top and bottom plies of different size

- **Notches:** Misplaced, too deep, or omitted

- **Drill marks:** Misplaced not perpendicular through the spread

- **Frayed edges, fused edges:** Caused by a faulty knife not sharp enough, or rotating at too high a speed

- Marker incorrectly positioned on top of spread

- Slits opened inaccurately or omitted

- Mixed plies resulting in Shaded Garment parts when assembled

- Mixed Size parts resulting in uneven appearance

- Inconsistent Grain and Surface of the Skin

Fig 3.2.14: Cutting Defects

Bundling and Ticketing

Numbering or Pasting of a number sticker on all the components of all the garments. The number acts as the identification of the component and the lot from which the component is cut.

- **Bundling:** Assembling the cut components in small batches of pre-defined number as per the requirements of production system.

- **Ticketing:** The process of attaching a ticket to all the bundles that provides basic information about the bundle and the components in the bundle.

Important Points

- Numbering should be done on wrong side of fabric only.

- Number stickers should be checked for glue

- Numbering of a ply twice or skipping of a ply should not occur

- The information on bundle tickets must be accurate

- Care must be taken to avoid mixing of components of different sizes in a bundle

- Sewn on shade marking tickets falling off, damaging fabric, omitted, misplaced or wrongly numbered

- Adhesive shade marking tickets falling off or sticking too hard , omitted, misplaced, wrongly numbered

- Bundles or boxes not stacked in box, or rolled in correct order in bundles or rolled or folded too tightly causing creases

- Work tickets, coupon payment tickets or progress tickets omitted , misplaced or mixed makes both quality and quality control difficult

- Wrong Size , Wrong Shade, wrong type of trimmings put in Bundle
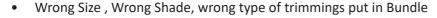
Fig 3.2.15(a): Unmatched Trimmings   *Fig 3.2.15(b): Matched Trimmings*

Common Problems of Fusing

- Discoloration after fusing - The temporary or permanent change in shade, color of a fabric caused by the action of heat on certain dyes during fusing.

Fig 3.2.16(a): Normal Fabric   *Fig 3.2.16(b): Discoloration after fusing*

Strike through

- Strike through means that the adhesive resin appears on the outer face of the fabric being fused

Fig 3.2.17(a): Ideal fusing in fabric

Fig 3.2.17(b): Strike through in a fabric

Fig 3.2.17(c): Interlining shrinking

Strike Back

Fig 3.2.18(a): Ideal fusing

Fig 3.2.18(b): Strike Back

Shine / Glazing and Discoloration

- The temporary or permanent change in shade, colour of a fabric caused by the action of heat on certain dyes during fusing.
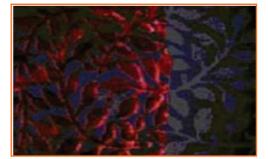
Fig 3.2.19: Glazing and Discoloration

Fusing distortion

- Fusing distortion means garment panels are distorted during the fusing process. This problem should be prevented as distorted garment panel after fusing cannot be corrected other than discarded as waste.

Fig 3.2.20: Fusing distortion

Fusing delamination

- Fusing delamination, sometimes appear as bubbling or rippling is the complete breakdown of bond between fusible interlining and fabric surface. It is normally found after the garment has been dry cleaned or washed.

Fig 3.2.21(a): Ideal fusing

Fig 3.2.21(b): Fusing delamination

Accessories Defect

Zippers		
Slider defect	**Won't Lock:** Not apparent without testing by placing Zipper slider in locked position and applying tension. **Faulty Dimension:** Not readily apparent. May cause either a hard or a loose operating zipper. Either condition may result in zipper failure before garment is worn out. **Crushed Slider:** May be due to improper garment pressing or due to padding or compensating springs in the presses not being in best condition. **Tarnished:** Does not generally interfere with operating qualities but is a matter of appearance only. Judging'' this as a defect depending upon degree of tarnish. Burn or Rough Spots Not immediately apparent. Can cause snagging and early wear on the upper tape. Lock Prong Interferes Indicated by pull-tab not staying in locked position or slider not moving freely after being released from locked position. **Weak Slider Bodies:** Can best be determined with proper testing equipment. However, manifests itself by slider becoming compressed or crushed under minimum pressure or becoming distorted enough to create hard operation.	

Chain or Teeth Defect	**Improper Dimensions:** Not always apparent unless slider works with great difficulty or operates too easily. Zipper' may give initial satisfactory operation but fail after only moderate use and especially after laundering or dry cleaning. **Miss meshed and Unmeshed Teeth:** Readily visible, particularly in large. Usually results in inoperable zipper. Missing Teeth: Readily visible, will result in early failure of the zipper.	
	Misplaced Teeth: This refers to a tooth being out of position, and occasionally may involve two or three teeth. Seriousness ranges from trifling to almost as serious as a missing tooth depending upon the degree of misplacement and general design of zipper. **Off color:** This defect is quite apparent. Zipper manufacturers normally carry a complete range of tape colors. Due to similarity of different colors, one may be mistaken for another. It is also possible, because of color similarities or difference in dye lots that the two halves of the zipper will have two different shades of tape. **Humpy Chain:** Readily noticeable by its waviness. Causes difficulty at sewing operation and distorts finished garment's appearance. **Cord not Attached to Tape:** Due to skipped stitches during operation of sewing cord to tape. Not readily apparent but under strain, cord and teeth will rip away from tape and render zipper and garment unusable. Length: Improper zipper length for given opening.	

Top or Bottom Stop Defects	**Missing Top or Bottom Stop:** Readily apparent and will result in zipper failure. If facilities for attaching a top or bottom stop are not available, then the entire zipper should be replaced. In some instances, bottom stops are attached at garment plant. An improperly or poorly attached bottom stop may be result of carelessness on part of the operator or of improper functioning of the bottom stop machine.	
Snap Fasteners		
Hard Action	In light-weight goods this may result in stud or socket pulling through the material. The snap fastener manufacturer can be of help in recommending proper tension of stud in socket for weight of garment material.	
Light Action	Snap fastener does not stay closed because of lack of proper tensions. Same comment applies as for tight closure.	
Hooks & Eyes	**Improperly Applied:** This is usually caused by a careless operator or improperly adjusted attaching equipment, and corrections are usually simple when apparent. **Improper Alignment:** Gauges are available for attaching equipment to assure proper alignment in positioning. This is a necessary if garment is to have a properly tailored look. If the top of the zipper is extended into the waistband of the trouser, than the hook and eye should be offset to prevent it from hitting the zipper material. **Poor Finish:** May be the result of improper finishing or pocking of the metal surface and, while this defect dose not interferes with the functional operation, it may not leave the desired finished appearance of the garment.	

Fig 3.2.22: Knit fabric defects

	Tight/Loose Closure: Attaching equipment ill fitted with an adjustable feature permitting secure application of hook and eye to either light or heavyweight goods. If closures seem too tight, then one should immediately check the attach.ing equipment for proper adjustment.	
Buttons	
Rough or **Dull Surfaces**	This is not a serious fault except in cases of extreme roughness or poor surface appearance.	
Non- Uniform. Inaccurately Spaced Chipped or Blocked Sew Hole:	This type of defects cannot be noted during the garment manufacturing operation and can slip inspection unnoticed but it frequently causes needle breakage or cut thread.	

Stitch and Seam Defects

Type of Defects	Description	Photograph
Broken stitches	Caused due to: • Too thick/ too thin a thread for the needle • Needle heat • Operator working non-rhythmically • Too tight tension	
Skipped stitches	Caused due to: • Hook irregularly failing to pick up the loop of thread from a needle's eye	

Seam Grinning	Caused due to: • The Seam itself may open and produce a Gap between two pieces of fabric • Arising from too loose a tension or too large stitch length or use of a wrong stitch type.	
Unbalanced stitch	Caused due to: • Arising from unbalanced tension of needle thread and bobbin/looper thread.	
Improperly formed Stitches	Caused due to: • Bad thread tension • Ill fitting machine components	
Irregular or incorrect shape of sewing line	Caused due to: • Badly set guide, • Handling error	

Fig 3.2.23: Woven fabric defects

Twisted seams	Caused due to: • Improper alignment of fabric parts, • Mismatched notches, components off grain	
Mismatched stripes or checks	Caused due to: • Mishandling by operator • Incorrect cutting	
Insecure back stitching	Caused due to: • Rows do not cover the first row of stitching-Manual error	

Uneven width of inlay	Caused due to: • Bad handling by operator • Incorrectly set guide, incorrectly set folder	
Linings too full, too tight.	Caused due to: • Operator twisted or stretched extensively during Sewing	
Uneven Stitch Density	Caused due to: • Operator causing the machine to snatch and does not allow the machine to control fabric feeding.	
Wrong Stitch density	Caused due to: • Too high SPI give rise to jamming and rupture of fabric • Too low SPI give rise to weak seams and seam grinning	
Mismatched seams	Caused due to: • Edges of the upper and lower fabric parts not matched during sewing, causing the seams to shift	

Loose Stitch	Caused due to: • Unbalanced seam sewing thread tension not set properly	
Extraneous part caught in the seam	Caused due to: • Handling error	
Garment parts Cockling, Pleated, Twisted, Showing Bubbles	Caused due to: • Handling error • Usage of wrong interlining/fusing under improper conditions	
Components of features wrongly positioned or misaligned	Caused due to: • Incorrect marking • Incorrect sewing not following the marker	

Fig 3.2.24: Accesories defects

Seam Slippage	Caused due to: • Insufficient thread tension • Low count, unbalanced weave and filament yarns.	
Thread Breakage	Caused due to: • Improper m/c settings • Incorrect threading • Excessive needle heat • Incompatible needle, thread and fabric, damaged machine parts	
Yarn Severance	Caused due to: • Incorrect needle point • Damaged needle • High machine speed	
Puckering	Caused due to: • Tension pucker • Feed pucker • Puckering due to differential shrinkage • Puckering due to structural jamming	

Ragged Edges	Caused due to: • Knives on automatic sewing machine not dipping smoothly.	
Uncut thread	Caused due to: • Operators' negligence • Malfunctioning thread trimmer in automatic machines	
Oil stains	Caused due to: • Malfunctioning machines	

Fig 3.2.25: Seam and Stitch defects

Processes to Rectify Few Defects

Defects	Rectification
Restitched Seams / Broken Stitches	• Using better quality sewing threads • Ensure proper machine maintenance
Open Seam – Seam Failure – Stitch	• Better quality threads • Proper size thread for application • Proper tension
Seam Slippage	• Change seam type if possible • Increase seam width • Optimize the stitches per inch.
Excessive seam Puckering	• Correct thread type and size. • Sew with minimum sewing tension to get a balanced stitch • Machine needle, bobbin and threads are set properly according to the fabric to be sewn.

Knits & Strech woven puckering	• Set the machine properly according to the fabric
	• Minimum pressure foot pressure
Improper Stitch balance	• Use quality thread
	• Properly balance the stitch so that the needle and bobbin threads meet the middle of the seam. Always start by checking bobbin tension to make sure it is set correctly, so that minimum thread tension is required to get a balanced stitch.
Raggeded/Inconsistent Edge	• Make sure the sewing machine knife are sharpened and changed often
	• The knives should be adjusted properly in relationship to the "stitch tongue" on the needle plate to obtain the proper seam width.

Fig 3.2.26: Processes to Rectify Defects

Industry Visit

The purpose of visiting an apparel manufacturing unit is to get hands on knowledge about various processes involved in the work of an SMO. During the visit you have to interact with Sewing Machine Operators and supervisors to understand how work is done in industry. Make sure that you keep a notebook handy and note down any important points that come up during your interaction at the apparel manufacturing unit. When you go to an apparel manufacturing unit, you should:

• Know about the production system.

• Inspect stitched products against specifications.

• Analyze how SMOs:

 » Inspect stitched products against specifications

 » Carryout alterations

 » Sew and apply trims by hand and machine

• Also Understand the inspection and possible defects.

• Ask questions to SMOs/supervisors if you have any query.

Exercise ✏️

1. _____ Stitches are usually caused due to needle defects

    a) Staggered

    b) Skipped

    c) Both a and b

    d) None of the above

2. Seam slippage is a fabric related issue which occurs in fabrics which are with low noumber of warp and weft yarns.

    a) True

    b) False

3. What are the common cutting defects?

    ....

    ....

    ....

    ....

4. What are the terms of inspection?

    ....

    ....

    ....

    ....

UNIT 3.3: Stitching a T-Shirt

Unit Objectives

At the end of this unit, you will be able to:

1. Prepare to stitch a T-shirt for men

2. Stitch a T-shirt

3.3.1 Preparations

• Keep in mind that the Strathcona Henley has 5/8" seam allowances on all seams. Some t-shirt patterns may have smaller seam allowances than this – make sure to check your pattern!

• Insert a ballpoint needle into your machine and test your stitch style (check out this post if you are wondering how to choose a stitch style)

• Reduce the pressure on your presser foot if your sewing machine provides this option – if you are unsure whether it does, make sure to take the time to check your manual. Reducing the pressure will make handling your knit fabric much easier since it will not become stretched out as you sew.

• Whenever you start sewing a seam, start with the needle in the "down position" so that it is lowered into the fabric. This will reduce the risk of the first needle motion punching the fabric into the needle plate of the sewing machine.

3.3.2 Sew the Shoulders

STEP 1: If you decide to stabilize, you can use rayon seam binding (as seen above), clear swimsuit elastic, a thin woven fabric strip, or even the selvedge of your knit fabric (you will notice that the selvedge isn't as stretchy as the rest of your fabric). The goal here is to choose something that doesn't stretch much and isn't very bulky.

STEP 2: Place the t-shirt front and back with right sides together. Place the stabilizer along the wrong side of the back of the t-shirt. You will notice that the back shoulder is wider than the front shoulder – it is drafted this way to accommodate for men's muscular and rounded shoulders! Stretch the shirt front to match the shirt back at the shoulder seam as you sew.

STEP 3: If you are using a very a stabilizer that does not allow any stretch at all, you might as well use a straight stitch for this seam. The shoulder seams do not need to stretch and they are quite visible so a tidy straight stitch can produce an attractive seam. If you choose to use an elastic or knit selvedge as a stabilizer you will still want to use a stretch stitch since all of your materials contain stretch!

STEP 4: Press the seam allowances towards the back to cover your stabilizer (it is also possible to press your seam allowances open if you would like to reduce bulk).

STEP 5: If you would like, you can finish your seam allowances using another row of zig zag stitching. This will stop any potential fraying (which may or may not occur depending on the style of knit you choose).

STEP 6: Trim the 5/8" seam allowance to reduce bulk.

3.3.3 Sew the Neckline

STEP 1: Now that the shoulder seams are sewn, you will have a neck hole that is ready to finish with binding!

STEP 2: With right sides together, join the narrow edges of the neckline binding. Sew this using a straight stitch (this short seam doesn't need to stretch either).

STEP 3: Trim the seam allowance and press the seam allowances open.

STEP 4: Finish preparing the binding by folding it in half lengthwise so that the raw edges meet. Press along the folded edge.

STEP 5: Arrange the t-shirt body with right sides facing you. Place the binding circle on top of t-shirt, alight all of the raw edges. I like to match the binding seam to one of the shoulder seams but you could also align this seam with center back if you prefer.

STEP 6: If you are using the Strathcona Henley pattern, ignore all the notches on the neckline binding (they are intended for the Henley variation of the pattern). Pin the binding to the neckline so that it is stretched evenly around the neckline – it might take some fiddling to get this evenly stretched. I tend to use 8 pins spaced evenly.

STEP 7: Stitch the binding to the neckline using a zig zag (or other stretch stitch). I used to place the t-shirt with the binding facing up on the sewing machine but recently switched my technique. I now place the t-shirt facing up and stretch the t-shirt with my fingers as I sew. Try out both ways and see what works best for you! I find that my new method reduces the risk of creating little tucks in the t-shirt neckline (they are super annoying to stitch rip!!!).

STEP 8: Press the finished neckline.

STEP 9: If you would like, you can finish the neckline by adding a line of stitching around the shirt 1/8" from the neckline seam to lock the seam allowance in place. I used a zig zag stitch here but you can up your game for really professional results by using a twin needle (or you can skip this step altogether if your fabric presses well and you don't think your seam allowance will tend to flip upwards – I often avoid stitching when I am sewing with crisp and thin cotton jerseys but find it is necessary when sewing with thicker cotton interlocks).

STEP 10: Trim the neckline seam allowance.

3.3.4 Sew the Sleeves

STEP 1: Place the t-shirt and sleeve with right sides together.

STEP 2: Line up the shoulder seam with the middle sleeve notch.

STEP 3: Place a pin where each notch meets.

STEP 4: Sew the sleeve seam using a zig zag stitch (or other stretch stitch). You will need to adjust often (with the needle down so that the fabric doesn't slip out of the way) to avoid creating any tucks and wrinkles.

STEP 5: Finish the sleeve seam allowance with a second row of zig zag stitching and trim.

STEP 6: Press the sleeve seam. Press the seam allowance towards the sleeves – this is the classic direction to place sleeve seams (as seen on tailored garments). Try both ways to see which way fits best on the recipient's shoulders! Press the sleeve seam on a tailor's ham or on the narrow curve of the end of an ironing board so as to keep the rounded shape of the seam.

3.3.5 Sew the Side Seams

STEP 1: Pin the sleeve and side seams – make sure that the underarm seam meets. Stitch using a zig zag stitch or other stretch stitch.

STEP 2: Finish the seam allowance with another row of zig zag stitching and trim the seam allowance.

STEP 3: Press the seam allowances towards the back – your shirt is almost finished!

3.3.6 Sew the Hems

STEP 1: You can finish the hem as you normally would – by pressing the raw edge up and then pressing upwards again – but you might find that this creates too much bulk for your knit t-shirt to sit nice and casually (it could look fairly stiff with a thick hem). Alternatively, you could finish the edge by pressing up once at the hem notch.

STEP 2: Once pressed and pinned in place, stitch the single layer hem in place using a twin needle, or, as photographed, with a simple zig zag stitch. Try your very best to keep the knit relaxed – refrain from stretching in any way!

STEP 3: Repeat this hemming step for the sleeve hems.

A nice basic, classically shaped crew-neck menswear t-shirt is ready to wear!

Exercise

1. Whenever you start sewing a seam, start with the needle in the "down position" so that it is lowered into the fabric.

   a) True

   b) False

2. What are the steps of sewing the sleeves?

   ....

3. What are the steps of sewing the side seams?

   ....

4. Maintain Work-Area, Tools and Machines

Unit 4.1 - Maintain Work Area, Tools and Machines

AMH/N0102

Key Learning Outcomes 💡

At the end of this unit, you will be able to:

1. Practice the machine safety and maintain machines properly.

2. Carry out basic maintenance of machine.

3. Maintain tools and equipments and handle them safely.

4. Use materials to minimize waste.

5. Carryout running maintenance within agreed schedules.

6. Carry out maintenance and/or cleaning within one's responsibility.

7. Work in a comfortable position with the correct posture.

8. Use cleaning equipment and methods appropriate for the work to be carried out.

9. Dispose of waste safely in the designated location.

10. Store cleaning equipment safely after use.

11. Carryout cleaning according to schedules and limits of responsibility.

UNIT 4.1: Maintain Work Area, Tools and Machines

Unit Objectives ⊚

At the end of this unit, you will be able to:

1. Practice the machine safety and maintain machines properly.

2. Carry out basic maintenance of machine.

3. Maintain tools and equipments and handle them safely.

4. Use materials to minimize waste.

5. Carryout running maintenance within agreed schedules.

6. Carry out maintenance and/or cleaning within one's responsibility.

7. Work in a comfortable position with the correct posture.

8. Use cleaning equipment and methods appropriate for the work to be carried out.

9. Dispose of waste safely in the designated location.

10. Store cleaning equipment safely after use.

11. Carryout cleaning according to schedules and limits of responsibility.

Fig 4.1.1: A well maintained machine shop

4.1.1 Introduction

Machines are essential to modern production. However, along with increased productivity, they have brought hazards into the workplace. Proper control of machine hazards has traditionally been seen as costly and a constraint on productivity. In general, the garment manufacturing industry is considered to be less dangerous than other industrial sectors and, therefore, safety policy is a low priority in many enterprises. For example, it has been observed that some workers remove guards protecting belts from sewing machines, and manual cutting machines are operated with naked hands.

Machine breakdown is a common cause of production delay affecting delivery schedules. Considering the importance of meeting delivery dates, a competitive enterprise cannot afford penalties for delay due to machine breakdown Thus, proper maintenance of machines to prolong their economic life, reduce breakdowns, prevent defective outputs and ensure safe operation should be given more importance. Protecting workers against pollution from the frequent use of solvents for cleaning and the existence of cotton or other fibers in the environment should also be taken into consideration. Maintenance and safety measures to eliminate these hazards and increase machine productivity, together with low-cost techniques for environmental control, are discussed below.

4.1.2 Maintain Machines Properly

A poorly maintained machine can be inefficient, if not dangerous. It will also have frequent breakdowns and quality problems. Proper maintenance is not lost production time; it is an investment for higher productivity and lower repair costs. Yet in many companies, machines are maintained only when they break down. This is due to a number of reasons:

- Machines are owned by the contractors or they are leased.
- No maintenance personnel are available.
- No time to maintain machines is allocated under production time.
- There is a strong belief that maintenance means cost.
- Some machines are not easy to maintain.

Machine down-time affects production and causes delays. Defects are also produced causing quality and productivity problems. Machine maintenance should, therefore, be planned and coordinated with supervisors and workers. Workers should be involved in machine maintenance and should be supplied with a basic tool kit to include tweezers, small screwdriver, machine brush, oil can and cloth wipes. One of the basic training skills is to train workers to do routine machine maintenance such as:

- Removing lints
- Cleaning the tension assembly
- Cleaning the feed dog assembly
- Cleaning the bobbin area
- Lubricating the machine

4.1.2.1 Removing Lint

Lint: With proper care, a sewing machine can last for many, many years. Fabric and thread are a combination that is going to produce lint. Lint can build up in unseen areas of machine leading to wear and tear. To keep the sewing machine running smoothly, good quality thread should be used and simple maintenance should be performed regularly. One of the most important things is to clean out the pieces of lint leftover from bits of thread and fuzzy fabric. Sewing with thick, furry fabrics (such as polar fleece), will need cleaning of the sewing machine frequently. One should open all areas that can be cleaned and clean the lint out of the machine. Usage of brush should be done to remove lint in cracks and crevices and from under the bobbin case.

Requirements: Sewing machine

- Lint brush
- Small soft brush
- Clean lint free cloth
- Compressed air (optional but helpful)
- Light source
- Screw drivers

4.1.2.2 Cleaning the Bobbin Area

- **Step 1:** Turn off and unplug the sewing machine.
- **Step 2:** Remove the bobbin cover and the bobbin.
- **Step 3:** Using a small lint brush (many machines come with one), carefully remove any lint from the bobbin area. Be especially sure to remove any lint from crevices and tight places, since compacted lint can actually stop the machine from running.
- **Step 4:** Using the lint brush or canned air, remove the lint from the area around the needle, the presser foot and the thread guides.
- **Step 5:** Remove any lint from the inside of the doors and lids of the sewing machine.
- **Step 6:** Replace the bobbin and the bobbin cover.
- **Step 7:** Plug the sewing machine back in and turn it on.

Note: *Make sure to check that after cleaning all the machine parts are properly placed and tightened. It should be safe for using it the next time.*

Fig 4.1.2: Cleaning the bobbin and case

4.1.2.3 Cleaning the Tension Assembly

Maintaining the machine is important to keep it in good condition and to avoid unnecessary service costs. Keeping the tension assembly clean is one of the maintenance procedures that, if performed on a regular basis, can help ensure that your stitching is accurate and precise. The following steps assist the cleaning of the sewing machine tension assembly.

- **Step 1:** Clean your machine often. Each stitch is precise and even a bit of lint collected on the tension assembly can cause problems. Make it a habit to clean your sewing machine after any large project.

- **Step 2:** Raise the pressure foot to release the tension on the disks. Gently run the folded edge of a clean piece of lint free cloth through the tension disks. Compressed air will also dislodge any bits of thread or lint.

- **Step 3:** Remove all lint along the thread guides using a small brush or clean cloth.

- **Step 4:** Check the bobbin area of the machine. The bobbin controls the lower tension and can be a source of built up lint. Depending on the type of machine you have, the bobbin consists of the bobbin, case and on some models a removable hook race. Remove these according to your instruction manual and clean with a cloth or small brush.

- **Step 5:** Do a final check to make sure the tension is correct and that the bobbin assembly is in place properly before you begin your next project.

4.1.2.4 Cleaning the Feed Dog Assembly

The feed dogs on a sewing machine help move the fabric underneath the needle. If they are not working properly, damage to the machine or fabric can occur. Feed dog assembly maintenance is critical to good sewing. Use the steps below to guide you through the procedure.

- **Step 1:** Unplug the machine and examine the feed dogs. The newer machines have metal feed dogs, but older models may have rubber ones, which often need replacing. Examine the feed dogs and check for damage.

- **Step 2:** Remove the throat plate, which is the covering over the feed dogs, and clean it with a soft cloth. Use a small soft brush to clean the feed dogs. Make sure to remove all lint and thread from the grooves of the teeth. Some machines have an adjustment that lowers the feed dogs for specific sewing procedures. They should be in the raised position for better viewing during the cleaning process.

- **Step 3:** Clean the area around the feed dogs with a soft brush. Compressed air is a good choice to use in the small tight areas.

- **Step 4:** Wipe down all areas with a clean, lint free cloth before replacing the throat plate.

- **Step 5:** Prepare to clean the feed dogs and all other areas that lint may accumulate on, after every project. Your sewing machine will last longer and need fewer repairs if kept clean and lint free.

4.1.3 Steps in lubricating machine

In order to ensure that your sewing machine enjoys the long life it was built for, it's important to upkeep it regularly using proper maintenance techniques. One of the easiest things you can do to keep your sewing machine running smoothly is to lubricate it using sewing machine oil. Sewing machine oil is not something you borrow from the garage. It is clear white oil. Be sure to use the proper oil. Refer to your owner's manual for the proper spots to oil. Some of the older machines have these areas marked.

After oiling your machine run stitches on some scrap fabric before you tackle your project. This allows oil to escape on to the scraps, if it's going to, instead of the project you are working on. Oiling the machine not only lubricates your moving parts, to prevent wear, it reduces the risk of rust. Rust forms rapidly with any dampness, even just the humidity in the air. Surface rust can act just like loose sand granule in your machine, and create excess wear.

- **Step 1:** Purchase a high-quality brand of sewing machine oil from a sewing store or other specialty retailer. Higher quality generally comes with a higher price tag, but the price of good sewing machine oil is favorable to the costs involved with repairing or replacing an entire sewing machine.

- **Step 2:** Unplug your sewing machine. Make sure its power switch is set to 'off.' Because you will be dealing with fluid, it is especially important to make absolutely certain any power supply is disconnected.

- **Step 3:** Drop a single drip of sewing machine oil onto the mechanism that drives the sewing needle. If you purchased quality sewing machine oil, more than one drop will generally not be necessary.

- **Step 4:** Repeat Step 3, applying a single drop of oil to every part of your sewing machine that moves. Consult your sewing machine owner's manual if you need instruction on how to access any moving parts that may be contained beneath the casing of the machine.

- **Step 5:** Allow the oil to absorb by letting your sewing machine stand for a few minutes. Most experts suggest that 15 to 30 minutes is a good window of time to let your machine stand while the sewing machine oil works its magic.

- **Step 6:** Plug your sewing machine back in. When you have safely done so, turn the power switch to 'on.'

- **Step 7:** Feed some scrap fabric through the sewing machine, running its moving parts at a slow but constant rate. This will allow the oil to spread evenly throughout the parts that require lubrication to maintain optimal performance.

Tips & Warnings

- Never lubricate any of your sewing machine's electrical parts. This may cause irreparable damage to your sewing machine, and could potentially result in an electric shock.

4.1.4 Machine Guards

There are different safety guards given in the sewing machine which are important to use and it is also essential to check that the correct safety guard is in place as per the requirement. Below are given the machine guards of a sewing machine.

• **Finger guard:** while guiding the fabric under the presser foot the fingers may accidently cross into the path of the needle. Hence, finger guard is attached to the presser foot to avoid such accidents. This is very important safety feature.
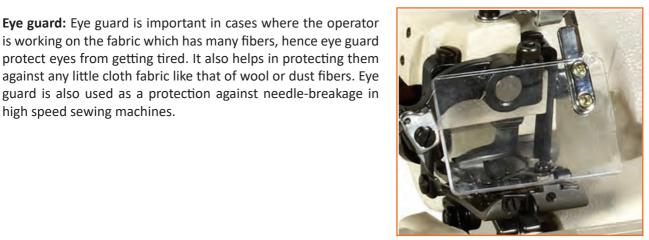

Fig 4.1.3: Finger Guard

• **Eye guard:** Eye guard is important in cases where the operator is working on the fabric which has many fibers, hence eye guard protect eyes from getting tired. It also helps in protecting them against any little cloth fabric like that of wool or dust fibers. Eye guard is also used as a protection against needle-breakage in high speed sewing machines.

Fig 4.1.4: Eye Guard

• **Belt guard:** Belt guard is a cover attached to the belt pulley assembly and the ad wheel. In industrial sewing machines the pulley and the belt move at very high speeds. Hence there is always a risk of hand or hair getting caught in the belt pulley therefore it is important to have a belt guard as it protects the operator from such accidents.

• **Motor pulley guard:** Motor pulley guard is attached to the motor under the Fig, like the belt guard, motor pulley guard protects our body Parts from getting caught in the wheel and belt attached to the motor below the Fig.

4.1.5 Troubleshoot Common Machine

In many cases machine problems are due to the worker not having received correct training in basic machine maintenance. This causes problems which have to be rectified by a qualified mechanic/technician. All garment enterprises suffer from such problems to varying degrees. Some common causes are:

• Incorrect needles

• Incorrect machine settings for the fabric

• Inexperienced workers

• Inexperienced mechanics/technicians

- Fabric finishes.

On-the-job training sessions may be organized for beginners as part of their training period. Enlist the help of senior operators with teaching skills. Group work can provide good opportunities for these training sessions. Sessions should include acquiring the basic sewing skills and troubleshooting sewing problems.

4.1.6 Carry out Basic Maintenance of Machine

It is important to carryout basic maintenance of own machine and surroundings. While operating a sewing machine we can keep a check of these two maintenances by keeping an eye on the needle point i.e.

- Must check the needle point and stitch quality while working. Be attentive and look for any kind of oil leakage is found, replace (or inform) immediately. For hazard free environment always keep the hook area clean and tidy.

- **Routine Maintenance:** This covers sub kinds of maintenance i.e.

  » **Daily maintenance of the machinery:** While carrying out the daily maintenance one must look for whether the machine and its area is clean, look for threading of the machine, quality and quantity of the oil.

  Make sure to switch off the machines after operation this is one of the most important part of daily maintenance. Keep a check on needle tip and needle bend it should not be dull or rusty at all.

  » **Weekly maintenance:** Consists of checking up the oil level and oil color in the machine. Make sure to remove the presser foot, throat plate and the feed dog too and clean them all thoroughly. Hook timing and clearance is also adjusted weekly so that the machine can work efficiently.

  » **Monthly maintenance:** While keeping an eye on monthly maintenance of the machinery it is very important check oil flow in the pipeline, refill the oil up to its maximum level for efficient and flawless performance.

4.1.7 Sewing Machine Safety Tips

Sewing machines do involve electricity, moving parts and sharp needles, so safety is a concern. Some sewing machine safety tips are as follows:

- Keep your fingers away from the needle. Experienced sewists might even be more apt to do this than beginners. About 60% of the sewing machine related injuries treated in a hospital each year are puncture wounds from needles.

- Minimize distractions, and don't operate your sewing machine when you are tired or under the influence of alcohol. Sewing is a lot easier when you're feeling rested and relaxed, and it's also safer.

Fig 4.1.5: Advanced Sewing Machine

- Turn off and unplug your sewing machine when you are away from it for more than a few minutes. Sewing machines can generate considerable heat when left on, and a lightning strike when a sewing machine is plugged in can cause irreversible damage. Consider getting a surge protector to plug your machine into, just in case.

- Be mindful of cords. Try to keep cords towards the back of the machine and not draped across the floor where you (or someone else!) is likely to trip over them. If they do need to run across the floor, consider taping them down-- or just find somewhere else to work.

- Have your machine serviced regularly. Not only will this keep your machine in top working order, potentially dangerous repairs are more likely to be noticed before they cause a problem.

- Always unplug the machine and use caution when replacing parts such as lightbulbs.

- Don't sew over straight pins. At the very least this will bend the straight pins and compromise your stitch quality, but the straight pins are also susceptible to breaking, and very likely could end up in your finger (or worse).

- Don't force your machine to sew through thick or tough material. You could damage your machine or cause injury to yourself. Your project might require an industrial strength sewing machine.

- Consider the ergonomics of your sewing Fig and chair. If your sewing machine is too high it will cause strain on your back. Your feet should be flat on the floor and your elbows bent at a 90 degree angle while you are sewing.

- Wear shoes while operating your machine. This one might seem a bit silly, but your foot pedal could break, and if you are wearing shoes, your feet will be protected. Stepping on stray needles, or dropping needles, scissors or a rotary cutter on your foot while sewing is also a possibility while sewing.

- Use care when disposing of used sewing machine needles. Prescription bottles or a mint tin are perfect for this. Just be sure you mark it clearly so you don't mistake it for your good needles.

- Your sewing area should be well lit. This will reduce strain on your eyes and help you avoid leaning in unnecessarily close to your machine.

Industry Visit

The purpose of visiting an apparel manufacturing unit is to get hands on knowledge about various processes involved in the work of an SMO. During the visit you have to interact with Sewing Machine Operators and supervisors to understand how work is done in industry. Make sure that you keep a notebook handy and note down any important points that come up during your interaction at the apparel manufacturing unit. When you go to an apparel manufacturing unit, you should:

- Know about the production system.

- Understand the machine safety and maintenance rules of industry.

- Analyze how SMOs:

    » Maintain machines properly.

    » Carry out basic maintenance of machine.

    » Maintain tools and equipments and handle them safely and use materials to minimize waste.

    » Work in a comfortable position with the correct posture.

    » Dispose of waste safely in the designated location.

    » Store cleaning equipment safely after use.

- Ask questions to SMOs/supervisors if you have any query.

5. Maintain Health, Safety and Security in the Production Line

Unit 5.1 - Maintain health, safety and security in the production line

APPAREL MADE-UPS HOME FURNISHING SECTOR SKILL COUNCIL

AMH/N0307

Key Learning Outcomes

At the end of this unit, you will be able to:

1. Comply with health and safety related instructions applicable to the workplace.

2. Use and maintain personal protective equipment as per protocol.

3. Maintain a healthy lifestyle and guard against dependency on intoxicants.

4. Follow environment management system related procedures.

5. Identify and correct if possible) malfunctions in machinery and equipment.

6. Report any service malfunctions that can not be rectified.

7. Store materials and equipment in line with manufacturer's and organizational requirements.

8. Safely handle and move waste and debris.

9. Minimize health and safety risks to self and others due to own actions.

10. Seek clarifications, from supervisors or other authorized personnel in case of perceived risks.

11. Monitor the workplace and work processes for potential risks and threats.

12. Carryout periodic walk-through to keep work area free from hazards and obstructions, if assigned.

13. Report hazards and potential risks/threats to supervisors or otherauthorized personnel.

14. Participate in mock drills/ evacuation procedures organized at the workplace.

15. Undertake first aid, fire-fighting and emergency response training, if asked to do so.

16. Take action based on instructions in the event of fire.

17. Follow organization procedures.

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Fig 5.1.1: Maintaining Health, Safety and Security at Workplace

5.1.1 Introduction

Features in garment industry that could be improved to prevent injuries include; communication, involvement of employees in decision making, education and training of employees and management on prevention strategies, and the ergonomic conditions at the plant.

The clothing industry is usually considered as a safe place to work. Compared to other industries, there are fewer serious risks in clothing factories. The hazards in clothing industry are different from others. The major health risks in this industry come from more subtle hazards whose effect build up over time.
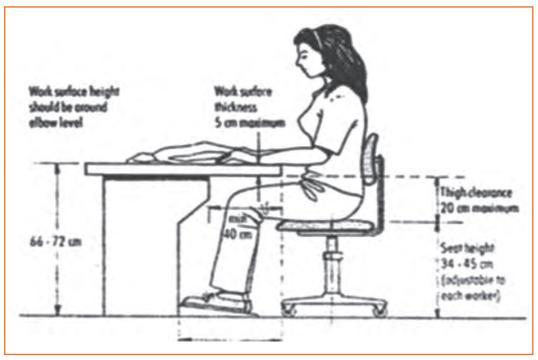
Fig 5.1.2: Body Posture

Hand Embroiderer face a substantially higher risk of muscle pain and injury than workers in other jobs. Studies also show that frequency of neck and shoulder injuries increases with years of employment. Hand Embroiderer experience a number of cases of strain injuries. These injuries have a long-term effect on workers' health.

The physical requirements of a job are an important risk factor related to muscle pain and injury. The risks for Hand Embroiderer have been linked to conditions such as improper work area design, including sitting arrangements.

Factors like repeated motions, force, body-posture are associated with higher risks and rate of injury. There are other factors

Fig 5.1.3: Body Posture

are linked to injuries. Some of these factors include improper height of work pace, excessive workload, lack of support from co-worker, overall work environment etc. The factors that lead to reduction in injury rates include empowering workforce, following safety protocol, good housekeeping practices and increased support from top management.

5.1.2 The 'Ergonomics'

Ergonomics is something that affects everyone. Still, very few have a good understanding of what it means or how it affects us. Ergonomics can be considered as a science that focuses on designing a job and work area for the worker. Ergonomically-designed job ensures that a taller worker has enough space to safely perform his or her job, and a shorter worker can reach all of his or her tools and products without affecting comfort and safe range. Unfortunately what typically happens in the workplace, is that a worker is forced to work within the confines of the job or workstation that already exists. This may require employees to work in awkward postures, perform the same motion over and over again or lift heavy loads – all of which may result in work-related injuries/disorders.

These injuries often start as minor aches and pains but can develop into disabling injuries that affect our activities of daily living such as laundry, hobbies (playing field games, trucking, etc.) and even the ability to pick up our children. Ergonomics aims at preventing injuries by controlling the risk factors such as force, repetition, posture

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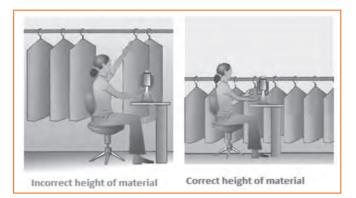
Fig 5.1.4: Situating the material

and vibration that can cause injuries to develop.
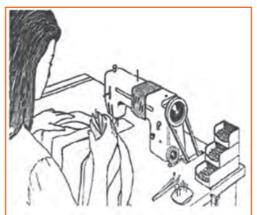
Injuries and illnesses among textile and apparel workers

- 70% of Hand Embroiderer report back pain.
- 35% report persistent lower back pain.
- 25% have suffered a compensable cumulative trauma disorder (CTD).
- 81% reported CTDs to the wrist.
- 14% reported CTDs to the elbow.
- 5% reported CTDs to the shoulder.
- 49% of workers experience neck pains.
- Absenteeism increases as working conditions worsens.
- Loss of worker force due to injuries or high turnover is associated with working conditions.

- Hand / and trimming are stressful to upper limbs.

- Embroidery tasks are associated with pain in the shoulders, wrists, and hands.

- Ironing by hand is associated with elbow pain.

- Fitting fabric in frames/adda tasks are associated with CTDs of the hands and wrists.

Some fundamental ergonomic principals that should be followed in our workplaces are:

- **Proper tools:** Tools should be appropriate for the specific tasks being performed. Your tools should allow you to keep your hands and wrists straight – the position they would be in if they were hanging relaxed at your side. The workers should bend the tool – not the wrist.

Fig 5.1.5: Cleaning the Tools

  The tool should fit comfortably into your hand. If the grip size is too large or too small, it will be uncomfortable and will increase the risk of injury. Tools should not have sharp edges, create contact stresses in your hand, or vibrate.

- **Keep repetitive motions to a minimum:** Workstations or tasks can often be redesigned to reduce the number of repetitive motions that must be performed. Using a power-driven screwdriver or tools with a ratchet device can reduce the number of twisting motions with the arm. For prevention of ergonomic injuries, workers should be encouraged to change work and take frequent but short breaks. Work stations should have enough space for the given tasks and provide proper seating. Manufacturing tools and machinery should incorporate ergonomic design principles and should not require an excessive amount of force to operate. Some tasks can be automated or redesigned to eliminate repetitive movements and musculoskeletal injuries.

- Avoid **awkward postures:** Your job should not require you to work with your hands above shoulder height on a regular basis. Arms should be kept low and close to your body. Bending and twisting of your wrists, back and neck should also be avoided.

- **Use safe lifting procedures:** Avoid lifting objects that are too heavy. Use more than one person or a mechanical device to reduce the load. Your workstation should not require you to lift objects above your head or twist your back while lifting. Keep the load close to your body and ensure that you have a good grip. Heavy and frequently lifted objects should be stored between knee and shoulder height – not on the ground or above your head.

- **Get proper rest:** The workers need to rest their body and mind in order to prevent injuries. Give your muscles a rest during your coffee breaks, lunches and weekends by doing something different from what you do in your job.

  For example, if you stand all day, while performing your job you should sit down to rest your legs and feet during your breaks. If you sit down, when working you should stand up and walk around during your breaks to give your back a rest and to increase circulation in your legs. By doing this the musculoskeletal injuries can be prevented.

- **Other things to consider:** Chemicals also have a part in garment manufacturing. Dyes, enzymes, solvents and other chemicals are used to create different fabric finishes and provide durability to the product. Proper ventilation and personal protective equipment are important for protection of workers engaged in chemical processing. Similarly, for workers who handle the finished material and may be exposed to excess chemicals and off-gassing, protective equipment should be used.
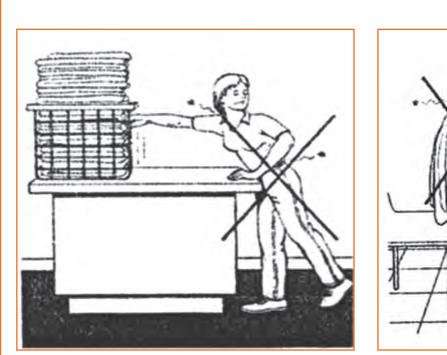
Fig 5.1.6(a): Don'ts

Fig 5.1.6(b): Don'ts
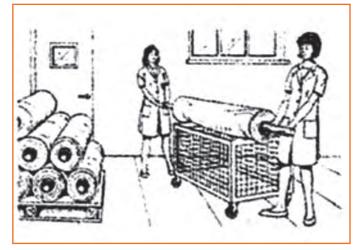
Fig 5.1.7(a): Do's
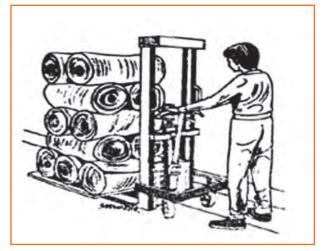
Fig 5.1.7(b): Do's

5.1.3 Environmental Control Measures

Hazardous substances in one form or another can be found in almost all small and medium-sized enterprises. The garments industry generates a lot of dust from fabrics being cut and sewn. Some fabrics release chemicals which saturate the air causing difficulties in breathing and eye irritation. Solvents used for cleaning fabrics and garments may cause fatigue, headache and dizziness. Dust and solvents, when breathed, can lead to lung diseases and

are very dangerous. Not only will this affect the well-being of your workers, it will also result in a reduction of productivity and product quality, increased absenteeism and turnover of staff. High levels of dust interfere with efficient production and require cleaning operations that may spoil materials and finished products. Improved conditions usually mean increased output, higher productivity and quality. There are simple and inexpensive ways to control most of the environmental problems. Improvements often result in cost savings, productivity benefits and increased safety of workers. The following rules provide a series of low-cost measures for sound environmental control.

5.1.3.1 Clean Regularly and Properly - Don't Spread Dust

Dust originates from fabrics and threads, from cutting and sewing to packing operations. Thus, it is very common to see small clothing enterprises with ceilings and walls full of dusty cobwebs. Even machines which are not regularly cleaned could be full of dust which may cause them to break down.

Dust increases wear and tear on machinery, necessitating more maintenance. It also negatively affects the quality of raw materials and finished products. Dust entering the respiratory system can damage the worker's lungs. Some dust can also cause allergies. Dust should be removed regularly and eliminated from the source. More comprehensive cleaning should be carried out as often as necessary. This cleaning should also include walls, ceilings, storage racks and other areas where dust accumulates. Dust on windows, walls and lamps will significantly reduce the lighting in the workplace.

Fig 5.1.8: Cleaning the Shop Floor

One low-cost cleaning method is sweeping the floor carefully with an appropriate broom and accompanying dust pan to prevent dust from spreading. Spraying water on the floor before sweeping will avoid dust remaining airborne. When dust is moistened it can be easily removed with a broom More effective methods of controlling dust include using a vacuum cleaner or a wet mop.

5.1.4 Make Local Ventilation Cost-effective

Local ventilation should only be considered as a means of reducing chemical hazards when other means have failed. There are cost-effective ways of improving ventilation.

Use proper fans

Apart from those used for ventilating workstations, fans may be utilized to remove dangerous substances from the workplace. Contaminated air can be pushed or blown outside by having more open windows. A few points should be considered:

- There should be no obstacles between the fan and opening. Anything in the way significantly reduces the desired effect.

- The air speed should be low to reduce turbulence. In the garment industry, different fans are used; some use industrial fans or wall fans as shown in Fig. There are advantages and disadvantages for these types of fans. Industrial fans are so powerful that workers near them may be affected. Ceiling fans of the rotary type may lift the cloth being sewn, hence speed should be controlled.

- Contaminated air should not be blown in the direction of other workers on the way to the opening.

Fig 5.1.9: Usingh Fans

- Care should be taken that air expelled from the workplace does not affect people outside the enterprise.

- A fan may not be sufficient to remove vapours from hazardous fumes such as those sometimes used in silkscreen printing. Extractor systems to remove dust and hazardous chemicals should be installed. These systems may be quite expensive and it may be more economical to replace the hazardous chemicals.

5.1.5 Good Lighting for Quality Products

We receive 80 per cent of all information through our eyes. Although the human eye is very adapFig and can allow work with an absolute minimum of light, bad lighting leads to mistakes, poor quality and low productivity as well as eye strain, fatigue and headaches for the worker. Numerous studies confirm that better lighting pays off through higher efficiency. Improvements in lighting conditions in a number of industries have very often resulted in 10 per cent productivity growth and a reduction in errors by 30 percent.

Better lighting does not mean more light bulbs and greater use of electricity. Natural lighting is often better than artificial lighting. The way artificial lighting is arranged and maintained is equally important. For example, a change in the visual background can enable a worker to perform a task efficiently, which otherwise would require tripling the lighting level.

You will learn from this topic how to attain better lighting without increasing the electricity bill; you may even pay less and your business, as well as the workers, will definitely benefit from these improvements.

First of all, you must decide whether the existing lighting facilities need improvement. Lighting requirements are dependent on three main factors:

• The nature of the task

• The sharpness of the worker's eyesight

• The environment of the working area

For example, a sewer needs concentrated light at needle point, so needle lights should always be fitted. A worker packing garments requires more overall lighting; in many cases packers work on special tiered work tops, where lights are built into the station. Age is also important: an older worker may need twice as much light as a younger one.

These factors make it difficult to calculate the required level of lighting using instruments and Figs. However, you can learn much from going around the workplace, observing the workers and asking them about their visual problems. If you see workers adopting an awkward posture, with their eyes very close to their work, it is very likely that there is a visual problem. It is important to identify the cause. For example, if there is a naked light in the worker's field of view, it definitely reduces his or her work efficiency. Dark ceilings, walls and floors reflect less light than paler ones.

Your program of improvements may not have much impact if the workers' eyesight is insufficient. One study conducted in a factory discovered that 37 per cent of workers wearing glasses needed a new prescription and 69 per cent of those without glasses needed them. The same may be true for your enterprise. Therefore, an eyesight test for all workers should be carried out. Even if some workers do not follow advice about acquiring glasses, you will be aware of the problem and a possible reason for low efficiency.

With these ideas in mind, guidelines are provided below which will help you improve lighting in your factory.

5.1.5.1 Make Full use of Daylight

Natural light is the best and cheapest source of illumination, but very often small enterprises do not make full use of it. Measure the surface area of your shop-floor and of the windows and skylights. If you do not have at least one-third as much window surface as floor surface, your workers are probably not benefiting fully from natural light. Be careful, however: windows and skylights provide heat as well as light in hot weather (and cause heat loss in cold weather), and daylight varies depending on the season.

Fig 5.1.10: Sunlight int he Shop Floor

When thinking about fitting new windows and installing skylights, remember that the higher the window, the more light it gives. Skylights can give double the light of a low window, and low windows tend to get blocked by machines or storage containers. If your factory doesn't have skylights, consider replacing one or more opaque roof panels with translucent plastic.

Well chosen paint colours and finishes on the ceiling, walls and equipment can help to cut lighting bills by one-quarter. At the same time, this helps to produce better visual conditions and a pleasant, cheerful working environment which encourages high standards of cleanliness and organization. Gains can be achieved from: lower losses of reflected light, better light diffusion and reduction of brightness contrast. In order to spread reflected light diffusely and evenly throughout the interior, ceilings should be as near white as possible. The matt

finish of whitewash is very good. Many enterprises are adopting white tile ceilings. To avoid harmful glare, don't use bright, shiny, gloss paint for walls. Pale colours are better than white. A slightly darker colour below eye level is helpful. Lack of regular cleaning can result in the loss of at least 10 to 20 per cent of light. Special care should be taken to clean skylights, which are sometimes difficult to reach.

The colour of equipment such as machines, workbenches and desk-tops should normally be matched with that of the walls. Nowadays normal machine colours are light beige, cream or light green and these assist in reflecting the light on dark colour fabrics, but not to the extent of reflecting light into the workers' eyes. These colours are much better than the black formerly used for the bodies or chrome finish for the Figs, which reflect more glare. An unequal distribution of natural light over the work area, particularly in embroidery rooms, poses a problem. Take this into account and change the layout of benches and machines in order to minimize shadow zones. Workstations with high lighting requirements should be moved closer to the windows and possibly be grouped together for the provision of additional lighting . However, if the workstation layout responds well to your production needs, you may instead rearrange the distribution and height of the lamps or add needle lights.

Fig 5.1.11: Sunlight in the Shop Floor

5.1.6 Reporting an Accident and an Incident

Your responsibility requires you to be aware of potential hazards and correct reporting processes. If you notice a potentially hazardous situation, eg: a client expressing violent behavior, it is important that you report it immediately to management and fill out the appropriate forms as legally required of you.

If you are injured at work you must:

• Report the injury to management as soon as possible, and certainly within 24hours.

• Seek proper treatment for your injury.

5.1.6.1 Accidents

Always work in a safe manner to prevent accidents from occurring in the first place. Make sure that you have been given adequate information and on-the-job training about the first aid facilities and services available in your workplace, including:

• Where to find first aid kits.

• Location of first aid rooms.

• Complete, up-to-date contact details of trained first aid officers in the workplace procedures for critical accidents – such as who should be responsible for calling.

• The ambulance/doctor/nurse and what is the best method of contact, measures for evacuation of the injured person/s.

• Emergency procedure for the elimination of life-threatening chemicals commonly used in the workplace.

• Universal precautions for the control of infection.

• Who to contact for debriefing/psychological support.

Reporting of incidents and accidents is required under the Work Health and Safety (WHS) legislation. Workplaces tend to have well developed reporting procedures in place, which aim to fully understand the accident/incident and prevent any future occurrences through investment in injury prevention, based upon accurate data. Reporting and recording should also facilitate costing and associated financial loss.

Always report an accident to management immediately. There should be a form at each workplace that you (or the person involved) and any witnesses can fill out, where possible, otherwise. The form should cover the following areas:

• **Description of the occurrence:** What was the event that occurred, which required this report to be completed?

• **Nature of injury or disease:** Select the most appropriate description from a range of options. What injury or disease happened as a result of the occurrence?

• **First aid, medical treatment or hospital admission:** This section asks for a description of what was done to treat the injury or disease.

• **Part of the body affected:** Tick off which part or parts of the body were affected as a result of the occurrence.

• **Source of injury:** What actually caused the person to be injured or acquire a disease? This could be a piece of machinery or other hazardous materials for example.

• **Probable cause or causes of injury:** How was the source listed above actually responsible for the injury?

• **Investigation:** This asks a series of questions that seek to find out why the person has been injured or has acquired a disease.

• **Notification checklist:** This checklist makes sure that everyone who should have been contacted regarding the matter has been contacted and asks whether appropriate action has been taken by the authorities.

• **Preventative action:** This asks whether or not any action has been taken to prevent the occurrence from happening again.

• **Witness details:** This part is to be filled out if someone saw the occurrence happen. It is essential if any sort of legal action is to be taken.

5.1.7 Mock Drills/ Evacuations

Fire safety and evacuation plans outline staff duties and responsibilities in time of emergency. Ongoing training is required to help ensure that staff is aware of those duties and responsibilities. Fire drills serve as an opportunity for staff members to demonstrate, under simulated fire conditions, that they can perform those duties and responsibilities safely and efficiently. It's also a time for them to show that they are aware of defend-in-place strategies and can take advantage of your facility's fire safety features and egress facilities to protect the people in their care.

Fire drills are more than an exercise designed to evaluate staff response to a simulated emergency. They are also a test of your facility's fire safety/evacuation plans and staff training programs. Not all fire drills run smoothly. That's okay, so long as staff and management learn from them and correct mistakes made. It's important, therefore, that there be a critique of each drill so that any problems encountered can be addressed. Perhaps the problems are due to incomplete or outdated fire safety/ evacuation plans. Perhaps there's a need for additional staff training.

Fig 5.1.12: Fire Safety

The two essential components of a fire preparedness plan are the following:

1. An emergency action plan, which details what to do when a fire occurs.

2. A fire prevention plan, which describes what to do to prevent a fire from occurring.

5.1.8 Low-cost Work-related Welfare Facilities and Benefits

Work-related welfare facilities are often ignored. Who cares about toilets, first-aid kits, lunch rooms or lockers? What do they have to do with the hard realities of production?

One answer is that workers care. During each working day, workers need to drink water or some other beverage, eat meals and snacks, wash their hands, visit a lavatory, and rest to recover from fatigue. This can be difficult or easy, unpleasant or comfortable, a health risk or an aid to hygiene and nutrition. The essential facilities in your factory show whether you care about workers more than you care about your machines. Worker dissatisfaction can be costly.

Another good reason is that extra efforts for better facilities are often appreciated far beyond the time and money invested, Work-related facilities help workers to overcome problems which are important to them. Let workers express their priorities for improvements and ask them to take responsibility for the work which is required. You may be surprised at the results.

A small enterprise can be a community where workers are loyal, with good industrial relations and high morale, It can also be a place where workers look for the first opportunity to leave and care little about the owner's success. Which kind of enterprise do you want? The series of low-cost facilities that follows will help to retain the best workers.

5.1.8.1 Make Sure Essential Facilities Serve Their Purpose

Drinking water

Drinking water is essential for all workers; if this is not provided, they become thirsty and gradually dehydrated. This greatly increases fatigue and lowers productivity, especially in a hot environment.

Place water containers near each group of workers, or provide taps or fountains with clean water in a central place This will minimize the time lost in going to get a drink. However, drinking water should not be placed in washrooms or toilets, near dangerous machines or other hazards, nor in places where it can be contaminated by dust, chemicals or other substances.

If there is any doubt about contamination, water must be thoroughly boiled or properly filtered or treated. Before starting to use a new water source for drinking purposes, it is advisable to have it tested to make sure it conforms to the national standard for drinking water. The design, construction and operation of deep wells for the extraction of ground water should be subjected to the provisions of existing water codes. Piped water should only be used when a hygienic water supply is guaranteed. A clear distinction between potable and non-potable water taps should be made and a "Safe Drinking Water" sign should be put up near to each tap.

Drinking water vessels should be made from materials that can easily be cleaned, Even if the vessels are filled with fresh water, the water inside, if kept for even a short time, can become unhygienic. It should therefore be changed frequently.

It is also important to make sure that drinking water is cool. If a water cooler is too expensive, the water vessels can be placed in the coolest place in the factory. They should not be left uncovered, under the sun or in a hot place. Drinking fountains for production areas are very advantageous from a hygienic point of view . They can be fitted with a jet or bubbler outlet and/or goose-neck or other outlet for filling drinking cups. The fountain should be free from sharp angles and designed to prevent unnecessary splashing. Water outlets should be above the rim of overflow level so that they will not be contaminated with waste water. The water outlet should be shielded to prevent the lips of a drinker from being placed on it. Drinking water containers should be attended by a designated person. Containers should be made of impermeable materials. A cooling device would be an advantage. (Unglazed pottery can be used, due to its unique cooling effect, in dust-free places.) Containers should be provided with suitable covers, and kept in a cool place protected from the sun. The water must be changed frequently.

To avoid the possible spread of infection, it is preferable to use disposable cups or to provide separate cups for each worker and to arrange for regular washing. When containers are used, it is important to clean them regularly. Cleaning and other necessary maintenance tasks should be assigned to a specific person.

In addition, the provision of a facility for boiling water will enable people to make coffee or other hot beverage during breaks. Hot water is required if the enterprise has a childcare facility.

5.1.8.2 Sanitary Facilities

There are several reasons why the provision of washing facilities is important:

- Dirt and grime can be ingested and cause sickness or disease; they are, in any case, unpleasant and demotivating.
- Washing is required for basic hygiene after using the toilet.
- Washing is a necessity when women have their monthly periods.

Apart from the obvious basic need, sanitary facilities are required by law. Customers often create an impression

of an enterprise through the quality of its sanitary facilities.

There should be a sufficient number of sanitary facilities on the premises and each should be conveniently located to avoid long walks, waiting and frustration. The law of your country must be followed, but the following are the minimum requirements:

- One toilet is required for up to five men; two toilets for six to 40 men.

- One separate toilet for up to five women and two toilets for six to 30 women.

- One wash-basin for every 15 workers.

Fig 5.1.13: Signages

Ideally, there would be a separate toilet for men and women. These should be characterized as follows:

- The toilet bowl must be free from stain or odour and function properly.

- The walls of the toilet must be clean and tiles unstained.

- The ceiling of the toilet must be free from cobwebs and dust.

- Floors must be clean and safe (no broken tiles, nor slippery surface).

- Proper illumination must be provided inside the toilet.

- Toilets must have a continuous supply of water; in case water is limited in the area, water should be stocked in containers and refilled regularly.

- Mirrors and rubbish bins should be provided in the washroom.

- Soap and toilet paper should be provided.

- The washroom should provide complete privacy to users and should be fully ventilated.

5.1.9 Be Ready for Emergencies

Accidents can happen even if proper preventive measures are installed; so, always be prepared for emergencies, like cuts and bruises, eye injuries, burns, poisoning and electric shocks. Every enterprise, therefore, has to maintain a well-stocked first-aid box and assign at least one person from every shift to handle emergencies.

First-aid boxes should be clearly marked and located so that they are readily accessible in an emergency. They should not be more than 100 metres away from any place on the work site. Ideally, such kits should be near a wash-basin and in good lighting conditions. Their supplies need to be regularly checked and replenished. The contents of a first-aid box are often regulated by law, with variations according to the size and the likely industrial hazards of the enterprise. A typical basic kit may include the following items in a dustproof and waterproof box:

Fig 5.1.14: First Aid

- Sterile bandages, pressure bandages, dressings (gauze pads) and slings. These should be individually wrapped and placed in a dustproof box or bag. Sufficient quantities of the different sizes should be available at all times to treat small cuts and burns.

- Cotton wool for cleaning wounds

- Scissors, tweezers (for splinters) and safety pins

- An eye bath and eye wash bottle

- Ready-to-use antiseptic solution and cream

- Simple over-the-counter medicines such as aspirin and antacid

- A booklet or leaflet giving advice on first-aid treatment

First aid requires some training, but this is not difficult to arrange in most places. The names and location (including telephone number) of those responsible for first aid should be put on a notice board. Worker involvement, especially for emergency situations, is strongly advised and everyone should know the procedures for obtaining medical assistance. Small establishments without their own facilities should keep contact with a nearby clinic or hospital, so that the time between the occurrence of an accident and medical assistance is very short, preferably much less than 30 minutes. Transport to the clinic or hospital should also be pre-arranged. An outside ambulance may be called in, if necessary. It is also desirable to have a stretcher available.

5.1.10 Safety Signs at Workplace

Safety Signs: Sign providing information or instruction about safety or health at work by means of a signboard, a colour, an illuminated sign or acoustic signal, a verbal communication or hand signal

Signboard: A sign which provides information or instructions by a combination of shape, colour and a symbol or pictogram which is rendered visible by lighting of sufficient intensity. In practice, many signboards may be accompanied by supplementary text, eg 'Fire exit', alongside the symbol of a moving person. Signboards can be of the following four types:

1. **Prohibition sign:** A sign prohibiting behaviour likely to increase or cause danger (eg 'no access for unauthorised persons').

Fig 5.1.15: Prohibition sign

2. **Warning sign:** A sign giving warning of a hazard or danger (eg 'danger: electricity').

Fig 5.1.16: Warning sign

3. Mandatory sign: A sign prescribing specific behaviour (eg 'eye protection must be worn').
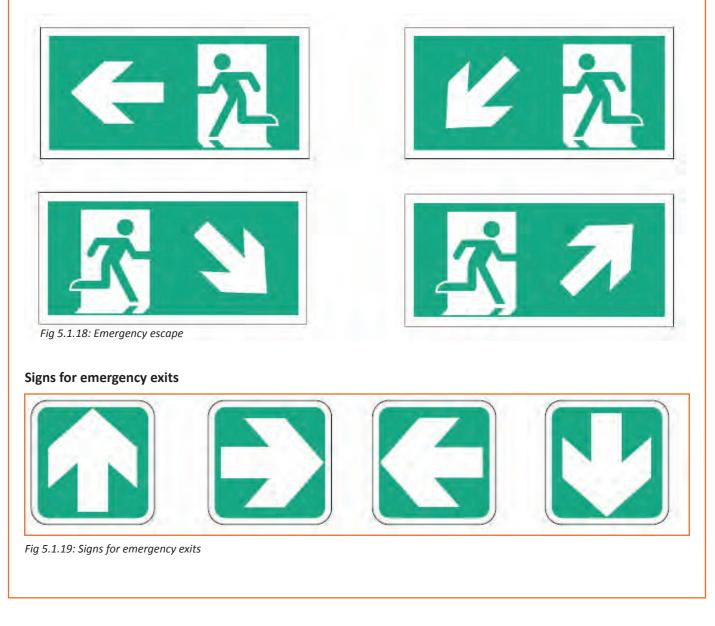

Fig 5.1.17: Mandatory sign

4. Emergency escape, Fire and First-aid signs: A sign giving information on emergency exits, first aid, or rescue facilities (eg 'emergency exit/escape route'.

Fig 5.1.18: Emergency escape

Signs for emergency exits

Fig 5.1.19: Signs for emergency exits

Signs for Fire and First Aid

Fire extinguisher   Fire alarm   Emergency telephone for first aid or escape   First-aid poster

Fig 5.1.20: Signs for Fire

Industry Visit

The purpose of visiting an apparel manufacturing unit is to get hands on knowledge about various processes involved in the work of an SMO. During the visit you have to interact with Sewing Machine Operators and supervisors to understand how work is done in industry. Make sure that you keep a notebook handy and note down any important points that come up during your interaction at the apparel manufacturing unit. When you go to an apparel manufacturing unit, you should:

- Know about the production system.
- Understand the machine safety and maintenance rules of industry.
- Analyze how SMOs:
    » Use and maintain personal protective equipment as per protocol.
    » Maintain a healthy lifestyle and guard against dependency on intoxicants.
    » Follow environment management system related procedures.
    » Identify and correct (if possible) malfunctions in machinery and equipment.
    » Store materials and equipment in line with manufacturer's and organizational requirements.
    » Minimize health and safety risks to self and others due to own actions.
    » Monitor the workplace and work processes for potential risks and threats.
    » Carryout periodic walk-through to keep work area free from hazards and obstructions, if assigned.
    » Report hazards and potential risks/threats to supervisors or other authorized personnel.
    » Participate in mock drills/ evacuation procedures organized at the workplace.
    » Undertake first aid, fire-fighting and emergency response training, if asked to do so.
    » Take action based on instructions in the event of fire.
- Ask questions to SMOs/supervisors if you have any query.

6. Comply with Industry, Regulatory and Organizational Requirements

Unit 6.1 - Comply with Industry, Regulatory and Organizational Requirements

AMH/N0104

Key Learning Outcomes

At the end of this unit, you will be able to:

1. Carryout work functions in accordance with legislation and regulations, organizational guidelines and procedures.

2. Seek and obtain clarifications on policies and procedures, from your supervisor or other authorized personnel.

3. Apply and follow these policies and procedures within your work practices.

4. Provide support to your supervisor and team members in enforcing these considerations.

5. Identify and report any possible deviation to these requirements.

UNIT 6.1: Comply with Industry, Regulatory and Organizational Requirements

Unit Objectives ⊙

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2. Seek and obtain clarifications on policies and procedures, from your supervisor or other authorized personnel.

3. Apply and follow these policies and procedures within your work practices.

4. Provide support to your supervisor and team members in enforcing these considerations.

5. Identify and report any possible deviation to these requirements.

6.1.1 Defining Compliance for Your Organization

According to *Merriam Webster* the dictionary definition of compliance is as follows:

1. The act or process of complying to a desire, demand, proposal, or regimen, or to coercion.

2. Conformity in fulfilling official requirements.

3. A disposition to yield to others.

4. The ability of an object to yield elastically when a force is applied.

Fig 6.1.1: Regulatory Compliance

While regulatory compliance for businesses around the world most clearly falls under the second definition, there are many records managers, general councils, and policy officers that would nod their heads in agreement at any of the other definitions as well. So, what really is compliance?

Whether an organization is subject to external regulatory compliance from a government agency, by statute or law, or seeks to comply with its own organization-specific mandates and policies, compliance in "real life" means conforming to requirements and in most situations, being able to prove that your organization has done so. This is typically achieved through the development of organizational policies that will map out the expected behaviors.

From a policy perspective, there are many factors that go into the determination of an organization's policies, including statutory and regulatory requirements, company or organizational best practices, and market demands. If we look at the following groups - government/public sector agencies, financial service businesses, and healthcare providers - we find that they are regulated and must develop internal policies in order to ensure compliance with the law. On the other hand, retailers and public companies have more flexibility but still may be regulated by government agencies.

The real challenge comes from the intersection of policy and practice. It is important to understand that regardless of the source of the mandate, one challenge faces all of these organizations - once they have created their policies they must decide how to enforce those policies and measure their effectiveness. On the surface this

may seem like a simple task. In practice, though, the dilemma is that creating a policy – without any mechanism (automated, manual, or third-party) to measure and monitor compliance of the aforementioned policy – is somewhat like setting a curfew for a teenager and then going away for the weekend. How do we know if people will live up to our expectations? How do we know if those expectations are even reasonable? In order to build effective policies, we must not only have an understanding of the legal and statutory requirements that will shape the policy within our organizations, but we also must understand how these policies relate to the business practices, people, and technologies within our organizations.

Regardless of the requirements to which an organization must adhere, an effective model will be one that integrates policy with their people, processes, and technology. This includes education, monitoring, and enforcement. A best practices approach to compliance incorporates not only understanding requirements and conforming to them, but also being able to prove that you have done so. As part of this methodology, organizations should look to use technologies and to create policies that make it easier to do the right thing than it is to do the wrong thing or to simply disregard the policy all together.

The organization should actively review, monitor, enforce, and/or adapt the policies as necessary to ensure that they effectively and accurately measure and report on conformance. This will ensure not only the highest degree of compliance, but also will provide the data that is necessary for the organization to react quickly should policy or processes require adaptation in the rapidly evolving business environment.

6.1.2 Significance of Compliance in Indian Garment Industry

Compliance is the standard for the product which ensures that it is aligned to its industry's qualitative demands. This also includes audits and inspections which are crucial to a proper and formal work environment. Compliance and its demand is rapidly growing in today's industrial scene since globalization of manufacturing standards has also created a demand for ethically created products. This standard of compliance is crucial because of the increase in export of garments from India.

Social Compliance

The treatment of the employees by its business constitutes social compliance. This also includes their environment and their personal perspective on social responsibility as an employee. The treatment of employees regarding wages, work conditions and working hours. A compliance audit is necessary in order to determine if the company meets standard environmental laws.

Compliance Audit

Risk Management Programs, Process Safety Management and Process Security Management are all controlled and provided by audits and assessments. Compliance and its verification is carried out with audits that focus particularly on these policies and procedures. The design and implementation of these audits ensures this compliance. Additionally, all sorts of deficiencies can be addressed and solved through corrective action.

In India, compliance audit consists of a thorough examination of orders, regulations, rules and directions for dealing with prudence, legality, transparency and adequacy. It is the job of auditors to collect information by reviewing documents, visually observing the site and staff interviews. This data is cross checked with applicable regulations and permits to ensure how well the operation is when sieved through applicable and required legalities

There are three main phases of compliance audit in India:

1. **Pre-audit:** It includes planning and organising the audit; establishing the audit objectives, scope and etiquette; and reviewing the design of the program by inspecting documentation

2. **On-site audit:** It includes conducting personnel interviews, reviewing records, and making observations to assess program implementation

3. **Post-audit:** It includes briefing the management on audit findings, and preparing a final report

Therefore, Indian apparel manufacturers need to follow Government guidelines, and social compliance standards not only within their sphere of operations, but also insist their vendors, distributors, and other collaborators involved in the supply chain to do the same.

6.1.2.1 Core Labour Standards

- Elimination of Discrimination in Respect of Employment and Occupation
- Freedom of Association
- Right to Collective Bargaining
- Elimination of all Forms of Forced or Compulsory Labour
- Effective Abolition of Child Labour

Apparel industry players would now make sure that labour contractors don't engage forced or child labour and get the supply chain of the suppliers audited. Apparel Export Promotion Council (AEPC), an apex body of Indian apparel exporters, has designed a garment factory compliance program 'Disha' (Driving Industry towards Sustainable Human Capital Advancement) to make India a global benchmark for social compliance in apparel manufacturing and export. This Common Compliance Code project will prepare the Indian apparel industry on a common platform towards a more social and environmentally compliant industrial environment.

6.1.3 India Adopting Universal Standards on Child Labour

The level of garment factory compliance is very high for Indian exporters. Large global firms, conscious of their image, often set up their own compliance standards for the exporters to ensure that all standards are being complied with. Many U.S. companies have included child labour in their code of conduct, due to persistent evidence of child exploitation in the industry.

6.1.3.1 Common Compliance Code

There is a huge compliance fatigue in the Indian apparel export industry. Although catering to the global brands, apparel suppliers are yet to accept that compliance is an essential management practice. Further, the Indian apparel export industry has decided to adopt zero tolerance on child labour and cleanse the supply chain.

"This common compliance code will not only give the opportunity for the industry to negate international claims against child labour promotion in the garment industry, but will also help to improve the image of the industry and win more international businesses," as per PremalUdani, Chairman, Apparel Export Promotion Council (AEPC).

6.1.3.2 AEPC-Disha

Apparel Export Promotion Council (AEPC), the apex body of Indian apparel exporters, has launched the programme "DISHA" (Driving Industry towards Sustainable Human Capital Advancement) to aid garment exporters comply with global standards pertaining to child labour.

The programme will encourage members to follow better social practices, which will give them a competitive edge in the global market where industrial compliance code is increasingly becoming an important factor in buying decision.

Responsibilities of Disha member factory

DISHA member factory is committed to adhere to the DISHA common code of conduct (CCC) Principle on child labour and takes the responsibility to:

• Understand and identify applicable laws and acts.

• Understand general industry practices and perception.

• Establish management systems for sustenance and continual improvement.

Disha-CCC for child labour

Disha- common code of conduct (CCC) is based on various central and state laws. Some of the laws that specify conditions on the subject of employment of children and young persons are as follows:

• No child who has not completed fourteenth year of age shall be required or allowed to work in any occupation in the factory.

• Persons who have completed fourteenth, but not eighteenth, year of age are not employed in hazardous or dangerous operations.

• No female young person shall be required or allowed to work in any factory except between 8.00 A.M. and 7.00 P.M.

• Young people are required to work only after obtaining a 'certificate of fitness' from a government medical officer not below the rank of an Assistant Surgeon. The fee for obtaining this certificate would be borne by the factory.

By implementing DISHA CCC, it will be possible for the DISHA Member Factory to establish factory compliance to adhere to Indian laws, re-frame policies and better practices aimed at improving social and environmental impacts by the factories.

6.1.4 Role of AEPC in Indian Garment Industry

Indian apparel industry is one of the important export sectors and enjoys good global ranking because of its quality and price competitiveness. However, there is a growing need to increase competitiveness in the social domain as the industry faces various labour, compliance and contextual challenges.

Being a labour intensive industry, social compliance is becoming an important issue for this sector. The apparel export promotion council of India (AEPC) under the textiles ministry is helping domestic textile industry to adhere to global norms through development and

Fig 6.1.2: AEPC Logo

implementation of tools to help factories certify, monitor and improve universal standards.

AEPC's assistance to garment exporters

AEPC provides invaluable assistance to Indian garment exporters as well as international buyers who select India as their preferred sourcing destination for garments. The body today has grown to become the most powerful association for promotion and facilitation of garment exports. With an objective of building a strong ground for the Indian exporters, AEPC is committed to provide various platforms which would help in increasing garment exports.

AEPC- Disha Initiative

AEPC in its continuous efforts to make India a preferred sourcing destination plans to undertake a series of activities to strengthen the compliance code capacity in the Indian export garment industry. Further, the project DISHA has been initiated with the aim to unify the Indian apparel manufacturers for mutual co-operation, global alignment and resource optimisation. It also focuses to create and adopt management systems to address human and environmental challenges.

Fig 6.1.3: AEPC Initiative

Objectives of Disha programme

- To increase awareness among apparel manufacturers on social and environmental standards based on applicable Indian laws.
- To improve competitiveness of apparel manufacturers.
- To promote a management system oriented thinking and approach for engaging with social and environmental issues.
- To promote a process-based certification system that enables measurement of progress towards adoption and maintenance of benchmark practices in the Disha Common Code of Conduct (Disha-CCC).

Major components of Disha

Environmental, social and safety related compliance issues are going to assume increasing importance in textiles and apparel sector as the competiveness in the sector moves to new emerging economies. Creating an environment for better compliance standards and improved social sustainability of the industry can give India the required edge over its competitors in the global market. Some of the major components of the program Disha are:

- **Common Code of Conduct (CCC):** AEPC-Disha's common code of conduct is designed to guide the Indian apparel manufacturers on legal, social and environmental issues. The program establishes the principles for business responsibility, based on applicable Indian laws and International labourorganisation (ILO) conventions approved by the Government of India.

- **Factory Capacity Building & Training:** The common code of conduct involves orientation for the owners of apparel factories and capacity building for factory-nominated personnel on Disha-CCC and towards applying the management systems for Disha-CCC.

- **Baseline & Impact Assessment:** Initially, a factory shall undergo a pre intervention baseline assessment for gap analysis against the Disha-Common Code of Conduct (CCC) principles and benchmarks. Afterwards, post intervention assessments on operationalisation of the management systems in the factory shall be undertaken.

- **Disha Certification:** A Disha certificate shall be awarded to the factory by AEPC upon successful and satisfactory implementation of the social and environmental management system.

6.1.5 Indian Garment Industry and Social Responsibility

The Indian garment industry is one of the largest and oldest sectors in the country. It is also an important industry in terms of output, investment and employment. It is a niche market globally and has earned reputation for its durability, quality, and beauty. The industry is growing at a faster pace with change in customer taste and preferences. The various factors responsible for change in customer preferences are:

• Rise in disposable incomes

• Increasing demand for branded apparels and fashion accessories

• Convenience of shopping at departmental stores and shopping malls

• Boom in the retail industry

• Government policy focused on fast-track growth

6.1.5.1 International Labour Standards

The Indian garment industry is well established and enjoying considerable demand in both domestic as well as global markets. Further, the increased pressure from international apparel buyers to comply with labour standards and worker's rights in Indian garment factories has led to a vast number of labels and code of conduct policies entering the markets.

6.1.5.2 Corporate Social Responsibility

Corporate social responsibility (CSR) essentially means that the organisation should work in an ethical manner and work in the best interest of the various parties associated with it. The concept of social responsibility in Indian garment industry is gaining popularity in today's times. More and more companies are trying to work in a way to protect the interests of the employees, customers, suppliers and the society at large.

6.1.5.3 Social Responsibility in the Garment Industry

Just like the firms in other industries, garment firms also have social responsibility associated with employees and the environment. Social responsibility in the global apparel industry provides an in-depth examination of labour practices and standards. However, the ways by which different organisations choose to fulfill their social responsibility might be different. A garment factory can fulfill its social responsibility in the following manner:

• By providing a competitive and challenging work environment to the employees.

• By having ethical recruitment, remuneration, promotion and other policies.

• By providing opportunities to the employees to voice their opinion and complaints and have an effective policy for the solution of these complaints.

• Ensuring a safe working environment for the employees.

• Ensuring not to adopt child or forced labour in the industry.

• Having fair policies for the solution of employee disputes.

6.1.6 Indian Apparel Trade and Compliance Standards

The Indian apparel industry is working with an objective of reaching 7.5 billion by the end of 2012, a Fig that is almost double the size of the last profit calculated by the Indian Chamber of Commerce (ICC).

With the increasing globalisation, a lot of importance has been placed on internationally recognised compliance standards in the garment industry. Factories involved in the international trade must keep a proper check of the garment factory compliance at regular intervals. Therefore, every apparel export business needs to have adequate understanding of compliance guidelines for foreign trade.

6.1.6.1 Why Code of Ethics is Required

The code of ethics is all about the quality of the products from the factory and the working environment that should meet the requirements of audits and inspections. An individual running an export business needs to follow these ethics sincerely. These ethics are required for:

• Increasing national competitiveness in terms of social compliance.

• Increasing competitiveness of small scale manufacturers.

• Reducing burden on manufacturers.

Some of the compliance codes in Indian garment industry are listed below.

6.1.6.2 Working Hour & Wage Rate Compliance

• Garment factory must ensure that employees should get atleast minimum wages according to the domestic law and as per the time spent by them in the industry.

• Employer should pay equal wages to both men and women employees, for performing the same work or work of a similar nature.

• Worker employed for more than nine hours on any day or for more than 48 hours in any week, shall be entitled to wages at premium legal rates for such overtime work.

• Every worker should be given one holiday (for a period of 24 consecutive hours) in a week. Whenever a worker is required to work on a weekly holiday, he is to be allowed a compensatory holiday for each holiday so lost.

• Every worker is to be allowed at least half an hour rest interval after a maximum working of 5 hours at a stretch.

6.1.6.3 Workplace & Work Environment Compliance

• Organisations should ensure proper ventilation, sufficient light and air to provide the employees with standard work environment.

- Indian garment industries should provide the workers with comfortable sitting chair with back support and proper leg space.

6.1.6.4 Non-discrimination Compliance

Organisations should not discriminate employees on the basis of physical characteristics, beliefs and cultural characteristics. All the terms and conditions of employment should be based on an individual's ability to do the job. They should provide equal employment opportunities for all employees and associates irrespective of the employees' race, color, religion, age, sex, creed, national origin, marital status, etc.

6.1.6.5 Social Compliance in India

The demand for social compliance is increasing day-by-day. However, we can attain a robust compliance system only when the workers are provided with an equal platform to voice their concern and have consultative mechanism at the workplace.

The Apparel Export Promotion Council of India (AEPC), an apex body of Indian apparel exporters, provides all social compliance services to meet international global standards. The council also trains and guides factories to upgrade the workplace conditions and labour standards.

6.1.7 Health and Safety Compliance in Indian Garment Industry

Garment industry is getting increased attention from consumers, social workers, welfare organisations and branded international buyers. Many international buyers are demanding for factories to comply with their "code of conduct" before placing any order.

Nowadays, continuous adherence to quality standards and employee satisfaction have become important parameters for measuring the company's performance. Enterprises undertake business compliance, not necessarily out of a need to act generously, but more so for survival in a globally competitive and legally complex modern environment.

In the context of growing competition among exporting countries and increasing demand for products that meet internationally recognised standards, it is essential for the suppliers to improve safety and health compliance code and provide proper working environment in their factories.

Several foreign countries have also developed various international compliance standards on health and safety compliance. Exporters should follow these compliance codes to survive in the global market. Moreover, regular practice of compliance codes of conduct can bring higher price of products, less employee turnover rate, smooth industrial relation as well as global image & reputation.

6.1.7.1 Need for Compliance Codes

There is a direct impact of social compliance on company's financial results, especially for organisations in consumer market where brand name and reputation are most critical assets. Companies should adopt compliance

code to protect their goodwill in the market. The Indian garment industry needs to be tough on compliance rather than competing with other developing countries manufacturing inexpensive garments.

6.1.7.2 Compliance Code Guidelines

Garment factory should consider the following guidelines while complying with safety and health compliance code standards:

- Industries should comply with international standard code, such as ISO or importing countries standard code to become competitive in international markets.

- Young persons (between 15 to 18 years) are not supposed to work on any dangerous machine without adequate training and supervision.

- Wiring should be in good condition with no broken junctions or wires sticking out at the ends of the conduit.

- Eye-wear and face shields should be provided in areas with danger of flying objects, sparks, glare, hazardous liquids and excessive dust.

- Ear plugs or muffs should be given in places with excessive noise such as generator rooms and embroidery rooms.

- Hard hats and protective shoes are necessary for workers involved in loading and unloading operations.

- Factories should have effective fire extinguisher with proper usage instructions.

6.1.7.3 Role of Apparel Export Promotion Council in India

In India, the Apparel Export Promotion Council (AEPC) is committed to legal compliance and ethical business practices and encourages members/exporters to comply with all applicable laws and regulations of the country to meet international compliance standards.

Further, the council has designed a garment factory compliance program 'Disha' (Driving Industry towards Sustainable Human Capital Advancement) that aims to spread awareness regarding the importance of compliance among garment exporters.

6.1.8 Compliance Code Guidelines for Indian Garment Industry

The Indian apparel industry contributes substantially to India's export earnings. In recent years, India has emerged as a major sourcing destination for various buyers. The USA and the EU continue to be the most important markets for Indian apparel industry, accounting for about two-third of India's textiles exports. These countries have been insisting upon compliance to certain social, environmental and safety standards and norms by the production units involved in export business. Corporate codes of conduct that address labour standards vary from company to company.

Some of the common Indian Garment industry compliance code guidelines are:

- Exporters must not be involved in unfair labour practices including but not limited to interferences in matters concerning freedom of association.

- There shall be no differences in workers remuneration for work of equal value on the basis of gender, race, religion, age, disability, sexual orientation, nationality, political opinion, or social or ethnic origin.

- Exporters shall not threaten female workers with dismissal or any other employment decision that negatively affects their employment status in order to prevent them from getting married or becoming pregnant.

- Exporters shall ensure that proper ventilation systems are installed within their premises to prevent airborne exposures which may affect the health of workers.

- Members shall not use any form of physical or psychological violence, threats, harassment, or abuse against workers seeking to form organisations or participating in union activities, including strikes.

- Workers shall be entitled to at least 24 consecutive hours of rest in every seven-day period. If workers must work on a rest day, an alternative consecutive 24 hours rest day must be provided.

- Exporters shall provide workers with paid annual leaves as required under local laws, regulations and procedures. Exporters shall not impose any undue restrictions on workers' use of annual leave or taking any type of sick or maternity leave.

- Exporters shall pay workers at least the legal minimum wage or the prevailing industry wage, whichever is higher. In today's scenario, it is the most essential code of compliance for Indian Industry.

- Exporters shall compensate workers for all hours worked. Workers on a piece rate payment scheme or any other incentive scheme should be paid accordingly.

- Exporters shall not unreasonably restrain the freedom of movement of workers, including movement in canteen during breaks, using toilets, accessing water, or to access necessary medical attention, as a means to maintain work discipline.

- Garment exporters must ensure that the minimum age requirement to non-hazardous employment shall not be less than 14 years. This is the most important concern in India nowadays. Further, each worker has the right to enter into and to terminate their employment freely.

Indian apparel makers need to follow all the compliance guidelines to comply with global standards. Often companies adopt industry compliance codes to project a positive image and protect their goodwill in the market. The Indian garment industry needs to be strong on compliance rather than competing with other developing countries manufacturing inexpensive garments.

6.1.9 India Complying with International Standards on Child Labour

In India, child labour is not a new phenomenon. It is a serious and extensive problem, with many children under the age of 14 years working in various garment factories. On one hand, child employment helps the children to provide support to their unemployed or underemployed parents, while on the other hand, their future remains in poverty, ignorance, and exploitation due to illiteracy. Child labour flourishes under many conditions such as- discrimination (based on gender, ethnic, or religious issues), unavailability of educational and other alternatives, weak enforcement of child labour laws, etc.

Large global firms, conscious of their image, often set up their own compliance standards for the exporters to ensure that all standards are being complied with. Many U.S. companies have included child labour in their code of conduct, due to persistent evidence of child exploitation in the industry.

In international market, the buyer's mandatory requirement is to have an audit. As India is a leading garment exporter, the level of garment factory compliance is very high for Indian exporters. The child labour issue is one of the very important aspect that the audit checks. Therefore, all the export units must be highly compliant on issues related to child labour.

6.1.9.1 Code of Conduct for Garment Exporters

- Garment exporters must ensure that the minimum age requirement to non-hazardous employment shall not be less than 14 years. Additionally, all young workers (between 14 to 18 years) must be protected from performing any work that is likely to be hazardous or that may be harmful to their health and physical, mental, social, or moral development. Exporters must observe all legal requirements for work being performed by authorised young workers.

- Further, the apprentices or vocational students shall not be under the legal age for working (as provided under the applicable laws). They cannot be used on regular production lines as long as they are apprentices and unless their pay and other benefits are at par with the regular workforce.

- A proper process is followed for verifying the age of the workers. The minimum documentation required to be maintained shall include- proof of age certificates by registered/ licensed dentists, birth certificate, school leaving certificate, national identity like passport, driving license, voter card etc. or any other document required under the applicable laws.

Apparel industry players would now make sure that labour contractors don't engage child labour and get the supply chain of the suppliers audited. Apparel Export Promotion Council (AEPC) has designed a garment factory compliance program 'Disha' (Driving Industry towards Sustainable Human Capital Advancement) to make India a global benchmark for social compliance in apparel manufacturing and export. This Common Compliance Code project will prepare the Indian apparel industry on a common platform towards a more social and environmentally compliant industrial environment.

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7. Soft Skills And Communication Skills

Key Learning Outcomes

At the end of the module, you will be able to:

1. Understand Art of Effective Communication.

2. Able to handle effective Communication with co-workers and their Family.

3. Able to handle effective Communication with Peers/ colleagues using medical terminology in communication.

4. Learn basic reading and writing skills.

UNIT 7.1: Introduction to the Soft Skills

Unit Objectives

At the end of this unit, you will be able to:

1. Understand the basic meaning of Soft Skills, their components and their benefits.
2. Understand Work Readiness and its significance.

7.1.1 What is a Soft Skill?

Soft skills are personal attributes that describes an individual's ability to interact with others. Soft skills is a term often associated with a person's EQ, the cluster of personality traits, social graces, communication language, personal habits, friendliness and optimism that characterise relationship with other people. Soft Skills complement hard skills which are occupational requirements of a job and many other activities. They are related to feelings, emotions, insights and an inner knowing.

Soft skills have more to do with who we are than what we know. As such soft, skills encompasses, the character traits that decide how well one interact with others and are usually a definite part of one's personality.

For instance – the soft skills required for doctor would be empathy, understanding, active listening and a good bedside manner.

Fig.7.1.1: Soft skills

According to a survey the long term success in job is 75 % due to soft skills and 25 % due to technical knowhow. Soft skills also determine how satisfied and happy one remains in professional and personal situations.

7.1.2 Components of Soft Skills

*   **Adaptability:** It is an individual's ability to manage change. It's about how quickly and efficiently a person is able to blend in and get productive in an altered environment.
*   **Emotional Strength:** This involves managing mood and having control over it. An emotionally strong person succeeds in directing his moods and emotions such as anger frustration and excitement.
*   **Leadership Quality:** How one manages conflict in personal and professional situation and convinces people reflects upon his leadership quality.
*   **Team Playing Ability:** It is the ability to manage different types of people and make them work harmoniously with each other.
*   **Decision Making:** This reflects upon how one manages his time and other resources in efficient and

productive manner.

- **Interpersonal Communication:** This is an individual's ability to effective communication with other and in the process creating a positive image of him.

- **Negotiation Skills:** This is how one negotiates with others and reduces the level of stress in work, professional and personal environment.

7.1.3 Benefits of Soft Skills

Some of the benefits of Soft Skills are as:

- Increased credibility with customers.

- Increased customer satisfaction.

- More productive employees.

- Out service the competition.

- Recognition from the industry, employer and peers.

- New employment opportunities.

- Increased ability to perform on the job.

7.1.4 Work Readiness

Work readiness involves you having what employers call "the right attitude". At the most fundamental level this means having:

- A positive attitude to spending some days in the workplace

- The capacity to function in an adult environment without the support of other students

- An enthusiastic attitude to the employer

- A clear interest in the work being done

- Realistic expectations of the work that an entry-level student will be able to do in a workplace with commercial goals to achieve

- The willingness to be supervised, follow instructions and wear safety gear as directed

Fig.7.1.2: Work readiness

- The confidence to ask questions to clarify instructions

- Pride in appropriate personal presentation

- The ability to communicate appropriately in an adult working environment

- The capacity to acknowledge customers and provide the assistance recommended by the employer

- A commitment to maintaining their reliability and punctuality for the whole of the period spent in the workplace

- Completed a preparation for workplace learning program which includes OH&S practices, acceptable behaviour in the workplace (including child protection issues) and emergency contact procedures.

UNIT 7.2: Effective Communication

Unit Objectives

At the end of this unit, you will be able to:

1. Do public speaking.
2. Describe his /her likes and dislikes for five minutes in the classroom.
3. Basic etiquette during a conversation with another person, overcome shyness etc.

7.2.1 Introduction

In the information age we have to send, receive and process huge number of messages everyday. But effective communication is more than just exchanging information, it also about understanding the emotion behind the information. Effective communication can improve relationship at home, work, and in social situations by deepening our connections to others and improving teamwork, decision making and problem solving.

Effective communication skill is a learned skill, it is more effective when it's spontaneous than formula.

7.2.2 The Communication Process

The process of conveying information through the exchange of thoughts, ideas, feelings, intentions, attitude by speech, gesture, writing etc. is known as communication. It is the meaningful exchange of information between two or more participants.

Fig.7.2.1: The Communication Process

Communication requires a sender, a message, a medium and a recipient. Communication process is complete only when a receiver understands the sender message.

Communication with other involves three steps:

1. **Message:** First information exists in the mind of the sender. It can be a concept, idea, formation and feeling.

2. **Encoding:** A message is sent to the receiver in words or other symbols.

3. **Decoding:** Lastly the receiver translates the words or symbols into a concept or information that a person can understand.

7.2.3 Verbal and Non-Verbal Communication

Communication can be categorized into three basic types. These include:

1. **Verbal Communication:** It means you listen to a person to understand their meaning. Verbal communications have the advantage of immediate feedback, are best for conveying emotions and can involve storytelling and crucial conversations.

2. **Written Communication:** letters, books, newspapers are printed messages in which you read their meaning. They are asynchronous, can reach many readers and are best for conveying information.

3. **Nonverbal Communication:** It means you observe a person and infer meaning. Both verbal and written communications convey nonverbal communication and are also supported by body language, eye contact, facial expression, posture, touch and space.
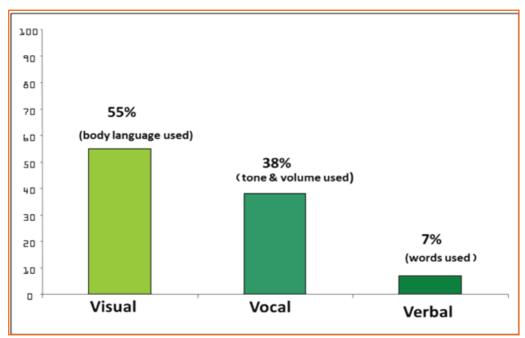
Fig.7.2.2: Categorization and ratio of Verbal and Non-Verbal Communication

According to a study only 7% of a receiver's comprehension of a message is based on sender's actual words, 38% is based on paralanguage (tone, pace and volume of speech) and 55% is based on nonverbal cues.

Research shows that when individuals are lying they are more likely to blink more frequently, shift their weight and shrug.

7.2.4 Communicating Effectively Identifying Barriers

There are many reasons why communications fail. These failures are the result of barriers in communication which may occur at any stage in the communication process. Barriers may lead to one's message becoming distorted and therefore risk wasting both time and money by causing confusion and misunderstanding. Effective communication involves overcoming these barriers and conveying a clear and concise message.
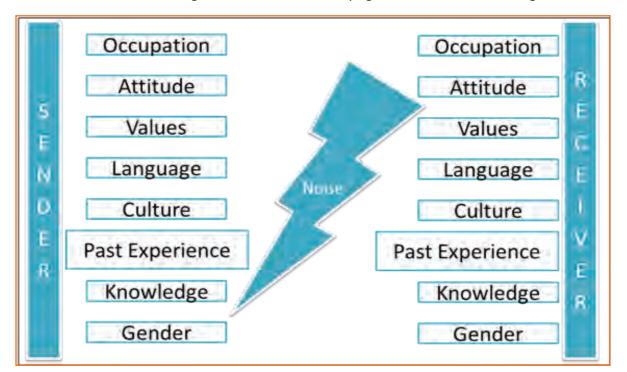
Fig.7.2.3: Barriers in Communication

A skilled communicator must be aware of these barriers and try to reduce their impact by continually checking understanding or by offering proper feedback.

Dealing with Barriers

• Use simple, easily understood word. Overcomplicating makes things confusing

• While speaking in other language always prepare beforehand

• Always give or take feedback to ensure the effectiveness of communication

• Be alert to cues

• Listen, listen, listen …

• Test your understanding

• Share opinions, perceptions

7.2.5 Effective Communication-Practice

Active Listening

Listening is one of the most important skills you can have. To become a better listener is to practice active listening.

In active listening one make a conscious effort to hear that other person is saying but more importantly try to understand the complete message been sent.

7.2.5.1 Some Tips for Active Listening

- Concentrate what the person is talking about and not on noise or other external distractions.
- Understand his emotions and you get it all right. Is the speaker angry, happy or plainly inquisitive?
- When the speaker is saying or telling something, don't break the chain of his thoughts.
- Don't avoid completing sentences of the speaker. Let them speak and speak only after they finish.
- It's alright if you haven't understood at first chance. Request to repeat the information.
- Practice makes a man perfect. Listen intently, focus and ignore other noises. Listen more and talk when required.

It takes a lot of concentration and determination to be active listener. Old habits are hard to break and if you're listening habits are not good then you have to break those. Start listening deliberately and remind yourself frequently that your goal is to hear truly what the other person is saying.

UNIT 7.3: Grooming and Hygiene

Unit Objectives

At the end of this unit, you will be able to:

1.   Maintain cleanliness and hygiene.
2.   Keep their dress clean and tidy.
3.   Maintain positive body language while speaking.
4.   Enable to perform more of the do's than the don'ts.
5.   Leant about good eating habit and their impact on health.
6.   Avoiding bad things such as gutkha and alcohol.
7.   Learn about AIDS and its prevention.

7.3.1 Personal Grooming

Personal Grooming is the term for how people take care of their body appearance. Once you enter your store/department you need to be dressed in full uniform as per company norms, and also properly groom yourself as per the service standards.

Personal grooming not only makes us presentable to other people but good personal hygiene is essential for good health. Habits that are considered personal grooming include, bathing, dressing, applying makeup, hair removal and taking care of one's teeth and skin.

Fig.7.3.1: Personal Grooming

Appearance

- The frontline person/team is the brand ambassador of the company. The customers visiting the stores are greeted by this team and are assisted by them. Hence they are expected to present a neat & clean appearance. They are expected to be in uniforms (including shirt, trousers, shoes & socks) which must be worn clean & ironed.

- Care should be taken so as no stains, broken buttons, or loose thread is present on the uniform.

- Shoes should be clean & polished all the time. No sandals/slippers/sports shoes and white socks to be worn while on duty.

- Nails must be clean & cut as most of the time one will be handling merchandise.

- Hair should be neatly combed before commencing duty, never in front of customers.

- Display ID cards when on duty so as it helps the customers to identify the staff.

- When in store premises, even during off-duty hours, a well-dressed appearance needs to be maintained.

7.3.2 Specific Uniform Guidelines

Sr. No.	Specifically for Men	Specifically for Women
1	Uniform prescribed should be clean and pressed.	Women having long hair should tie their hair not keep it loose. Not much oil should be applied.
2	Shoes should be clean and polished.	They should avoid bright colour nail polish and long nails as they will be a cause to distract customers or damage the merchandise on display.
3	Hair must be short, clean & tidy.	Minimum, non-flashy jewellery should be worn.
4	One is expected to have a clean shaven look.	Dangling earrings, noisy anklets & bangles must not be worn on the floor
5	In case of beards/moustaches, must be trimmed, neat & tidy.	Only very light make-up to be applied (lip- stick of very light shades only)
6	Nails should be cut or trimmed neatly at regular intervals.	Any type of earrings studs & bracelets are not to be worn on the floor during official hours.

Fig.7.3.2: Specific Uniform Guidelines

7.3.3 Body Posture

- Staff needs to keep their hands clean at all times as they mostly will be handlingmerchandise or in contact with customers.
- Avoid biting nails on the floor.
- Manage body odour & bad breath to be under control as they are offensive to the customer.
- Maintain straight & upright posture on the shop floor.
- Slouching on the floor, hands in pockets, hands on the hips are not courteous to the customer & hence should be avoided.

It just takes a few seconds for someone to evaluate you when you meet for the first time. The other person forms an opinion about you based on your appearance, your body language, and your mannerisms and how you are dressed. For creating a first positive good impression always follow these things:

- Be on time
- Be yourself and be at ease
- Present yourself appropriately
- Always smile
- Be courteous and attentive
- Be positive

7.3.4 Positive Body Language

While meeting someone for the first time always remember that not only you should talk positively but your body language also needs to be positive. There are some tips for positive body language as:

- Avoid your pockets. Keep your hands out of your pocket. Hand in pocket shows we are uncomfortable and unsure of ourselves. Keeping our hand in open indicates confidence and show that people has nothing to hide.

- Don't Fidget. Fidgeting is a clear sign of nervousness. An individual who can't keep still is an individual who is worried, tense and not confident. Keep your gesture calm and under control.

- Keep your eyes forward. This indicates that you are interested in communication with other.

- Stand up straight with your shoulders back. It communicates confidence.

- Take wide steps. It makes you seem purposeful and suggest a personal tranquillity and denotes confidence.

- Firm handshake. Grip other persons hand firmly and confidently instead of getting a palm full of dead fish. Firmness adds warmth and enthusiasm to the handshake. But make sure that you don't crush the other person's hand and don't hold on too long.

- Don't cross your arms when meeting other persons. Crossing your arms is a protective posture. Relax and keep your arms uncrossed.

- Use contact to show appreciation.

7.3.5 Personal Hygiene

What is Personal Hygiene?

Personal Hygiene is the set of practices to follow to preserve one's health. Maintaining a high level of personal hygiene will help to increase self-esteem while minimizing the chances of developing infections. Poor personal hygiene can have significant implications on the success of job applications or chances of the promotion.

Fig.7.3.3: Personal Hygiene

Why to brush teeth?

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Brush your teeth in the morning and before going to bed with paste, datun or tooth powder

Fig.7.3.4: Brush teeth

Fig.7.3.5: Take bath

Why to take bath?

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Why to wear clean clothes?

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Fig.7.3.6: Clean clothes

Why cut nails?

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Fig.7.3.7: Cut nails

Why wash hands?

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Fig.7.3.8: Wash hands

7.3.6 Physical Fitness

Apart from following these hygienic practices, one should also be physically fit. Physical fitness is an outcome of regular exercise. Exercise may be of many different forms. Jogging, morning-walk, weight-lifting, gym, swimming, cycling, yoga and many more.

Advantages of Physical Fitness

- It maintains optimal body weight.

- It reduces risk of diseases.

- It boosts confidence and self esteem.

- It reduces stress, anxiety and depression.

Fig.7.3.9: Physical Fitness

Healthy Eating

We can follow hygienic practices and exercise regularly, but what we eat has the biggest impact on our health. To be healthy, one has to eat healthy. But what do we mean by eating healthy?

Eating a healthy, balanced diet provides nutrients to our body. These nutrients give us energy; keep our brain active and our muscles working.

Fig.7.3.10: To eat

Fig.7.3.11: Not to eat

What are healthy eating habits?

- Always try to eat home-made food

- Avoid oily food

- Always cook and eat fresh food

- Avoid junk food like burgers, carbonated drinks etc.

- Eat fruits regularly

- Drink lot of water

Things to be avoided

There are certain habits that have severe ill-effects on one's health. Such habits should be avoided for a healthy life.

Alcoholism

It's the tendency in which one consumes alcohol to cope with difficulties or to avoid feeling bad.

Alcohol has the potential to damage almost every organ in the body including the brain. Uncontrolled consumption of alcohol not only affects a drinker's health but also personal relationship and social standings.

It's effects:

- Health increase risk of heart diseases, cancer, impaired immune system, liver infection (Cirrhosis) etc.

- Reduced work focus and drop in performance
- Degradation in social and economic status

- Withdrawal symptoms like anxiety, trembling, fatigue, headache and depression etc.

Fig.7.3.12: Effects of alcohol

Tobacco

Tobacco is the second largest cause of death in the world. It claims one death in every six seconds.

Smoking is a practice of burning a substance and inhaling the smoke coming out of it. Common smoking implements include cigarette, bidi, hookas and pipes. According to a report every year 4.9 million people die worldwide as a result of smoking. Smkoing is prime cause of lung cancer. Accodring to a study male smoker lose an average of 13.2 years of life while a female smoker lose 14.5 years of their life. Smoking increases 50 % chances of heart diseases than a non smoker.

Fig.7.3.13: Risks from smoking

Chewing tobacco is a type of smokeless tobacco product consumed by placing a portion of tobacco between the cheek and upper gum or upper lip teeth and chewing.Oral and spit tobacco increase the risk of oral cancer.It also causes mouth and throat cancer.

It's effects:

- It is the biggest reason for oral cancer which effects mouth, tongue, cheek, gums and lips

- Chewing tobacco lessens a person's sense of taste and ability to smell

- Smokers face a greater risk of suffering from lung cancer

Gutkha

Gutkha is highly addictive and a known carcinogen. Excessive use of gutkha can lead to loss of appetite; promote unusual sleeping pattern and loss of concentration along with other tobacco related problems. A gutkha user can be easily identified by prominently stained teeth ranging from dirty yellowish orange to reddish black. The stains are difficult to remove by normal brushing usually need the attention of dentist. According to a global adult tobacco survey 53.5% of Indians use tobacco products.

- Each sachet contains 4000 chemicals, including 50 that cause cancer,Betel nut, Tobacco, Flavouring.

Impact of Gutkha on health:

- Loss of sensation in tongue

- Disfigured mouth

- Increased sensitivity to heat, spices, cold and spices

- Inability to open the mouth

- Swelling, lumps, rough spots on gums or in other places inside the mouth

- Unexplained bleeding in mouth

- Difficulty in swallowing and finally Mouth Cancer

Fig.7.3.14: Oral Cancer

7.3.7 AIDS/HIV Awareness

The full form of AIDS is Acquired Immunodeficiency Syndrome. AIDS is caused by HIV (Human immunodeficiency Virus). It is the last stage of the HIV infection, if a person is HIV positive, he/she is suffering from AIDS.

According to a survey number of AIDS patients in India is between 2 to 3.1 million almost 50 % of total patients of AIDS. More men are HIV positive than women. A total of population of 0.29% females are suffering from AIDS while 0.43 % males are suffering.

AIDS is transmitted by:

- Unprotected sexual relationships

- Contaminated blood transfusion

- Hypodermic Needles

- From infected mother to child

Fig.7.3.15: NACO Logo

As per studies in India HIV/AIDS is largely due to unsafe sex worker interactions. About 86 % HIV incidents in the country is from unprotected sex. Migrant workers, truck drivers and majority of men who have sex with men pose greater risk of infecting their spouse and unborn children. People between 18-29 age groups accounts for 31 % of AIDS burden.

Fig.7.3.16: AIDS transmition
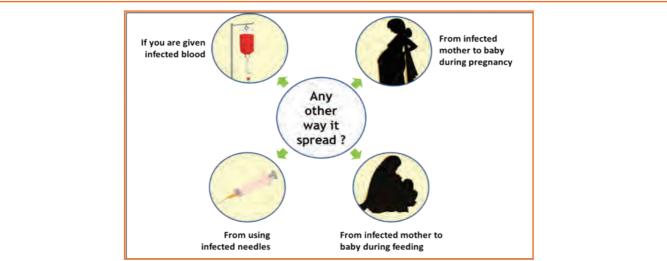
There are no medicines or vaccines for AIDS so far. The treatment and medicines which are available in the market are expensive and have side effects.
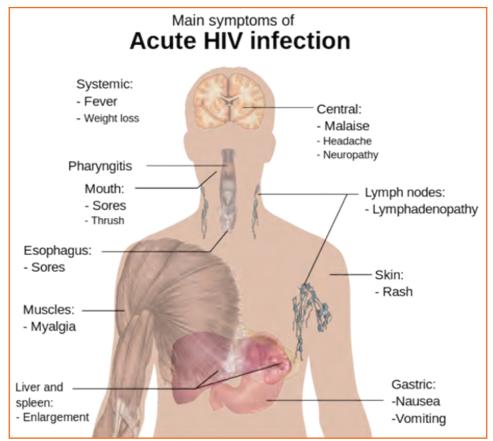
Fig.7.3.17: Acute HIV Infection

AIDS is not a disease like cancer or malaria, but is a condition that weakens a person's ability to fight diseases (immune system).AIDS not only affects you, but also has severe impact on family and friends. Even one mistake is enough to get HIV positive.
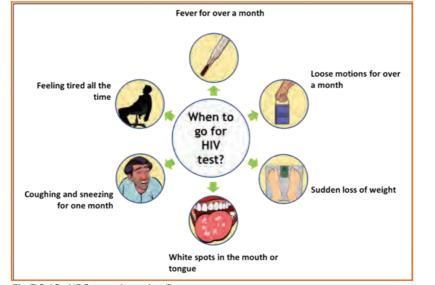
Fig.7.3.18: AIDS non-nispersing Deseases

Stay faithful

- In India large number of people move around for work, mostly men.

- Are you one of them?

- Take care. See that you don't catch any infection from AIDS.

- Even one visit to a sex worker may result in HIV infection.

- So it is advisable to avoid multiple sex-partners and always use protection (condoms/nirodh) during intercourse.

Fig.7.3.19: Condoms

AIDS does NOT spread through

- Sitting close

- Working together

- Hugging

- Touching hands

- Mosquito bite

- Saliva or cough

- Taking care

- Sharing clothes

- Eating together or sharing utensils

7.3.7.1 Case Study

Gautam is a plumber. His family lives in a village. He travels from place to place. Once he visited a sex worker. After one month he fell ill. He went for a checkup and found he had AIDS. Gautam did not know it, but that sex worker had AIDS. He was infected from that one visit.

Share four things that you know or learnt about AIDS.

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Always remember:

- AIDS has no cure but can be prevented, therefore be cautious of it not afraid of it.

- Be faithful to your partner and always use condom while making any sexual contact.

- Take blood only after checking proper medical certificates.

- Do not discriminate HIV positive people.

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UNIT 7.4: Interpersonal Skill Development

Unit Objectives

At the end of this unit, you will be able to:

1. Develop a positive attitude and behaviour.
2. Understanding Goal Setting.
3. Motivated for team participation at work.
4. Learn how to manage relations.
5. Learn about Stress and anger management skills.
6. Learn to develop leadership qualities.

7.4.1 Introduction

Interpersonal skill development is the blend of different traits of day to day life that play an important role in creating our impression in other's mind. It starts from inside. The role of interpersonal skill development is to help us understand how to make choices about our attitudes and actions. It enables us to understand:

• Where are we now?

• How change and growth occur successfully?

• How we can change our attitude to get results we want and to be more effective in work and personal life?

One can learn to control over many aspects of our job and their environment by making appropriate choices and responses.

These include various traits like:

• Positive Attitude

• Motivation

• Goal Setting

• Team Work

• Managing Relations

• Etiquette

• Stress and Anger Management

• Conflict Resolution

7.4.2 Positive Attitude

What is attitude?

• Our approach...

• Our outlook towards situations and others...

- The emotions we express towards others.
- Our attitude must be positive and hopeful.

Remember:

- Luck favors those who help themselves
- Don't wait for things to happen make them happen
- Stay away from negative influences
- Start your day with something positive
- Learn to like the things that need to be done

Positive attitude manifests in the following ways:

- Positive thinking
- Constructive things
- Creative thinking
- Optimism
- The motivation and energy to do things to accomplish goals.
- An attitude of happiness

Positive attitude leads to happiness and success and can change one's whole life. If you will look at the bright side of the life, your whole life will fill with light. The positivity affects not only you and the way you look at the world, but it also affects work environment and people around you.

Fig.7.4.1: Positive Attitude

7.4.2.1 Story of Carrot, Egg and Coffee Beans

Raju works as a Supervisor in a factory. He is not happy with his job. One day he spoke about his dejection to his elderly friend, Prashant, who runs a small canteen for the factory workers.

"Prashant I am not satisfied with my job. There are so many problems in the factory. If I solve one, another one crops up. The problems seem to be never ending. I am quite fed up and wish to quit."

Prashant said nothing. He quietly put three pots with water on the stove. He put some carrots into one pot, some eggs into another and coffee beans into the third pot. The water in the pots began to boil.

Fig.7.4.2: Story of Carrot, Egg and Coffee Beans

Raju wondered what was going on! "Oh, here I am with my tale of woes, and this illiterate cook goes about his business!"

After some time, Prashant switched off the stove and put the carrots, eggs and the beans in different bowls. He then said, "My friend, what do you see here?" "Carrots, eggs and coffee", said Raju irritably. "Of course! Now come and feel them one by one", said Prashant. "Oh God! What do you want to prove?" asked Raju controlling his anger. "The carrots have turned soft. The egg is hard boiled beneath its shell and the coffee is stronger in aroma". "Exactly" said Prashant "Each of them faced the same degree of heat, but each reacted differently. The

carrots that were so hard before became soft and weak. The egg was fragile with its thin outer shell, but after boiling it became hardened and the inner liquid portion became hard boiled. But the coffee beans are unique. After boiling in water, they became stronger and richer. So my friend, tell me, are you the carrot, the egg or the coffee bean? How do you respond to difficult situations? Are you like the carrot that is hard to look at but with the slightest difficulty becomes weak and soft? Are you the egg born with a soft heart but became tough and stiff after a difficult or a bitter experience? Or are you like the coffee bean that gets stronger and tougher and reaches its peak in extreme adversity or difficulty?

When things get worse, you get better.

"Thank you Prashant. You've opened my eyes. I shall strive and do my best."

What you learnt from the story?

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7.4.2.2 Some Successful People

Dirubhai Ambani - Founder of the Reliance brand

Born in Junagadh in a middle class family, son of a school teacher. His mother who had difficulty meeting the ends with his father's income, nagged him to begin earning some money. He snapped at her "Phadia, phadia su karo chho ...paisa no to dhanglo karees ..." Just to show that that he was serious, he once bought a tin of groundnut oil on credit from a local whole seller and sold the oil in retail sitting on the roadside, earning a profit of a few rupees that he gave to his mother.

Fig.7.4.3: Dirubhai Ambani - Founder of Reliance

Next, he began setting up onion and potato fries stalls at village fairs during weekends when his school was closed. When he grew up, he came to Mumbai with very little money and lived in a two room chawl with his family. But dreamt big and worked towards his dreams.

Fig.7.4.4: Rajnikanth: Super star of Tamil cinema

Rajnikanth: Super star of Tamil cinema

- *Hero and semi-God for many thousands*
- *Original name Shivaji Rao Gaekwad*
- *From bus conductor to super star*

Early life:

- *Driven by poverty, went through extreme struggle*
- *No education; Worked as a bus conductor*
- *Entertained passengers in the bus*
- *Got a break in Tamil cinema*
- *Worked with a single mind to become a super hero*

What have you learnt from these two people?

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7.4.3 Goal Setting

Goal setting is a powerful process for thinking about your ideal future. The process of setting goals helps you to choose where you want to go in life.

Goal setting involves establishing specific, measurable, achievable, and realistic and time targeted goals. Goal setting helps people work towards their own objectives. Goals are a form of motivation that sets the standard for self-satisfaction with performance. Achieving the goal one has for oneself is a measure of success and being able to meet job challenges is a way one measures success in the workplace. Set SMART goals:

- S : Specific
- M: Measurable
- A: Attainment
- R: Relevant
- T: Time bound

Identify

- What you want to achieve,
- Where you have to concentrate your efforts
- Also spot the distractions that can, lead you astray.

First create your "big picture" (the next 10 years)

- Identify the large-scale goals that you want to achieve.

Fig.7.4.5: Goal setting

- Then break these down into the smaller targets that you must hit to reach your lifetime goals
- Once you have your plan, you start working on it to achieve these goals

Setting goal is important for an individual because:

- Goals narrow attention and direct efforts to goal related activities.
- Goals lead to more effort.
- One works through setbacks if he is pursuing a goal.
- It develops and changes individuals behaviour.

Categorization of Goals

To give a broad balanced coverage of all important areas in your life set goals in all the important categories of your life such as:

- **Career:** What level do you want to reach in your career or where you want to reach?
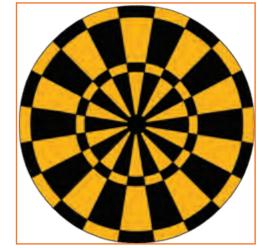
- **Financial:** How much you want to earn, by what stage? How it is related to your career goals?
- **Education:** Is there any specific knowledge you want to acquire in life? What information and skills you need to acquire in order to achieve your goals?
- **Family:** How you want to be seen by your spouse and family members?
- **Health:** Do you want good health deep in old age? What steps are you going to take to achieve this?
- **Public Service:** Do you want to make the world a better place? If so how?

Fig.7.4.6: Categorization of Goals

Write down your two financil goals.

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Write down your two career goals.

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Write down your two educational goals.

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Write down your family related two goals.

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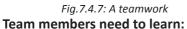
Write down your health related two goals.

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Write down your public service related two goals.

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7.4.4 Team Dynamics

A team comprises a group of people associated for a common purpose. Teams are especially appropriate for conducting complex tasks. A team is a special instance of a group in which shared goal is the common thing. This creates a dynamic between team members and because they are dependent on each other for success. For example a sports team wins or loses as a whole.

Fig.7.4.7: A teamwork

Team members need to learn:

- How to help one another
- Realize their true potential
- Create an environment that allows everyone to go beyond their limitations.

Factors of Team Dynamics

- Tolerance and Cooperation
- Set aside feelings of caste, creed, profession
- Put up with each other
- Identify strengths of each
- Who can do what

In a team, there is no room for personal gains and definitely not betrayals. In a team:
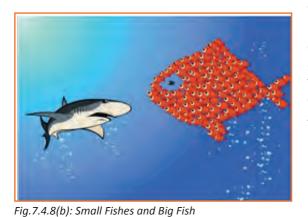
- A single person cannot achieve a big task single handedly.
- Big and difficult tasks can be accomplished only through collective effort, through teams.
- In a team, the team members stand by each other during good and bad times alike.
- Work together towards a common goal.
- Divide the task and share the burden.
- Help and accept help from others.

7.4.4.1 Story : Small Fishes and Big Fish

Once there was a shoal of tiny red fish living in the sea. One among them was a little different. His name was Swimmy and he was black in colour. Swimmy was the fastest swimmer in the shoal. The fish would swim around in the sea looking for food. One day when they were busy searching for lunch, Swimmy who was far ahead of the others saw a big fish coming in their direction. The big fish was also looking for his lunch---smaller fish. Swimmy was scared! If the big fish would spot his shoal, all of them would be eaten up. Swimmy thought hard of a way out and quickly came up with a plan. He quickly swam back to his shoal and told all the fish about the big fish and also explained his plan to escape from being eaten.

Fig.7.4.8(a): Small Fishes and Big Fish

When the big fish came closer he was shocked to see an even bigger fish swimming in his direction with its huge jaws wide open. Frightened that he would get eaten up, the big fish swam away. If he had looked carefully, he would have realised that the huge fish was actually all the tiny red fish swimming very closely together in such a way that they looked like one big fish. And little black Swimmy, being different, became the eye of the 'huge' fish!

Fig.7.4.8(b): Small Fishes and Big Fish

What have you learnt from the story?

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7.4.5 Managing Relations

We all have different personalities, different wants and needs, and different ways of showing our emotions which affects people around us.

70% of the workplace learning is informal, when people talk to each other at work they actually are learning to do their job better. Friendlier workers are effective communicators, more productive and trusted more by employers and co-workers.

Tips for improving relations with people around us:

- Observe how you react to people such as do you reach to a conclusion
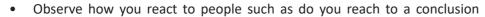
Fig.7.4.9: Managing Relations

before you know all the facts.

• Look honestly how you think and interact with other people.

• Look at work environment. Do you seek attention for accomplishments or give chance to others.

• Accept your weaknesses courageously and work on them.

• Take responsibility for your actions.

• If you hurt someone's feeling apologise directly.

7.4.6 Etiquette

Etiquette are the customs or rules governing behaviour regarded as correct or acceptable in social and official life. It includes:

Making Positive Impression

• Stand straight, make eye contact and turn towards people when they are speaking and genuinely smile at people.

• Follow the dress code prescribed by the organization.

• When meeting someone for the first time always shake hands with a gentle firmness.

• Always arrive early to work each day.

How you treat with people

• Think how you treat your supervisors and colleagues.

• Don't make value judgments on people's importance at workplace. Respect every individual equally.

• Respect people's personal space at workplace.

Communicating at Workspace

• Keep workspace professional and neat.

• Don't interrupt other people on the workplace.

• Limit personal calls especially when you are working in a manufacturing unit.

• Eat and smoke to the designated areas only otherwise it may disturb other people.

Work etiquette tells the individual how to behave when dealing with situations in a working environment however the trivial situation is. It also applies to co-worker interaction and communication with colleagues.

Work Ethics

Work ethics is a value based on hard work and diligence. Work ethics include:

• **Discipline:** It takes a certain level of commitment to finish your tasks every day. Only with discipline one can stay fixed on goals and determined to complete his assignment.

• **Commitment to work:** A strong sense of commitment to work affects how an individual work and the amount of work he does. When a worker is committed to work he turns up on time, puts in his best efforts and completes the projects to the best of his ability.

• **Punctuality:** It shows that you are dedicated to the job, interested in the work and capable of handling responsibility.Being punctual gives a sense of professionalism and commitment.

- **Ownership and responsibility:** Ownership and responsibility stretches in all aspects of an employee's job. Co-workers value the employees' ability to give honest feedback. Supervisors rely on the high moral standards trusting him not create problems and being responsible.

- **Striving to excel:** Keep yourself updated with new developments and knowledge of your field. Learn new skills, techniques, methods required to uplift your career.

Workers exhibiting a good work ethic in theory should be selected for better positions, more responsibility and ultimately promotion. Workers who fail to exhibit a good work ethic may be regarded as failing to provide a fair value for the wage the employer is paying them and should not be promoted or placed in positions of greater responsibility.

7.4.7 Stress and Anger Management

Anger is a normal and a healthy emotion. Managing anger can be a problem for some people who find it difficult to keep their anger under control. There are many health issues related to a unresolved anger such as high blood pressure, heart attack, depression, anxiety, colds and flu and problems related with digestion.

If your heart beats faster and you breathe quickly, tension in your shoulder or clinching your fists beware your body may be showing sign of anger, take steps to calm yourself down. Once you will be able to recognize the signs of anger you can calm yourself down.

Fig.7.4.10: Stress Management

Always remember:

- Avoid unnecessary stress, learn to say no and take control of your environment.
- Express your feelings instead of boiling them up.
- Accept the things you can't change.
- Learn to forgive.
- ANGER is only one letter away from DANGER.
- Anger can destroy lives, destroy relationships.
- Put yourself in other's shoes.
- Don't react immediately.
- Post pone for a few seconds whatever you wish to say or do.
- Take a deep breath.
- Speak when you have calmed down.

Fig.7.4.11: Anger Management

7.4.8 Conflict Resolution

What is a Conflict?

A problem or a situation that may be difficult to understand or to deal with.

Why do we need to resolve conflicts?

- If a problem is not solved or addressed at the right time it may blow out of proportion

- An unsolved problem can be like Cancer which spreads and translates itself into all other areas in life

- Unsolved problems may lead to increased levels of bitterness and frustration

- It may foster bad habits like back-biting, gossiping, etc.

- Persons involved in conflict may lose focus and target each other's character instead of the specific behavior to be modified.

How to work out Conflicts?

1. STOP . . .

   before you lose control of your temper and make the conflict worse.

2. SAY . . .

   what you feel is the problem. What is causing the disagreement? What do you want?

3. LISTEN . . .

   to the other person's ideas and feelings.

4. THINK . . .

   of solutions that will satisfy both of you.

If you still can't agree, ask someone else to help you work it out.

7.4.9 Leadership Skills

The ability to lead effectively is based on a number of key skills. These skills are highly sought after by employers as they involve dealing with a number of people in such a way as to motivate, enthuse and build respect. Some of the qualities that every good leader should possess are:

- **Honesty:** If you make honest and ethical behaviour a key value your team will follow the suit.

- **Ability to delegate:** delegating task to one of the appropriate person is the one of the most important skills that needs to be developed. The key to delegation is to identify the core strengths of the team and capitalizing on them.

- **Good communications skills:** Being able to communicate clearly is quite important.

- **Confidence:** Keeps morale of the team high even in the tough times.

- **Commitment:** If you expect your team to work hard and produce quality content then you should lead by example.

- **Positive Attitude:** Keeping teams motivated towards continued success of the company.

- **Creativity:** During the critical situations it is important to think out of the box solutions than to prefer the set course of action.

- **Be decisive:** Plan for the unexpected and nothing will surprize you. If you have thought of things go wrong in a particular task you will be able to make confident decisions on corrective actions when necessary.

- **Focus on the big picture:** Plan long term strategies for your department and communicate them to

supervisors and staff members. Set realistic and measurable individual and team goals and communicate your expectations in the context of big picture.

How to become a leader:

- Use initiative to act on opportunities. Become a leader before other people view you as one.

- Take responsibility of own objectives, set priorities.

- Display a can do attitude even in demanding situations. Try to solve the problem rather than to pass on to other people.

- Go the extra mile when asked to do tasks. Go beyond your job description.

- Show enthusiasm.

- Take ownership of the problems. Anticipate potential problems, take pre-emptive action and act quickly to resolve the problems.

- Introduce improvements to the ways things are done.

- Develop innovative practices. Value innovative thinking.

- Learn new skills that will enhance capability.

Notes

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UNIT 7.5: Social Interaction

Unit Objectives

At the end of this unit, you will be able to:

1. Understand what is social interaction and what are social interaction behaviours.
2. Give a brief description about himself/herself in public.
3. Follow daily duties.
4. Cooperate with peers, family and other members in society.

7.5.1 Social Interaction

Social interaction is the process by which we act and react to those around us. It includes those acts people perform toward each other and responses they give in return. Social interaction includes a large number of behaviours. They are:

Fig.7.5.1: Social interaction

- **Exchange:** Exchange is the most basic type of social interaction. It's a social process by which social behaviour is exchanged for some type of reward for equal or greater value.

- **Competition:** It's a process by which two or more people attempt to achieve a goal that only one can attain. It can lead to psychological stress, a lack of cooperation in social relationship, inequality and even conflict.

- **Cooperation:** It's a process in which people work together to achieve shared goals. No group can complete its task without cooperation.

- **Conflict:** Social conflict is the struggle for agency or power within a society to gain control of scarce resources. It occurs when two or more people oppose one another in social interaction to attain incompatible goals.

- **Coercion:** Individuals or groups are forced to give in to the will of other individuals or groups.

7.5.2 Self- Introduction

Everyone in their lifetime, have to introduce themselves to the audience or a class. It is a speech which lies around 3 minutes to 5 minutes. It is very important that it gives the first impression to other about us. It has a great impact on your self-esteem and self-confidence. It's helpful in:

Fig.7.5.2: Self- Introduction

- Feeling better about yourself
- Boosting your confidence
- Building your self esteem
- Making friends
- Feeling in control

Points for Self Introduction

Following are some self-introduction points:

- **Wishes:** It is the first thing that we need to do before addressing a gathering. At this point we need to make effort to grab the attention of audience. You have to wish depending on the time either, Good Morning, Good Afternoon or Good Evening.

    » Good Morning! My dear friends.

    » Respected Sir! Good morning.

    » Special or lovely or cool morning to you all.

- **Purpose:** We have to tell the purpose of coming in front of the audience. We can say I have come here to tell you about myself.

- **Name:** Here you tell about your name….. . To grab the attention of the audience, you have to present your name differently. If you know you can tell the meaning of your name or nay famous celebrity with your name.

- **Father's Name:** Here you have to mention about your father's name. Start your father name as Mr or Prof. or Doc.

- **Family:** It's a great opportunity to tell about your family, so tell the details what you want to tell about them.

- **Profession:** Tell about your profession what you are doing at present.

- **Location:** Tell about your present location, where you are staying and if you want you can also tell with whom you are living.

You can also tell about your native place. It is better to describe about or tell about your place which is famous for.

- **Hobbies/Habits:** Hobbies means what you like in your leisure and habit means your regular activities. This part tells about your nature and your life style, be careful while telling this.

- **Life Aim:** Tell about what is your aim in life, it will be good if your aim is high. You have to think high and reach high.

- **Achievements:** Tell about what you achieve up to now, minimum it is good to tell about three achievements and maximum five. Though achievements are small, tell them it shows your confidence but don't say I don't have any achievements.

- **Favourite Person's or Ideal:** It is good to say about your ideal persons.

- **Favourite movies, things, colour, places etc.:** if you want to tell your favourites, which tell about your tastes and preferences to others.

- **Your Strengths and Weakness:** You can tell about your strengths and weaknesses. Make sure your weakness should not be absurd or incorrigible.

- **People you like and dislike**: You have to tell what kind people you like or what kind of people you dislike.

- Any turning point in your life

- How are you different from others

- **Conclusion:** In conclusion offer a memorable answer on the question the listeners probably will have when they have listen to your public speaking speech. Tell how this aspect of your life makes you what you are and who you are. It will be perfect ending to your self –introduction.

- Finally say thank you.

You will have to adjust your speech according to the time, generally 3 minutes and you have to make the speech

depending on the section of people you are giving the speech and what you want to reveal about yourself.

Improving self-introduction

There are a few things that you can do that helps in making your self-introduction better:

- **Listen to what you are saying to yourself:** Notice what your inner voice is saying. Take some time to listen and even write down what you are thinking.
- **Monitor your self-talk:** Analyse that your self-talk is more positive than negative.
- **Change your introduction:** counter your negative thoughts with positive ones. Avoid speaking negative and try to look for things that might add a better spin to a tough situation.

7.5.3 Our Duties and Responsibilities

There are certain duties which are laid by the constitution of India. These duties are very to be fulfilled by every citizen of India. These are as follows:

- To abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem.
- To cherish and follow the noble ideals which inspired our national struggle for freedom.
- To uphold and protect the sovereignty, unity and integrity of India.
- To defend the country and render national service when called upon to do so.
- To promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women.
- To value and preserve the rich heritage of our composite culture.
- To protect and improve the natural environment including forests, lakes, rivers and wild life, and to have compassion for living creatures.
- To develop the scientific temper, humanism and the spirit of inquiry and reform.
- To safeguard public property and to abjure violence.
- To strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement.

These need to be followed by every citizen of India for development of the country.

7.5.4 Cooperation

Cooperation is the process of groups of organisms working or acting together for their mutual benefit. Cooperation among family members, friends and peers is very common and healthy. It is the backbone of any society.

Family cooperation provides an avenue for a family to come closer. It increases coping skills and decision making. Some steps to promote family cooperation are:

- **Plan things together:** It calls for negotiation and compromise and

Fig.7.5.3: Cooperation

teaches everyone to be more tolerant and considerable to other's viewpoint.

• **Share responsibilities:** Diving up necessary household responsibilities can be a good exercise in family cooperation.

Peer support occurs when people provide knowledge, experience, and emotional, social or practical help to each other. It's a distinct form of social support in that the source of support is a peer a person who is similar in ways to the recipient of the support.

The effective peer support can be in form of:

• **Social Support:** In form of positive psychological interactions with others with whom there is mutual trust and concern.

• **Experiential Knowledge:** contributes to solving problems and improving quality of life.

• **Emotional support :** Esteem, attachment and reassurance

• **Instrumental Support:** Material goods and services.

How to be a cooperative person

For being a cooperative person following things needs to be done:

• Listen carefully to others and be sure you understand what they are saying.

• Share when you have something that others would like to have.

• Take Turns when there is something that nobody wants to do, or when more than one person wants to do the same thing.

• Compromise when you have a serious conflict.

• Do your part the very best that you possibly can. This will inspire others to do the same.

• Show appreciation to people for what they contribute.

• Encourage people to do their best.

• Make people needed. Working together is a lot more fun that way.

• Don't isolate or exclude anyone. Everybody has something valuable to offer, and nobody likes being left out.

UNIT 7.6: Group Interaction

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Participate in group discussions in the class.
2. Give speech in the public.
3. Understand the importance of team building and team work.

7.6.1 Group Interaction

Every day we meet with groups of people socially and professionally. How we interact plays a large role in the impressions we create. Interaction that occurs while a group completes a cooperative task describes how the group works.For a successful and positive group interaction these steps needs to be followed:

Fig.7.6.1: Group Interaction

- Put your mobile phone away or place in silent mode.

- Greet everyone.

- Be friendly with everyone in the group.

- Show an interest in others by paying someone a compliment and listen carefully to what is being discussed.

- Be proactive and introduce yourself to others in the group.

- Sit up straight. Poor body posture is an indication of low self-esteem.

- Focus your attention on the person talking.

- Don't discount anyone's comment. Remember everyone is different and have different the ability to think.

- Think before you speak. Don't be too quick to jump into the conversation.

- Be a respect listener and observer.

- Include everyone when talking. Be sure to share eye contact with each person in the group.

- Unless there is a clear indication don't change the topic. Otherwise it will make people feel you are not interested in the topic.

- Don't start or participate in a side conversation. Don't allow their mistake to prevent you from being a good listener.

- Make sure to smile shake hands and embrace and use each person's name when conversation and the person's name when the discussion is over.

Everything you do in a group setting makes an impression on everyone in the group. Don't ever think something doesn't matter. Everything matters. Take every opportunity to take part in informal and formal group interactions. Start by making small contributions to discussion, prepare a question to ask or agree with another person's remark. Ask for other persons opinion.

7.6.2 Importance of Group Interactions

As a participant group interactions is important as:

- It helps you to understand a subject more deeply.
- It improves your ability to think critically.
- It helps in solving a particular problem.
- It helps the group to make a particular decision.
- It gives you the chance to hear other students' ideas.
- It improves your listening skills.
- It increases your confidence in speaking.
- It can change your attitudes.

As a moderator a group interaction helps in:

- Understanding a candidates interpersonal skills.
- Identifying if a candidate has the ability to work in a team.
- Understanding ones attitude.
- Selecting a perspective candidate in a perspective methodology.

Dos and Don'ts of Group Interaction

Do's	Don't
• Speak pleasantly and politely to the group.	• Lose your temper. A discussion is not an argument.
• Respect the contribution of every speaker.	• Shout. Use a moderate tone and medium pitch.
• Remember that a discussion is not an argument. Learn to disagree politely.	• Use too many gestures when you speak. Gestures like finger pointing and table thumping can appear aggressive.
• Think about your contribution before you speak. How best can you answer the question/ contribute to the topic?	• Dominate the discussion. Confident speakers should allow quieter students a chance to contribute.
• Try to stick to the discussion topic. Don't introduce irrelevant information.	• Draw too much on personal experience or anecdote. Although some tutors encourage students to reflect on their own experience, remember not to generalize too much.
• Be aware of your body language when you are speaking.	
• Agree with and acknowledge what you find interesting.	• Interrupt. Wait for a speaker to finish what they are saying before you speak.

Fig.7.6.2: Dos and Don'ts of Group Interaction

7.6.3 Team Work

Team work is a very important part of working life. They can have a big impact on:
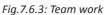
- The profitability of an organisation.

- Whether people enjoy their work.
- Staff retention rates.
- Team and individual performance.
- Company reputation.

Importance of Team Building

Team building activities not only boost morale of the team members, but it can also increase the success rate of the teams. Team building is an important activity as it:

Fig.7.6.3: Team work

- **Facilitates better communication:** Activities that create discussion enable open communication among employees, and between employees and management. This can improve office relationships and in turn, the quality of work done.
- **Motivates employees:** The more comfortable team members are to express their ideas and opinions, the more confident they will become. This will motivate them to take on new challenges.
- **Promotes creativity:** Working together with other team members can ignite creativity and fresh ideas.
- **Develops problem-solving skills:** Team building activities that require team members to work together to solve problems can improve the ability to think rationally and strategically. Teams that are able to determine when a problem arises and know what they can do about it, can then effectively take charge when a real crisis occurs.
- **Breaks the barrier:** Team building increases the trust factor with your employees.

Do and Don'ts of working in a Team

- **Don't argue in public:** if you have a disagreement with someone in the team find a neutral place to discuss the situation.
- **Do encourage each other:** when things get tough the tough gets going. Contribute to the team in trying situation.
- **Don't talk behind the backs:** if you have trouble with some team member don't share with others. Go directly to the person in a kind and compassionate manner and share what is in your mind.
- **Do lend a hand:** if a team members is asking for help don't hesitate in helping him.
- **Don't be the weakest link:** Live up to your responsibilities, meet team expectations and communicate effectively in the team.
- **Give and receive feedback:** As a part of growing team give and receive feedback respectfully and graciously.

UNIT 7.7: Time Management

Unit Objectives 🎯

At the end of this unit, you will be able to:
1. Understand the importance of time management.
2. Develop time management skills.
3. Learn about effective time planning.

7.7.1 Time Management

Time management is the act of process of planning and exercising conscious control over the amount of time spent on specific activities, especially to increase effectiveness, efficiency or productivity. It is an activity with the goal to maximize the overall benefit of a set of activities within the boundary condition of a limited amount of time.

Some effective time management

- Delegate tasks.
- Identify time wasters.
- Combine activities – Plan for them.
- Break down big tasks down to the smallest task possible.
- Accomplish them one by one.
- At the end of the day conduct a simple analysis to see which activity took time.

Fig.7.7.1: Time management

7.7.2 Time Robbers

Time robbers are those activities which create interruption at the workplace. These activities create a deviation from the objectives which needs to be achieved. Time Robbers could be:

- Poor personal planning and scheduling.
- Interruptions by people without appointments.
- Poor delegation.
- Poor use of the media: Telephone, Mobile, e-mail, and fax, etc.
- Reading junk mail.
- Lack of concern for god time management.
- Lack of clear priorities

The Time Robbers can be avoided by:

- Be active all the time.

- Develop and maintain an organized personal activity schedule.

- Set your priorities.

- Proper delegation.

- Utilize modern technical media.

7.7.3 Pareto Analysis

- • According to this 80% of the tasks can be completed in 20% of the time. The remaining 20 % of the tasks take 80 % of your time. And the task which should fall in first category should be given a higher priority.

- • Time also depends on the method adopted to complete the task. There are always simpler and easier ways to complete the task. If one uses complex ways then it will be time consuming. One should always try to find out alternate ways to complete a task.

Urgent Important Matrix

1.The Urgent and Important Tasks	2. The Non Urgent but Important Tasks
DO NOW • Emergencies, complaints and crisis issues • Demands from superiors • Planned tasks or project work now due • Meetings with superiors/colleagues	PLAN TO DO THEM • Planning, preparation • Scheduling • Designing, testing • Thinking, creating, modelling the data
3. The Non Important but Urgent Tasks	4. The Non Important and non-Urgent Tasks
REJECT AND EXPLAIN • Trivial requests from others • Apparent emergencies • Misunderstandings appearing in work • Pointless routines or activities	RESIST AND CEASE • Comfort' activities, computer • Games, net surfing, excessive • Cigarette breaks • Chat, gossip, social • Communications • Reading irrelevant and useless material

Fig.7.7.2: Urgent Important Matrix

This matrix helps you understand:

- What should be done

- What should be planned

- What should be resisted

- What should be rejected

The simplest method of managing time is to create a general to do list. Prioritize the task list:

- A daily list of things to do, numbered in the order of their priority
- Start with the most unpleasant and difficult task first latter will completed easily and quickly.
- Map out everything while making a task list
- Learn to say "No" to unimportant things
- Strikeout the things completed so that you are familiar what have been completed and what needs to be completed.

List down the routine activities that you perform in a day.

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Prioritize the above mentioned activities in the following heads.

Important Tasks	Unimportant Tasks	Urgent Tasks	Not Urgent Tasks

UNIT 7.8: Resume Preparation

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Understand the importance of resume.
2. Learn how to prepare a resume.

7.8.1 Introduction

A resume is a self-advertisement that, when done properly shows how your skills, experience and achievements match the requirement of the job you want. The resume is a tool with one specific purpose to win an interview. It convinces the employer that you have what it takes to be a successful in the new career or position.

It also establishes you as a professional person with high standards and excellent writing skills based on the fact your resume is written well. It also helps you clarify your direction, qualifications and strengths, boost your confidence or to start the process of committing to a job or a career change.

Fig.7.8.1: A resume

One must know about a resume that:

- Your resume is to get you an interview not a job

- Your resume will be screened by an employer for just 15-20 seconds. That's all the time your resume has to make an impact.

There are different sections on the resume in the same order as mentioned under:

Section	What is the employer looking for
Header	Your identity and to contact you
Objective	To check if their requirement and your objective match
Education	To check if you have the basic qualification for the job/internship you are applying for
Practical Experience/Projects	To see if you have done anything that reflects your potential capability. Also to see how different you are from your peers.
Skills	How equipped you are in terms of your personality traits as well as occupational skills
Interests	Professional aspects apart, how meaningful is your life?
Other	Is there anything else significant and relevant you want to showcase, that will add value to your resume.

Fig.7.8.2: Different sections on the resume

Preparation work and important tips

Before you start preparing your resume make sure to follow the checklist:

- Educational documents from class 10 onwards to calculate scores
- Make list of all things that you want to add to your resume. Like internships, projects, part time jobs, extracurricular activities, sports, training, skills, interests etc. the list does not need to be exhaustive, you can always add to the list as you go.

Before preparing resume always remember:

- Every point in your resume should be specific and must be supported be supported by a number of factual information.
- Use action verbs in all your points. They catch attention immediately and make your sentences clear.
- Use bullets not paragraphs.
- Do not mention your responsibilities mention what you have accomplished.
- A common mistake we make while constructing the resume is to copy the format from our friends resume and built it based on that.

7.8.1.1 Resume Header

Purpose: you need to give some basic information about yourself, mainly so that they can contact you.

Fields to include: Name, current address, email id, phone number, date of birth. Write your name in a bigger font, than the other text.

Do Not:

- Do not include your photo.
- Do not write your resume as a heading to the file.
- Do not give unnecessary details like family information, marital status, etc.
- Do not add these details to the bottom of your resume.
- Do not occupy much space to fill up these details.

7.8.1.2 Framing the Objective

Purpose: To convey to your employer what your goal is. It should be aimed at towards getting a particular position in a specific industry.

Always remember:

Your objective should include the following:

- Position wanted
- Functional area

- Industry wanted

- Be specific and restrict it to minimum words.

- You objective should be different to each role you apply to

- Keep the employers requirement in mind while writing the objective. The objective is not what you desire from the company, it's about company's need.

7.8.1.3 Education

The next session in your resume is to highlight your educational qualifications.

Purpose: For the employer to know if you have basic qualification for the job/internship you are applying for.

Always Remember:

- Write all educational qualifications from class 10 till present.

- For class 10 and 12 – include school/college name, Board, Stream/Specialization (If any), year study, Marks.

- For undergraduate – include college name, University name, Degree and Specialization, year of study.

- Write all your qualifications in reverse chronological order, i.e. the latest qualification on top.

- You may write the educational qualifications in a tabular format or in a simple one after the other order.

7.8.1.4 Projects, Internships, Etc.

The next part of your resume will include the real hands on work that you have done. This includes projects, internships, in-plant training, part time jobs, volunteering, starting up a company and other initiatives you have taken. Based on the number and the nature of initiatives you have taken, you can take a call on whether to have a single heading for this or list them under multiple headings.

Purpose: This is a critical component of your resume, as your hands on work and the initiatives you have taken apart from your curriculum in what will reflect your real potential as well as differentiate your resume from your peers.

Remember:

- The heading should be – title / project name, role, company/organisation name, -2 lines description about the specific time period.

- Time period is must.

- The entries under each heading must be in reverse chronological order.

- Be very specific on what you have accomplished. Add numbers and facts wherever possible.

Do Not:

- Do not write generic statements. It does not give employer a clear picture of the work you have done. Thus the employer would assume that you have done an internship for the certificate.

7.8.1.5 Skills

Heading: You can have multiple headings under skills. Common heading can include:

- **Soft Skills:** must include, they showcase your personality traits.
- **Core occupational skills:** Optional include if you possess any core skills. These are skills you possess relevant to the role you are applying for.
- **IT Skills:** Optional, Advisable to include this if you are applying for IT/software related roles.

Remember:

- List your skill and add a point which supports your skill the best.
- Make specific points. Add numbers and facts wherever possible.
- Pick only three to four soft skills that describes you the best.
- Dig your past to discover the best of these skills you possess and the best instance you can quote to support it.

7.8.1.6 Interests

In this section of your resume carefully choose which of interests you want to showcase on your resume so that they can make your life seem meaningful.

The interests you showcase speak about your character. These interests frequently come up as a topic of discussions during the interviews, so wisely choose what to display.

Remember:

- List interests which are meaningful and display some learning.
- Support the interest you have listed
- Make points specific and add supporting fact to it.
- Do not just list random cluster of interests like: adventure, guitar, reading, environment
- Never include interests like partying, watching movies etc. they create wrong impression.

7.8.1.7 References

Give References

The last thing on your resume should be a list of 2-4 professional references. These are all people who you are not related to, but whom you have dealt with in a professional manner. You might consider previous employer, professor or volunteer coordinator to include on your reference page.

- Include the name of the reference, their relationship to you, mailing address, e mail and phone number.
- The place you are applying to may contact these people, so always call them in advance to let them know that you are using them for a reference and are currently applying for a job.

7.8.1.8 Points to Remember

- Make sure that the length of your resume does not exceed 2 pages.

- Do a thorough recheck and make sure there are absolutely no errors in your resume. No grammatical errors, no spelling mistakes, no punctuation errors.

- Run through your resume time and again for to make improvements and wording sentences better.

- Choose a professional font in a size 11 or 12. You can use multiple fonts for different parts of resume, but try to limit it maximum of two fonts. Instead changing between fonts, try making specific sections bold or italicized instead.

- The font size of your header and the introduction to a section may be a size 14 or 16.

- Your text should always be printed in solid black ink. Make sure to deactivate any hyperlinks so that they don't print in blue or other contrasting colour.

- Your page should have one inch margin all the way around with 1.5 or 2 point line spacing. The body of your resume should align left and your header should be centred at the top of the page.

UNIT 7.9: Interview Preparation

Unit Objectives ⊚

At the end of this unit, you will be able to:

1.   Understand the procedure of interview.
2.   Go thorough mock interviews.
3.   Understand how to present themselves during an interview.
4.   Motivated to work after the training period is over.

7.9.1 Interview

An interview is a conversation between two or more people (the interviewer(s) and the interviewee) where questions are asked by the interviewer to obtain information from the interviewee. An interview is the first and last hurdle you need to cross in order to get a job.

Fig.7.9.1: Interview

Common Types of Interview

1.   **Traditional HR Interview:** Most interviews are face to face. The most traditional is a one-on-one conversation with the HR Executive where the candidate's focus should be on the person asking question. You are advised to maintain good eye contact, listen keenly and answer promptly.

2.   **Panel Interview:** In this situation, there is more than one interviewer. A panel ranging from two to ten members may conduct this part of the selection process. This is an ideal chance for you to display group management and group presentation skills.

3.   **Technical interview:** The objective of this interview is to basically evaluate technical knowledge. Majority of the questions will be based on the skills sets mentioned in the candidate's resume.

4.   **Telephone Interview:** Telephone interviews may also be used as a preliminary interview for candidates who live far away from the job site.

Before going for an interview, it is important to have clarity of the role you are applying for. It's also important that you know where you are applying and who will you be talking to. Your answers should tell the employer that you are the match they are looking for.

This requires you to do a small research on the following fields:

• Company & Field

• Job Description

• Yourself (Skills, Values & Interests)

• Resume (Experience)

If you were an employer, you would have chosen a person who is sure of himself, calm and confident. So it's important that you are:

• Confident

• Relaxed

• Sure of yourself

• Prepared

• Before, during and after the interview, it is important for you to be prepared.

• Dress Professionally

It is important that you dress professionally. It is a proven fact that the way we dress makes a huge difference in the way we are perceived. 90% of the way you communicate with other people is through body language (gestures, expressions, etc.) and the first Impression we make. It is very simple to make a great first impression.

For a good first impression it is important those we:

• Smell good

• Have a professional appearance

• Pay attention to your grooming

• Make eye contact

• Know what and how you speak

• Our overall personality contributes to our complete perception.

How to dress for Interview

Men	Women
Long-sleeved buttoned shirt (clean and pressed)	**Conservative pump, no stilettos**
Dark shoes (cleaned and polished) and dark socks	Jewellery -One set of earrings (preferably knobs)
Get a haircut (short hair is always best)	No bangles
No Jewellery (chains, earrings, piercing)	Minimal use of makeup
No beards or Tattoos	

Fig.7.9.2: Dress for Interview

7.9.2 The Do's and Don'ts in an Interview

Some of you might have faced an interview and some of you might not have. However, by now, you definitely have a better understanding what are the accepted standards of a professional behaviour. Read the sentences given and mark them as do's or don'ts, in relation to an interview:

Sentence	Do's	Don'ts
Be yourself		
Burp while talking!!!		
Just out from a 'powder factory' (worn too much make-up)		
Reach just about the right time for the interview		
Just barge in the cabin/ office		
Forget to greet the receptionist/ don't respond		
Think before you speak		
Do your homework- Visit the company website		
Take time to think (TTTT)		
Wear bright colour clothes on the D-day		
Emphasis on your strengths		
Argue/ Debate with the interviewer		
Chew gum during the interview.		
Review your educational and work experiences		
See your documents flying out of the file (Being clumsy)		
Thank the interviewer		
Have the 'they need me' attitude		
Maintain eye contact and good body language		
Only give monosyllabic answers(depends on the kind of questions asked…in-between)		
Carry a copy of your resume		

Fig.7.9.3: Do's and Don'ts in an Interview

7.9.3 During the Interview

- Be confident, not arrogant
- Sell yourself - Keep your energy up
- Maintain your posture
- Be positive, don't complain
- Know your resume and accomplishments.

It isn't sufficient to have ideas. They have to be expressed effectively in the interview. The parameters that the candidates are assessed on during the interview are very simple. These are the parameters that this training program has prepared you for.

7.9.4 Active listening

- Clarity of thought and expression
- Apt language
- Appropriate of body language
- Fluency
- Ideas should be expressed fluently in the right voice, right tone, and right articulation

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8. IT Skills

Key Learning Outcomes

At the end of the module, you will be able to:

1. Familiarise with computers
2. Identify and use basic uses of a computer
3. Familiarise with a computer motherboard
4. Familiarise with a computer operating system
5. Use Microsoft Word, Excel and Powerpoint
6. Familiarise with Internet and use e-mails

UNIT 8.1: Introduction to Computer

Unit Objectives

At the end of this unit, you will be able to:

1. Define the computer.
2. Recognise its various parts.
3. Differentiate the advantages and disadvantages of computer.

8.1.1 What are Computers?

Computer is an advanced electronic device that takes raw data as input from the user and processes these data under the control of set of instructions (called program) to give the result (output). The first fully electronic computers, introduced in the 1940s, were huge machines. However today's computers are not only thousands of times faster but they can fit on your desk, on your lap, or even in your pocket.

Computers work through an interaction of hardware and software.

- **Hardware = Internal Devices + Peripheral Devices:** All physical parts of the computer (or everything that we can touch) are known as hardware. The most important piece of hardware is a tiny rectangular chip inside your computer called the central processing unit (CPU), or microprocessor. It's the "brain" of your computer—the part that translates instructions and performs calculations. Hardware items such as your monitor, keyboard, mouse, printer, and other components are often called hardware devices, or devices.

- **Software = Programs:** Software gives "intelligence" to the computer. Software refers to the instructions, or programs, that tell the hardware what to do. A word-processing program that you can use to write letters on your computer is a type of software. The operating system (OS) is software that manages your computer and the devices connected to it. Windows is a well-known operating system.

8.1.2 Advantages of Computers

Compared to traditional systems, computers offer many noteworthy advantages. The main advantages offered by computers are as follows:

- High Accuracy
- Superior Speed of Operation
- Large Storage Capacity
- User-friendly Features
- Portability
- Platform independence
- Economical in the long term

Exercise

1. When was the first fully electronic computer introduced?

   a) 1930s

   b) 1940s

   c) 1950s

   d) None of these

2. Give 3 examples of the hardware components of computers?

   ....

   ....

3. What is an Operating System (OS)?

   ....

   ....

4. Mention 3 advantages of computers

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UNIT 8.2: Basic Computer Knowledge

Unit Objectives ◎

At the end of this unit, you will be able to:

- Use computer.
- Explain the web, email services.

What can you do with computers?

In the workplace, many people use computers to keep records, analyze data, do research, and manage projects. At home, you can use computers to find information, store pictures and music, track finances, play games, and communicate with others—and those are just a few of the possibilities.

You can also use your computer to connect to the Internet, a network that links computers around the world. With Internet access, you can communicate with people all over the world and find a vast amount of information.

Some of the most popular things we can do with computers are mentioned in this chapter.

8.2.1 The Web

The World Wide Web is a gigantic storehouse of information. The web is the most popular part of the Internet, partly because it displays most information in a visually appealing format. Headlines, text, and pictures can be combined on a single webpage—along with sounds and animation. A website is a collection of interconnected webpages. The web contains millions of websites and billions of webpages.

Surfing the web means exploring it. You can find information on the web about almost any topic imaginable. For example, you can read news stories and movie reviews, check airline schedules, see street maps, get the weather forecast for your city, or research a health condition.

Fig.8.2.1: A Microsoft Web Plateform

8.2.2 E-mail

E mail (short for electronic mail) is a convenient way to communicate with others. When you send an e mail message, it arrives almost instantly in the recipient's e mail inbox. You can send e mail to many people simultaneously and you can save, print, and forward e mail to others. You can send almost any type of file in an e mail message, including documents, pictures, and music files.

Fig.8.2.2: Email Link (Exampple)

8.2.3 Instant Messaging

Instant messaging is like having a real-time conversation with another person or a group of people. When you type and send an instant message, the message is immediately visible to all participants. Unlike e mail, all participants have to be online (connected to the Internet) and in front of their computers at the same time. Communicating by means of instant messaging is called chatting.

Fig.8.2.3: Instant Messaging

8.2.4 Pictures, Music and Movies

If you have a digital camera, you can move your pictures from the camera to your computer. Then you can print them, create slide shows, or share them with others by e mail or by posting them on a website. You can also listen to music and watch movies on your computer.

Fig.8.2.4: Media Resources Icons

Exercise

1. Give 3 examples of how you can use computers?

   ....

   ....

2. All participants have to be online and in front of the computers for instant messaging to work?

   a) True

   b) False

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UNIT 8.3: Components of Computer

Unit Objectives 🎯

At the end of this unit, you will be able to:
* Know the different parts and components of computer.

8.3.1 Motherboard

The motherboard is the main component inside the case. It is a large rectangular board with integrated circuitry that connects the various parts of the computer as the CPU, RAM, Disk drives (CD, DVD, Hard disk or any others) as well as any other peripherals connected via the ports or the expansion slots. Components directly attached to the motherboard include the following.

The central processing unit (CPU)

The central processing unit (CPU) performs most of the calculations that enable a computer to function and is sometimes referred to as the "brain" of the computer. It is usually cooled by a heat sink and fan.
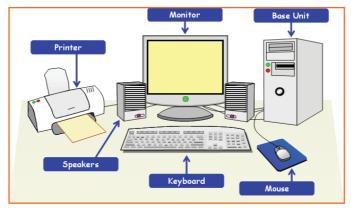
Fig.8.3.1: Different parts of a Computer

The chip set

The chip set aids communication between the CPU and the other components of the system, including main memory.

RAM (Random Access Memory)

RAM (Random Access Memory) stores all running processes (applications) and the current running OS.

The BIOS

The BIOS includes boot firmware and power management. The Basic Input Output System tasks are handled by operating system drivers.

Internal Buses

Internal Buses connect the CPU to various internal components and to expansion cards for graphics and sound.

Exercise

1. What is the full form of CPU?

   ....

   ....

2. What does the Chip Set do?

   ....

   ....

3. What is the full form of BIOS?

   ....

   ....

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UNIT 8.4: Concept of Operating System

Unit Objectives

At the end of this unit, you will be able to:

- Familiarise with the concept of operating system.
- Work on Windows 8 and 8.1.
- Add or Remove desktop icons, make or delete a folder etc.

8.4.1 Windows XP

Windows XP is a personal computer operating system created by Microsoft as part of the Windows NT family of operating systems. Basically, It let you use different types of applications or software on the operating system For example, it allows you to use a word processing application to write a letter and a spreadsheet application to track your financial information. Windows XP is a graphical user interface (GUI).

Learn more about Windows XP by exploring it

There are different versions of Windows, when you install any version of Windows on your operating system it is known as to 'upgrade' your system. Below are the images of different versions of windows for your more clarity.

Desktop: The desktop is your work surface representing a physical workspace at home or work. It is the screen you see once your computer has finished booting up and you are ready to get started.

Wallpaper (Desktop Background): The image on your desktop is called Wallpaper or Desktop Background.

Fig.8.4.1(a): Different versions of windows

8.4.2 Tools and Parts of an Operating System

Icons: The small pictures are shortcuts to programs called icons. Double-click icons to start a program. Clicking the Start button also shows a list of programs and other options on the computer.

Taskbar: The blue bar across the bottom of the screen is called the Task Bar.
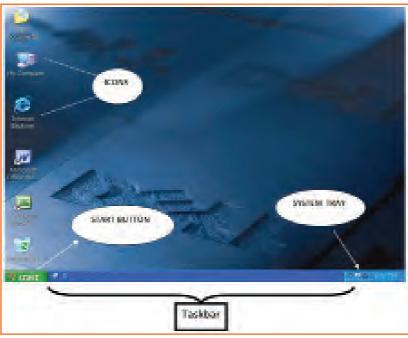
Fig.8.4.1(b): Windows XP Desktop

System Tray: It is an area where you can access programs that are running in the background. The more programs you have in this area, the longer it takes for the computer to boot up. The system tray of a desktop area has icons as shown in the image to indicate which programs are currently running in the background. Once you single click on the left-facing arrow button you would be able to open and see what else is there.
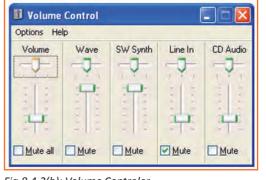
Volume Controls: The speaker icon will open the volume controls. Once you do the single click on an icon you can make a quick volume change. Click and drag on the bar to raise or lower the overall volume, or click in the check box to mute all sound as shown in the picture.

To view sound settings, right click on the sound icon in task bar and left click on open volume control or double click on the sound icon. To change the volume settings,

Fig.8.4.2(a): Volume Controler

click and move the volume bars up and down in specific categories. To set volume balance, click and move balance bars right and left. To mute, click the check box below the volume categories.

Fig.8.4.2(b): Volume Controler

External Hardware: You might run across this icon on your operating system frequently. This appears every time any piece of external hardware is plugged in. for e.g. USBs like pen drives, digital cameras, external hard drives, etc.

Fig.8.4.3: Removing External Drives

Fig.8.4.4: Message shown AfterRemoving External Drives

Windows Updates: A yellow shield with an exclamation mark on it will appear, if the computer has any updates from Microsoft to be downloaded. Make a single click on the icon to identify what needs to be done as shown in the picture, once you single click, your computer will walk you through the steps.

Fig.8.4.5: Message Windows Update

Power: There are two symbols for power one is a battery and the other is a power cord with a blue lightning bolt. The latter symbol means that the laptop is plugged into the wall outlet and is charging. The battery symbol means that the laptop is running purely off of batter Power.
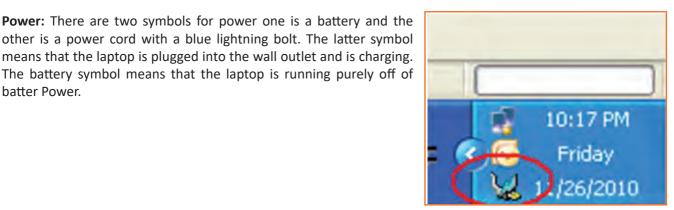
Fig.8.4.6: Icon Showing Charging on Laptop

Wireless: Laptop computers are capable of connecting to a wireless network to gain access to the Internet. To connect to a network, right click on the wireless icon and choose.

Fig.8.4.8: Network Selection Dialog

Fig.8.4.7: Wireless Network Icon

View Available Wireless Networks: In the Window that appears, choose the network from the list that you desire to connect to and click on the Connectbutton that will appear in the lower right corner.

8.4.3 Add or Remove Desktop Icons

You can add or delete Icons or Desktop Shortcuts from the Desktop area.

To add an Icon:

- **Step 1:** Click on the *Start* button.

- **Step 2:** Put your mouse over *All Programs*. A menu will appeat with all of your programs.

- **Step 3:** Go to the program that you want to create a shortcut for and *Right-click* on it. A menu will appear.

- **Step 4:** Point to *Send To.*

- **Step 5:** Left click on *Desktop (create shortcut)*.
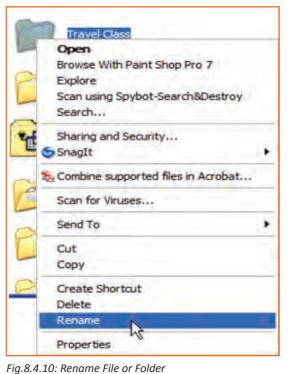
Fig.8.4.9: Delete Shortcut

To remove an icon:

- Left click on the icon.

- Hit the *Delete* button on your keyboard.

- When your computer asks if you are sure you would like to delete this program, click on the *Delete Shortcut* button. The window that popped up is called a Dialog Box.

Dialogue box: A dialog box is window that appears when your computer has a question for you. Sometimes a dialog box appears merely to inform you of something. You must click on the OK button to acknowledge that you have read the message before you can continue. For example:

- **Step 1:** Double click on the *My Documents* folder on the desktop.

- **Step 2:** Locate the folder titled *Travel Class*, and right click on it.

- **Step 3:** Left click on *Rename*.

- **Step 4:** Type *eBay* and press the enter key on the keyboard.

- **Step 5:** A dialog box will appear to inform you that you cannot rename the folder to "eBay" because an item by that name already exists.

Fig.8.4.10: Rename File or Folder

8.4.4 Create a Folder

Some people like to keep folders on their desktop to keeping important files in. (You could also use the My Documents folder for this purpose.)

- **Step 1:** Find an empty area on your desktop with no icons or windows in the way.

- **Step 2:** Right click on the empty space.

- **Step 3:** Point to *New*. (You do not need to click.)

- **Step 4:** In the menu that pops out, left click on *Folder.*

- **Step 5:** Your new folder has been created and is waiting for a name. *Don't click!* Just start typing to give the folder a name.

- **Step 6:** When finished, hit the enter key on the keyboard or click beside the folder. Your new folder is ready to receive files.
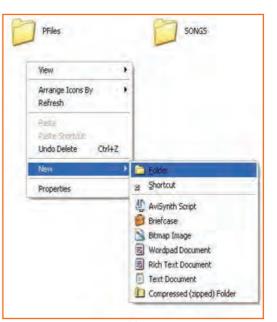
Fig.8.4.11: Create New Folder

8.4.5 Place Your Favorite Webpage as a Desktop Icon

You can create a shortcut of your favorite web page directly on your Desktop:

- **Step 1:** To create the shortcut, you must first open your Internet browser. (Double click on the Internet Explorer icon.).

- **Step 2:** Type in the web address of the page you want to view and hit the enter key on your keyboard.
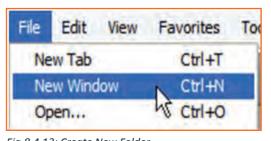
Fig.8.4.12: I E Icon

- **Step 3:** Once the website is open, restore down the windows to that you can view the Desktop space partially behind the opened webpage.

- **Step 4:** Either, Point your mouse at the icon to the left of the web address in the address bar as shown below. Hold down your left mouse button and drag the small icon onto empty area of your Desktop. Let go and a shortcut of your webpage will be created on your Desktop.

8.4.6 Managing Multiple Windows

Your taskbar area shows which windows are open, if you open a lot of windows from the same program, they will start to stack up. Let's open a lot of windows and see what happens.

- **Step 1:** In Internet Explorer, click on the *File* menu and then on *New Window*.

- **Step 2:** In the *address bar* type Yahoo.com and hit the *enter key* on the keyboard.

Fig.8.4.13: Create New Folder

- **Step 3:** Repeat the first two steps at least 5 times and go to different websites such as *Google.com, abc.com, nbc.com, msnbc.com, pbs.org, fox8.com, andwews.com*. Your taskbar will start to get full. Once you have seven windows open, they will all group together under one item.

Fig.8.4.14: Application Icons on Taskbar

Normally, if your items aren't grouped together, you would be able to select one item from the taskbar to navigate to that window. When they are all stacked, you have to click on the group and go from there.

- Left click on the group of stacked Internet Explorer windows in the taskbar to open the list.

Fig.8.4.15: Multiple Windows of Application

- Notice you can see which website each one represents. Click on the one you would like to see.

8.4.7 The Keyboard

A computer keyboard is very much like a typewriter keyboard, but it has some extra keys.

Fig.8.4.16: A Simple Keyboard

The ESC key in the upper left corner will close any menus you have opened but do not want to select an item from. (Try opening the Start menu and then click on the Esc key.)

The Function keys along the top of the keyboard each have special uses, often in conjunction with the ALT or CTRL keys, depending on the program you are using. F1 usually open the program's Help options. It is different for every program.

Fig.8.4.17: Esc Key on Keyboard

Fig.8.4.18: Function Keys on Keyboard

In the bottom left corner are three keys unique to the keyboard – CTRL, Windows, and ALT:

- **The CTRL key** is used in conjunction with other keys to perform various functions. (CTRL +P will open the print window when in Microsoft Word.)

- **The Windows key** works like pressing the Start button on the screen.

- **The ALT key** is another helper key used in conjunction with other keys.

- **The Caps Lock key** is used in typing. Pressing this key once will make all letters you type CAPITALIZED. Press the Caps Lock key again to turn off this feature.

- **The Shift key** is used in typing to make one capital letter. To capitalize a letter, press the Shift key and hold it down, then press the letter you want capitalized. Release the Shift key and continue to type.

- **Page Up** and **Page Down** move the cursor through a document page by page, either up or down.

- **The Arrow keys** help you move the cursor around the screen (when using a program like Microsoft Word) or across a line of text when typing in a text box.

- **The Insert key** is used when typing to type over words you have already typed.

- **The Delete key** is used to remove text you have typed that is to the right of the cursor or to send selected items to the Recycle Bin.

- Pressing the **Home key** sends your cursor to the beginning of a line of text. Pressing the End key sends the cursor to the end of a line.

- To the right of the spacebar you see another **Alt key, Windows key, and Ctrl key**. Notice the new Application key. Pressing this key is the same as pressing the right mouse button (right clicking).

- **The Backspace** key is used to remove text you have typed that is to the left of the cursor.

- **The Enter key** gives a new line (like a carriage return) when you are typing. At other times the Enter key works like a left mouse click.

8.4.8 Common Windows Commands

One feature of Windows is that there are usually many ways to perform an action. This table shows the Windows Command, with the Menu, Keyboard and Toolbar ways to tell the computer to perform that action.

Table: Common Window Commands

Key	Description
Alt + F	File menu options in current program
Alt + E	Edit options in current program
Alt + Tab	Switch between open programs
F1	Universal Help in almost every Windows program
F2	Rename a selected file
F5	Refresh the current program window
Ctrl + N	Create a new, blank document in some software programs
Ctrl + O	Open a file in current software program
Ctrl + A	Select all text
Ctrl + B	Change selected text to be Bold
Ctrl + I	Change selected text to be in Italics
Ctrl + U	Change selected text to be Underlined
Ctrl + F	Open find window for current document or window

Ctrl + S	Save current document file
Ctrl + X	Cut selected item
Shift + Del	Cut selected item
Ctrl + C	Copy selected item
Ctrl + Ins	Copy selected item
Ctrl + V	Paste
Shift + Ins	Paste
Ctrl + K	Insert hyperlink for selected text
Ctrl + P	Print the current page or document
Home	Goes to beginning of current line
Ctrl + Home	Goes to beginning of document
End	Goes to end of current line
Ctrl + End	Goes to end of document
Shift + Home	Highlights from current position to beginning of line
Shift + End	Highlights from current position to end of line
Ctrl + Left arrow	Moves one word to the left at a time
Ctrl + Right arrow	Moves one word to the right at a time
Ctrl + Esc	Opens the START menu
Ctrl + Shift + Esc	Opens Windows Task Manager
Alt + F4	Close the currently active program
Alt + Enter	Open the Properties for the selected item (file, folder, shortcut, etc.)

Fig.8.4.19: Some Important Keys and Their Uses

Exercise

1. Where is the taskbar located on your screen?

   ....

   ....

2. System Tray is an area where you can access programs that are running in the background?

   a) True

   b) False

3. To view sound settings, right click on the sound icon in task bar and left click on open volume control or double click on the sound icon.

   a) True

   b) False

4. When does the image appear on your screen?

   a) When any external hardware is inserted into the computer

   b) When any external hardware is removed from the computer

5. Laptop computers are capable of connecting to a wireless network to gain access to the Internet.

    a) True

    b) False

6. You can add or delete Icons or Desktop Shortcuts from the Desktop area.

    a) True

    b) False

7. What is a dialogue box?

    ....

    ....

8. The ESC key in the upper right corner of your keyboard will

    a) Close any menu you don't need

    b) Open the start menu

    c) Shut down your laptop

9. The CTRL key is used in conjunction with other keys to perform various functions.

    a) True

    b) False

10. What happens if you press the Caps Lock key?

    a) All letters get capitalised

    b) All letter become small

    c) The first letter is capitalised

11. The Delete key is used to remove text you have typed that is to the right of the cursor or to send selected items to the Recycle Bin.

    a) True

    b) False

12. Which is the command to select 'all the text'

    a) Ctrl + C

    b) Ctrl + D

    c) Ctrl + A

    d) Ctrl + X

UNIT 8.5: MS Word

Unit Objectives

At the end of this unit, you will be able to:

- Learn the concept of and practice MS-Word.
- Format a document.
- Print a document etc.

Concepts of word processing - MS Word

Most people who use a computer daily use word processing skills. Word processing skills allow us to prepare text documents such as letters, memos, and other correspondence. Most modern word processing software allows us to create text documents that include pictures and drawings.

Fig.8.5.1: MS Word Icon
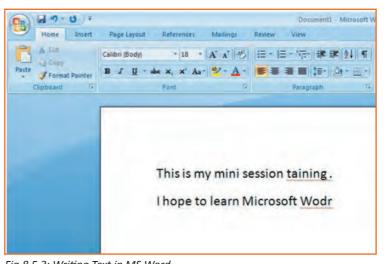
8.5.1 Creating a Word Document

Once the document that has opened, type a short paragraph of why you are taking this mini- session. For example, are you new to Microsoft Word 2007 or are you improving your software your skills? Remember to purposely misspell some words. Later in the session you'll use this paragraph to learn how to spell check and use basic Word 2007 functions.

Fig.8.5.2: MS Word Window

The above picture shows parts of the Word window, which also contains a document in the window. This view displays rulers at the top and along the left side which indicate the size of the page.

Fig.8.5.3: Writing Text in MS Word

8.5.2 Saving a Document

A Command is used for a first-time save or if you have made revisions to a document and wish to replace the old version with the new revised document. Use the 'Save as' command to save a revised document to a new name, thus keeping the original as it was before revisions or to save a copy of a document in a different folder.

- **Step 1:** Save your document in the "My Documents" folder.

- **Step 2:** In the '*File Name*' box enter the document name.

- **Step 3:** Check to make sure in the '*Save As Type*' box the word document is (*.docx.)*.

Fig.8.5.4: Saving a Document

8.5.3 Change Font Type and Size

As shown in the picture below, the document that you have just created, you are now going to format the font size and type different fonts and sizes can give character to words in your document i.e. when you are making your resume, you use BOLD as an 'eye-catcher' Also, font size affects word characteristics.

1. **Step 1:** Highlight the text you wish to change the font and size for; in this practice highlight your name.

2. **Step 2:** Click on the font menu, select Theme font for e.g. Arial Black and then select the size of the font (let's say 16) as shown in the image below.

Fig.8.5.5: Change Font Type and Size

3. **Step 3:** Now click on SAVE in the Quick Access Toolbar to save your document (Refer to the second picture below, for saving your document).

8.5.4 Create Headers and Footers by Inserting Texts

Headers and Footers in the word document are required to insert information such as text, page numbers and date. Information on either header or footer will appear in all current document pages by default, you don't have to re-type in the header or the footer column when you add a new page to your current document. The header information appears at the top of the page while the footer information appears at the bottom of the page.

Follow to the simple steps and refer to the image below to make it work:

• **Step 1:** Click on the option 'insert' right next to 'Home' from the bar above the word page and select 'Header'.

• **Step 2:** Choose a style you like, (for now use blank).

• **Step 3:** Let's use your last name to fill it; now hit enter.

• **Step 4:** Add today's date and then highlight your last name and date.

• **Step 5:** Click on the Home tab from the menu.

• **Step 6:** Now select 'Home' from the bar and then click on 'left justification button'.

• **Step 7:** finally click 'close Header and Footer'.

NOTE: the Header Menu will close and return you to your document to continue typing.

Fig.8.5.6: Headers and footers
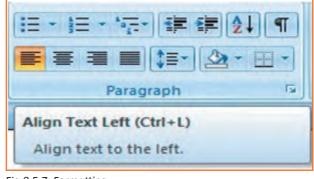
Fig.8.5.7: Formatting

8.5.5 Indents and Spacing

Spacing your word document in a right way!

To make project reports which needs paragraphs in double spacing so it is very important to understand how you would be able to change the space between lines and paragraphs by doing the following:

1. **Step 1:** Select the paragraph or paragraphs you wish to change.

2. **Step 2:** Click on the Home Tab then click 'Paragraph' Dialog Box.

3. **Step 3:** Click the 'indents and spacing' Tab.

4. **Step 4:** In the 'Line Spacing' section, adjust your spacing accordingly.

5. **Step 5:** The image below shows visual version of how your page would like.

Fig.8.5.8: Indents and Spacing

8.5.6 Modifying Margins

Word 2007 allows you to preview how your paper will look if the margins are modified. The page margins can be modified through the following steps:

• **Step 1:** Click the 'page layout' tab from the bar.

• **Step 2:** Now select 'Margins' from there.

• **Step 3:** Click a default margin Or,

• **Step 4:** Click custom margins and complete the dialog box.

NOTE: As you roll over each Margin preset, it will show you how the document will look when it is modified.

Fig.8.5.9: Modifying Margins

8.5.7 Lists

Lists allow you to format and organize text with numbers, bullets, or in an outline. Rather than using numbers for steps, an outline list is used to show an example of a type of number lists.
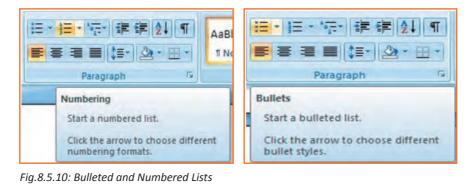
8.5.7.1 Bulleted and Numbered Lists

Bulleted lists have bullet points, numbered lists have numbers, and outline lists combine numbers and letters depending on the organization of the list.

How to add list to the existing text?
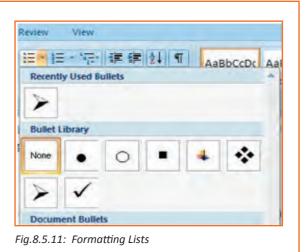
1. **Step 1:** Select the text you wish to make a list.

2. **Step 2:** Click a bulleted or numbered lists button from the paragraph tab on the home tab.

Now, to create a new list in your document, place your cursor where you want the list to begin. Click a bulleted or numbered lists button and start typing.

Fig.8.5.10: Bulleted and Numbered Lists

8.5.7.2 Formatting Lists

- **Step 1:** The bullet image and numbering format can be changed by using the bullets or numbering dialog box.

- **Step 2:** Select the entire list to change all the bullets or numbers, or place the cursor on one line within the list to change a single bullet.

- **Step 3:** Right click once.

- **Step 4:** Click the arrow next to the bulleted or numbered list.

- **Step 5:** Now, select a bullet or numbering style.

Fig.8.5.11: Formatting Lists

8.5.8 Spelling and Grammar

There are many features to help you proof-read your document these features include:

- Spelling and Grammar
- Thesaurus
- AutoCorrect
- Default Dictionary
- Word Count

Fig.8.5.12(a): Spelling and Grammar

Fig.8.5.12(b): Spelling and Grammar

The most common feature used is the spelling and grammar checker tool. To check the spelling and grammar of your document:

1. **Step 1:** Place the cursor at the beginning of the document or the beginning of the section that you want to check.

2. **Step 2:** Click the 'Review' Tab on the Ribbon.

3. **Step 3:** Click 'Spelling & Grammar' on the Proofing Group.

Note: Any errors will display a dialog box that allows you to choose a more appropriate spelling or phrasing. Go through the Spelling and Grammar Checker to correct any spelling errors you may have made in your document. When the spelling and grammar checker has completed, you will see a dialog box that notifies you 'The spelling and grammar check is completed'.

8.5.8.1 Word Count

To count words in one selection, you can select the words you want to count. The status bar displays the number of words in the section for e.g. 50/1,200 means that the section accounts for 50 words out of the total number of 1200 in the document.

Note: To select the sections of text that are not next to each other, select the first section and press hold down CRTL (from the keyboard) and select the additional section.

Fig.8.5.13(a): Word Count

Fig.8.5.13(b): Word Count

8.5.9 Different Editing Modes in Word

Insert mode and an overtype mode. When insert mode (default) is active, the information you can type is inserted at the insertion point where as when over-type mode is active the information is active it isn't inserted however; t replaces text as you type. To switch between the 2 modes double click o the OVR letters on the status bar.

Another interesting fact about the word document is that it is not just a document to write things however you can add expression to your document by inserting images with the document, now let's see how this can be done. Always remember not to use any copyright image if you are using any images from the internet.

The insert picture method supports graphics that may be are too large to fit on the clipboard. The default setting for inserting or pasting images is "In Line With Text." The Advanced Word Options, located in the Office Button Commands Gallery, allow you to change the default settings to any of the available text wrapping styles.

Fig.8.5.14: Sample Image

8.5.10 Inserting an Image and Table

1. **Step 1:** Place the insertion point at the location where the image has to be placed In the document.

2. **Step 2:** Select Insert tab>> illustrations gallery.

3. **Step 3:** Now select *Insert picture.*

4. **Step 4:** Navigate to the appropriate location where the image is stored.

Fig.8.5.15 Inserting an Image

5. **Step 5:** Now select the appropriate image which you want to insert in the document by doing a double click on the image.

Similarly, now let's see how to insert a table in a word document

The table feature can be used to organize information into rows and columns without having to set tabs. Tables can also be used to create forms and side by side paragraphs. A table consists of vertical columns and horizontal rows, the inter-section of those rows and columns create cells. A cell is each individual square in which you can enter text. The Tab key advances the cursor to next cell (Shift + tab) it moves the cursor backward within a table.

Fig.8.5.16(a): Inserting an Table

Steps below would make it much easier for you to understand how to create a table:
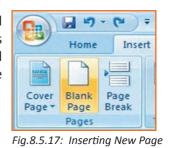
1. **Step 1:** Place the insertion point at the desired location on your word document.

2. **Step 2:** From the bar select Insert tab>>tables gallery.

3. **Step 3:** Now select insert table.

4. **Step 4:** Enter desired no. of columns and rows at insert table dialog box.

5. **Step 5:** Now select AutoFit behavior.

6. **Step 6:** Click OK.

Fig.8.5.16(b): Inserting an Table

8.5.11 Inserting a Blank Page

The blank page command allows you to manually insert a blank page at the desired location. When you fill a page with text or graphics, Microsoft Office Word inserts an automatic page break and starts a new page. However, you can manually add pages or delete pages by adding page breaks or deleting page breaks. Refer to the image below.

Fig.8.5.17: Inserting New Page

8.5.12 Inserting a Page Break

You can insert a page break anywhere in the document, or you can specify where Microsoft Word positions automatic page breaks. If you insert manual page breaks in documents that are more than several pages in length, you might have to frequently re-break pages as you edit the document. To avoid the difficult of manually re-breaking pages, you can set options to control where word positions automatic page breaks. Refer to the image below.
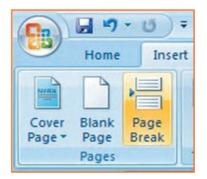
Fig.8.5.18: Inserting Page Break

8.5.13 Inserting a Cover Page

- **Step 1:** From the insert Tab, select Cover Page, the cover page drop down menu will be displayed.

- **Step 2:** Select from the pre-formatted options under Cover Page.

- **Step 3:** To insert a blank page or a page break, position your insertion point at a desired location.

- **Step 4:** Now, from the insert tab, select blank page or page break as shown in the image below.

Now, once the document is ready let's focusing on learning how to get the document in a hardcopy.

Fig.8.5.19: Inserting Cover Page

8.5.14 Printing the Word Document

1. **Step 1:** Click the 'Home' key, select 'Print', and then 'Print' again.

2. **Step 2:** Choose the printer you will be printing from (Black & White, or Color printer).

3. **Step 3:** Once you have selected the printer of your choice, reassure to check if you have selected the right and the complete document for printing.

4. **Step 4:** Once all above steps are performed, select 'OK' to print your work.

5. **Step 5:** Now that your document is ready and has been printed as well, let's see how can we close and exit this word document completely.
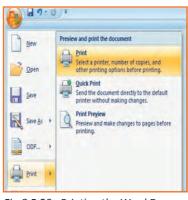
Fig.8.5.20: Printing the Word Document

Fig.8.5.21: Print Dialog Box

8.5.15 Closing and Exiting Microsoft Word

It's always good to reassure that your word file has been saved before closing or exiting the word.

Note: *Closing word would only close the current document however the word would remain open.*

Exiting word would exit the program completely. (You may not have to follow this, it basically depends on what MS word you are having in the system).

Fig.8.5.22(a): Closing and Exiting Microsoft Word

Fig.8.5.22(b): Closing and Exiting Microsoft Word

Exercise

1. What are things that MS word helps us with?

    ....

    ....

2. Give any two features to proof read a document?

    ....

    ....

3. You can insert a page break anywhere in the document, or you can specify where Microsoft Word positions automatic page breaks.

    a) True

    b) False

Notes

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UNIT 8.6: MS PowerPoint

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Unit Objectives

At the end of this unit, you will be able to:

- Practice MS-Powerpoint.
- Make a new presentation.
- Format a slide as well

PowerPoint is the presentation graphics software in the Microsoft Office suite. PowerPoint has predefined layouts, themes, and templates to create dynamic and professional presentations.

8.6.1 Opening PowerPoint

To open PowerPoint in Windows, click on the:

Step 1: Start button --> Programs --> Microsoft PowerPoint. *OR*

Step 2: Double-click on the PowerPoint icon on the desktop.

When PowerPoint is opened, by default a blank Title slide appears as the first slide in your new presentation. However, to change the layout of an open slide, click on the Layout button in the Home tab.

Fig.8.6.1: PowerPoint Icon

Fig.8.6.2: Layouts in PowerPoint

If the PowerPoint is already open, to start a new presentation, click on the Office button on the top left corner of the screen and select New.

Fig.8.6.3: New Document in PowerPoint

The New Presentation window will appear. Blank presentation is selected by default. You need to click Create and a new presentation will open in the PowerPoint window.
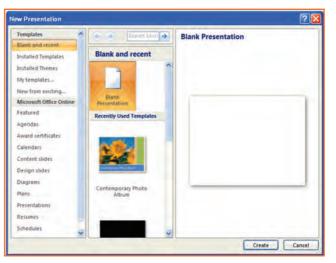
Fig.8.6.4: Create new PowerPoint

8.6.2 PowerPoint – Understanding the screen

- **Office Button:** It contains the main File Functions: New, Open, Save, Save as, Print, Print Preview, etc.

- **Ribbon Tabs:** Each Ribbon Tab displays a Ribbon that provides a set of Tool Groups. Click on the arrow to open a dialogue box with more options.

- **Command Tabs:** Office 2007 applications automatically open to the Home command tab, which contains formatting options needed to create a basic document. Specialized features can be accessed from other command tabs.

- **Slide and Outline Tabs:** The Slides tab shows thumbnail images of your slides, allowing you to rearrange, add, delete, hide slides and view set transitions as you work. The Outline tab shows the content of your slides, making it easy to rearrange your text.

- **Slide:** In this area you enter the content of your slides. Slides contain placeholders (enclosed by dotted borders) containing text, pictures, and charts.

- Notes Panel: This is where you can enter notes. If you wish to enter longer notes, you can go to the View tab and select Notes Page.

- **ViewButtons:** These three buttons include:

    » Normal View - shown here.

    » Slide Sorter - This allows you to shuffle your slides.

    » Slide Show - This shows the slides as viewed during presentation.

- **ZoomSlider:** This allows you to zoom in and out on the Slide Panel.

Fig.8.6.5: PowerPoint screen

8.6.3 Saving a PowerPoint

- Click the *Save* button on the *Quick Access toolbar*.

OR

- Click the *Microsoft Office Button* , and then click *Save As*.

In the File name box, enter a new name for the presentation, or do nothing to accept the suggested file name.

In the Save as type list, select the file format that you want, and then click Save.

Fig.8.6.6: Save Icon

Fig.8.6.7: Save As Option

Fig.8.6.8: Save As Dialog Box

8.6.4 Working with Slides

Insert a New Slide

- **Step 1:** Click the New Slide command in the Slides group on the Home tab. A blank slide will be inserted after your active slide.

- **Step 2:** If you wish to choose the layout while creating your new slide, click the   on the New Slide button and choose a theme.
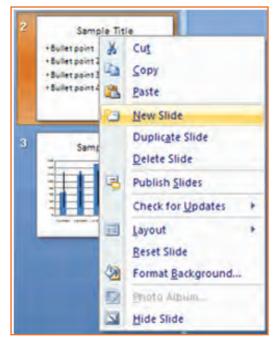
Fig.8.6.9: Insert new slide in PowerPoint
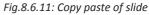
To insert a new slide using the Quick Menu, in the Slides panel right click the slide after which you want a new slide inserted and select New Slide.

Fig.8.6.10: Insert new slide in PowerPoint

Copy and paste a slide

- **Step 1:** Select the slide you want to copy.

- **Step 2:** Click the Copy command on the Home tab.

- **Step 3:** Click inside the Slides tab on the left task pane. A horizontal insertion point will appear.

- **Step 4:** Move the insertion point to the location where you want the copy of the slide to appear.

- **Step 5:** Click the Paste command on the Home tab. The copied slide will appear.

- **Step 6:** You can use the keyboard shortcut Ctrl+C to copy the slide and Ctrl+V to paste it.

Fig.8.6.11: Copy paste of slide

Delete a slide

- **Step 1:** Select the slide you want to delete and click the Delete command in the Slides group on the Home tab.

Move a slide

- **Step 1:** On the Slides tab in the left task pane, select the slide you want to move.

- **Step 2:** Click and drag the slide to a new location. The insertion point will appear.

- **Step 3:** Release the mouse button.

- **Step 4:** The slide will appear in the new location.
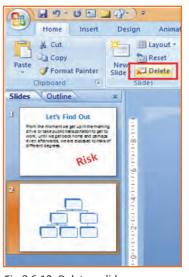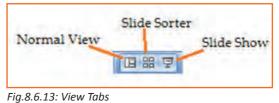
Fig.8.6.12: Delete a slide

8.6.5 View Tabs

Different views allow you to manage different aspects of your presentation.

- **Step 1:** Normal View is the default view. It splits the window into Slide Frame, Notes, and the left frame where you can choose either Slides Thumbnails or Outline.

- **Step 2:** Slide Sorter is thumbnails view of all the slides in the presentation. The slides are displayed horizontally and lets you see the big picture.

- **Step 3:** Slide Show plays the presentation from the beginning with animation.

Fig.8.6.13: View Tabs
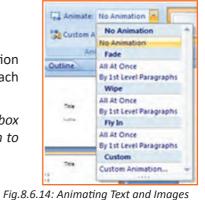
8.6.6 Animating Text and Images

In PowerPoint, you can add animation to text and objects to draw the audience's attention an add flair to your presentation.

- **Step 1:** Select the object or text box you wish to animate.

- **Step 2:** In the Animations tab under the Animations group, select an option from the Animate drop-down menu. As you hover your mouse over each choice PowerPoint will preview the effect on your slide.

NOTE: *Remember that animations will be applied only to the object or the text box selected. For adding animation across several slides you will have to add them to each.*

Fig.8.6.14: Animating Text and Images

To apply a custom animation effect:

Fig.8.6.15: Adding Animation in PowerPoint

- **Step 1:** After you select the text or object on the slide you want to animate, select the Animations tab.

- **Step 2:** Click Custom Animation in the Animations group. The Custom Animation task pane will appear on the right.

- **Step 3:** Click Add Effect in the task pane to add an animation effect to the selected text or object.

Fig.8.6.16: Animation in PowerPoint

- **Step 4:** Select Entrance, Emphasis, Exit, or Motion Path to display a submenu of animation effects for the category.

- **Step 5:** To customize the speed, properties and timing of your animation, on the Custom Animation Pane click on the effect you wish to modify.

- **Step 6:** To modify an animation, use the options in the Modify: [Effect] section of the Custom Animation Pane. These options will change depending on the effect selected.

Hint: If the button on the Custom Animation Pane says "Change" instead of "Add Effect" click outside the object to deselect it and then click on it again.

8.6.7 Removing Animations

There are two methods:

1. Animations group (remove all at once):

   » Select the slide and then the object with the animation you would like to remove.

   » In the Animations tab under the Animations group click on the Animate pull-down menu and select No Animation.

2. Custom Animation Pane (remove one by one):

   » Select the slide with the animation you would like to remove.

   » If the Custom Animations pane is not visible, click on the Custom Animation button in the Animations group on the Animations tab.

   » In the Modify: [Effect] list select the animation to be removed.

   » Click Remove.

8.6.8 Working with Charts

A chart is a tool you can use to communicate your data graphically.

Chart elements

Let's familiarize with different chart element:

- **Titles:** There are two types of titles:

    » Chart Title placed above the chart (default).

    » Axes Titles placed besides the axes (The vertical axis is referred to as the Y axis, while the horizontal axis is referred to as the X axis.)

- **Legend:** The chart key, which displays captions (and/or color coding) to the series on the chart.

- **Data:** This is the range of cells (displayed in excel) that make up a chart. The chart is updated automatically whenever the information in these cells changes.

Inserting Charts

- **Step 1:** Select the Insert tab.

- **Step 2:** Click the Insert Chart command to open the Insert Chart dialog box.

- **Step 3:** Click a chart to select it.

- **Step 4:** The chart will appear on your slide, and Excel will open as a split screen with dummy data already filled in.

- **Step 5:** You add your data and labels to the Excel spreadsheet and the chart will be automatically updated on your slide.

- **Step 6:** When finished, click the Close Window in the upper right hand corner of Excel to close the worksheet.
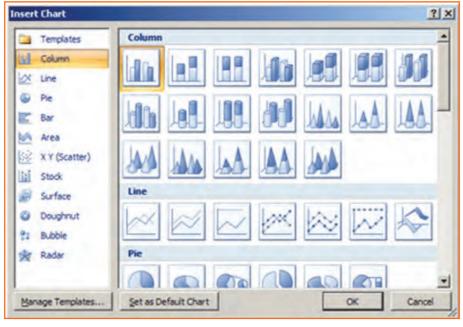
Fig.8.6.17: Inserting Charts

Changing To a Different Chart

- **Step 1:** You can change your present chart to a different format by right-click on the chart and select Change Series Chart Type. This opens the Change Chart Type dialog.

- **Step 2:** Make a selection and press OK.

Edit source data

- **Step 1:** Select the chart.

- **Step 2:** Select the Design tab.

Fig.8.6.18: Edit source data

- **Step 3:** Click the Edit Data command. An Excel spreadsheet with the current source data will appear.

- **Step 4:** After you edit the data in the spreadsheet, the changes will appear on the slide.

- **Step 5:** Close Excel without saving the spreadsheet.

Modifying the chart layout

- **Step 1:** Select the chart.

- **Step 2:** Click on the Design tab.

Fig.8.6.19: Change Chart Type

- **Step 3:** Scroll through the options in the Chart Layout group, or click the More drop-down arrow to see all available chart layout options.

- **Step 4:** Select a chart layout by clicking on it. The chart layout will change on the slide.

Fig.8.6.20: Chart Layouts

Modify specific areas of the chart layout

- **Step 1:** Select the chart.

- **Step 2:** Select the Layout tab.

- **Step 3:** Locate the Labels group.

  » Chart Title: Add, remove, or re-position the chart title.

  » Axis Titles: Add, remove, or re-position the text used to label each axis.

  » Legend: Add, remove, or re-position the chart legend.

  » Data Labels: Click this command to display or hide data values next to each chart element.

  » Data Table: Adds a table summarizing your data to the chart.

Fig.8.6.21: Modify Chart

Exercise

1. What does the office button in Power Point contain?

   ....

   ....

2. What is the Notes Panel?

   a) It's a new slide

   b) It's where you can enter notes on the slide

3. What are the three kind of 'view buttons'?

   ....

   ....

4. You can change your present chart to a different format by right-click on the chart and select Change Series Chart Type.

   a) True

   b) False

Notes

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UNIT 8.7: MS Excel

Unit Objectives

At the end of this unit, you will be able to:

* Work on MS-Excel
* Format cells and cell content
* Use formulas
* Make Charts and Pivot Table.

MS Excel stands for - Microsoft Excel is one of the most popular electronic spreadsheet applications supported by both Mac and PC platforms. As with a paper spreadsheet, you can use Excel to organize your data into rows and columns and to perform mathematical calculations.

MS Excel helps in:

* Managing data online
* Creating visually persuasive charts, and thought-provoking graphs.
* Creating and expense reports.
* Building formulas and editing them.
* Balancing a checkbook.

Thia tutorial teaches you how to create an Excel spreadsheet.
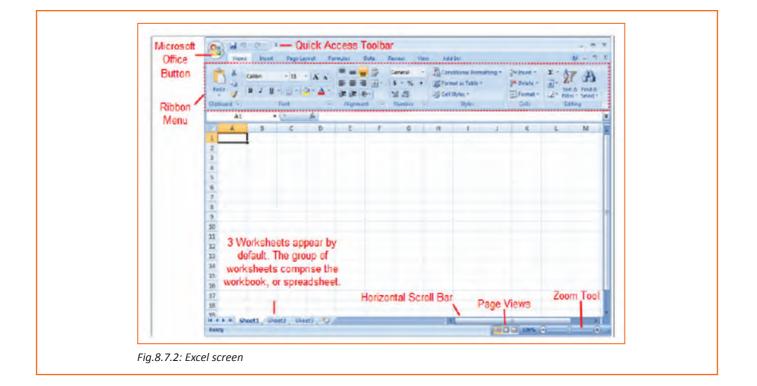
Fig.8.7.1: MS Excel Icon

Before you begin creating spreadsheets in Excel, you may want to set up your Excel environment and become familiar with a few key tasks and features such as how to minimize and maximize the Ribbon, configure the Quick Access toolbar, switch page views, and access your Excel options.

8.7.1 Exploring the Excel Environment

The tabbed Ribbon menu system is how you navigate through Excel and access the various Excel commands. If you have used previous versions of Excel, the Ribbon system replaces the traditional menus. Above the Ribbon in the upper-left corner is the Microsoft Office Button. From here, you can access important options such as New, Save, Save As, and Print. By default, the Quick Access Toolbar is pinned next to the Microsoft Office Button and includes commands such as Undo and Redo.

At the bottom-left area of the spreadsheet, you will find worksheet tabs. By default, three worksheet tabs appear each time you create a new workbook. On the bottom-right area of the spreadsheet you will find page view commands, the zoom tool and the horizontal scrolling bar.

Fig.8.7.2: Excel screen
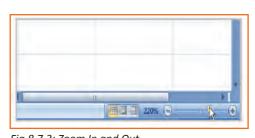
8.7.2 Zoom In and Out

- **Step 1:** Locate the zoom bar in the bottom-right corner.

- **Step 2:** Left-click the slider and drag it to the left to zoom out and right to zoom in.

To Scroll Horizontally in a Worksheet:
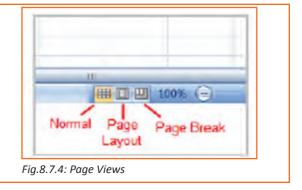
- **Step 1:** Locate the horizontal scroll bar in the bottom-right corner.

- **Step 2:** Left-click the bar and move it from left to right.

Fig.8.7.3: Zoom In and Out

8.7.3 Page Views

- **Step 1:** Locate the Page View options in the bottom-right corner. The Page View options are Normal, Page Layout, and Page Break.

- **Step 2:** Left-click an option to select it.

Fig.8.7.4: Page Views

8.7.4 Add Commands to the Quick Access Toolbar

- **Step 1:** Click the arrow to the right of the Quick Access toolbar.

- **Step 2:** Select the command you wish to add from the drop-down list. It will appear in the Quick Access toolbar.

The Save, Undo, and Redo commands appear by default in the Quick Access toolbar.
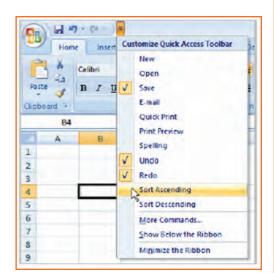
Fig.8.7.5: Quick Access Toolbar

The Microsoft Office Button

The Microsoft Office Button appears at the top of the Excel window. When you left-click the button, a menu appears. From this menu, you can create a new spreadsheet, open existing files, save files in a variety of ways and print. You can also add security features, send, publish and close files.

Fig.8.7.6: The Microsoft Office Button

8.7.5 Change the Default Excel Options

Fig.8.7.7: Default Excel Options

- **Step 1:** Click the Excel Options button. A dialog box will appear.

- **Step 2:** Select a category on the left to access different Excel options.

- **Step 3:** Modify any of the default settings.

- **Step 4:** Click OK.

You will need to know how to insert text and numbers into Excel workbooks to be able to use it to calculate, analyze, and organize data. In this lesson, you will learn how to create a new workbook, insert and delete text, navigate a worksheet and save an Excel workbook.
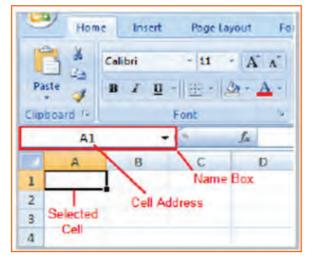
8.7.6 Create a New Blank Workbook

- **Step 1:** Left-click the *Microsoft Office Button*.

- **Step 2:** Select *New*. The New Workbook dialog box opens, and Blank Workbook is highlighted by default.

- **Step 3:** Click *Create*. A new, blank workbook appears in the window.

Fig.8.7.8: New Blank Workbook

8.7.7 Insert Text

- **Step 1:** Left-click a cell to select it. Each rectangle in the worksheet is called a cell. As you select a cell, the cell address appears in the Name Box.

- **Step 2:** Enter text into the cell using your keyboard. The text appears in the cell and in the formula bar.
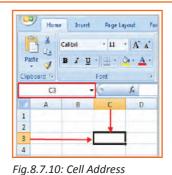
Fig.8.7.9(a): Different Areas on Worksheet

Fig.8.7.9(b): Different Areas on Worksheet

8.7.8 Cell Addresses

Each cell has a name, or a cell address, based on the column and row it is in. For example, this cell is C3 since it is where column C and row 3 intersect.

You can also select multiple cells at the same time. A group of cells is known as a cell range. Rather than a single cell address, you will refer to a cell range using the cell addresses of the first and last cells in the cell range, separated by a colon. For example, a cell range that included cells A1, A2, A3, A4, and A5 would be written as A1:A5.

Fig.8.7.10: Cell Address

Edit or Delete Text

- **Step 1:** Select the cell.

- **Step 2:** Press the Backspace key on your keyboard to delete text and make a correction.

- **Step 3:** Press the Delete key to delete the entire contents of a cell.

You can also make changes to and delete text from the formula bar. Just select the cell and place your insertion point in the formula bar.

8.7.9 Move across a Worksheet Using the Keyboard

- **Step 1:** Press the Tab key to move to the right of the selected cell.

- **Step 2:** Press the Shift key and then the Tab key to move to the left of the selected cell.

- **Step 3:** Use the Page Up and Page Down keys to navigate the worksheet.

- **Step 4:** Use the arrow keys.

To Save the Workbook:

- **Step 1:** Left-click the Microsoft Office Button.

- **Step 2:** Select Save or Save As.

- **Step 3:** Save As allows you to name the file and choose a location to save the spreadsheet. Choose Save As if you'd like to save the file for the first time or if you'd like to save the file as a different name.

- Select Save if the file has already been named.

You can save a workbook in many ways, but the two most common are as an Excel Workbook, which saves it with a 2007 file extension, and as an Excel 97-2003 Workbook, which saves the file in a compatible format so people who have earlier versions of Excel can open the file.

When you open a new, blank workbook, the cells, columns, and rows are set to a default size. You do have the ability to change the size of each, as well as to insert new columns, rows, and cells as needed.

To Modify Column Width:

- **Step 1:** Position the cursor over the column line in the column heading and a double arrow will appear.

- **Step 2:** Left-click the mouse and drag the cursor to the right to increase the column width or to the left to decrease the column width.

- **Step 3:** Release the mouse button.

Fig.8.7.11: Modify Column Width

To Modify the Row Height:

- **Step 1:** Position the cursor over the row line you want to modify, and a double arrow will appear.

- **Step 2:** Left-click the mouse and drag the cursor upward to decrease the row height or downward to increase the row height.

- **Step 3:** Release the mouse button.

To Insert Rows:

- **Step 1:** Select the row below where you want the new row to appear.

- **Step 2:** Click the Insert command in the Cells group on the Home tab. The row will appear.

- **Step 3:** The new row always appears above the selected row.

Make sure that you select the entire row below where you want the new row to appear and not just the cell. If you select just the cell and then click Insert, only a new cell will appear.

To Insert Columns:

- **Step 1:** Select the column to the right of where you want the column to appear.

- **Step 2:** Click the Insert command in the Cells group on the Home tab. The column will appear.

The new column always appears to the left of the selected column. For example, if you want to insert a column between September and October, select the October column and click the Insert command.

Make sure that you select the entire column to the right of where you want the new column to appear and not just the cell. If you select just the cell and then click Insert, only a new cell will appear.

To Delete Rows and Columns:

- **Step 1:** Select the row or column you'd like to delete.

- **Step 2:** Click the Delete command in the Cells group on the Home tab.

Fig.8.7.12: Modify the Row Height

Fig.8.7.13: Insert Rows

Fig.8.7.14: Insert Columns

8.7.10 Formatting

Once you have entered information into a spreadsheet, you will need to be able to format it.

To Format Text in Bold or Italics:

- **Step 1:** Left-click a cell to select it or drag your cursor over the text in the formula bar to select it.

- **Step 2:** Click the Bold or Italics command.

You can select entire columns and rows, or specific cells. To select the entire column, just left-click the column heading, and the entire column will appear as selected. To select specific cells, just left-click a cell and drag your mouse to select the other cells. Then, release the mouse button.

Fig.8.7.15: Format Text in Bold or Italics

To Format Text as Underlined:

- **Step 1:** Select the cell or cells you want to format.

- **Step 2:** Click the drop-down arrow next to the Underline command.

- **Step 3:** Select the Single Underline or Double Underline option.

Fig.8.7.16: Format Text as Underlined

To Change the Font Style:

- **Step 1:** Select the cell or cells you want to format.

- **Step 2:** Left-click the drop-down arrow next to the Font Style box on the Home tab.

- **Step 3:** Select a font style from the list.

Fig.8.7.17: Change the Font Style

To Change the Font Size:

- **Step 1:** Select the cell or cells you want to format.

- **Step 2:** Left-click the drop-down arrow next to the Font Size box on the Home tab.

- **Step 3:** Select a font size from the list.
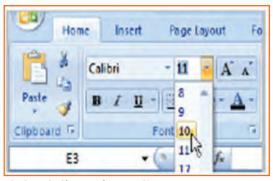
Fig.8.7.18: Change the Font Size

To Change the Text Color:

- **Step 1:** Select the cell or cells you want to format.

- **Step 2:** Left-click the drop-down arrow next to the Text Color command. A color palette will appear.
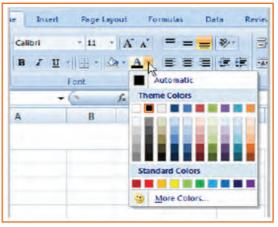
- **Step 3:** Select a color from the palette.

OR

- **Step 1:** Select More Colors. A dialog box will appear.

- **Step 2:** Select a color.

- **Step 3:** Click OK.

Fig.8.7.19: Change the Text Color

To Add a Border:

- **Step 1:** Select the cell or cells you want to format.

- **Step 2:** Click the drop-down arrow next to the Borders command on the Home tab. A menu will appear with border options.

- **Step 3:** Left-click an option from the list to select it.

You can change the line style and color of the border.
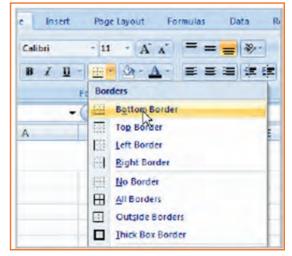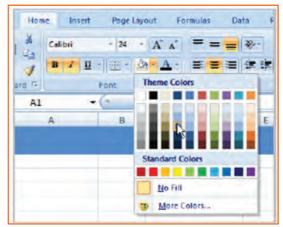
Fig.8.7.20: Add a Border

To Add a Fill Color:

- **Step 1:** Select the cell or cells you want to format.

- **Step 2:** Click the Fill command. A color palette will appear.

- **Step 3:** Select a color.

OR

- **Step 1:** Select More Colors. A dialog box will appear.

- **Step 2:** Select a color.

- **Step 3:** Click OK.

You can use the fill color feature to format columns and rows, and format a worksheet so that it is easier to read.

Fig.8.7.21: Add a Fill Color

To Format Numbers and Dates:

- **Step 1:** Select the cell or cells you want to format.

- **Step 2:** Left-click the drop-down arrow next to the Number Format box.

- **Step 3:** Select one of the options for formatting numbers.

By default, the numbers appear in the General category, which means there is no special formatting.

Fig.8.7.22: Format Numbers and Dates

8.7.11 Calculations and Analysis

Excel can be used to calculate and analyze numerical information; however, you will need to know how to write formulas to maximize Excel's capabilities. A formula is an equation that performs a calculation using values in the worksheet.

To Create a Simple Formula that Adds Two Numbers:

- **Step 1:** Click the cell where the formula will be defined (C5, for example).

- **Step 2:** Type the equals sign (=) to let Excel know a formula is being defined.

- **Step 3:** Type the first number to be added (e.g., 1500).

- **Step 4:** Type the addition sign (+) to let Excel know that an add operation is to be performed.

Fig.8.7.23(a): Creating Formulas

- **Step 5:** Type the second number to be added (e.g., 200).

- **Step 6:** Press Enter or click the Enter button on the Formula bar to complete the formula.

To Create a Simple Formula that Adds the Contents of Two Cells:

- **Step 1:** Click the cell where the answer will appear (C5, for example).

- **Step 2:** Type the equals sign (=) to let Excel know a formula is being defined.

- **Step 3:** Type the cell number that contains the first number to be added (C3, for example).

- **Step 4:** Type the addition sign (+) to let Excel know that an add operation is to be performed.

- **Step 5:** Type the cell address that contains the second number to be added (C4, for example).

- **Step 6:** Press Enter or click the Enter button on the Formula bar to complete the formula.

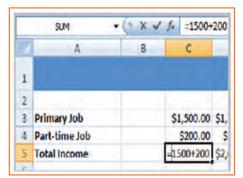*Fig.8.7.23(b): Creating Formulas*   *Fig.8.7.23(c): Creating Formulas*

To Copy and Paste Cell Contents:

- **Step 1:** Select the cell or cells you wish to copy.

- **Step 2:** Click the Copy command in the Clipboard group on the Home tab. The border of the selected cells will change appearance.

- **Step 3:** Select the cell or cells where you want to paste the information.

- **Step 4:** Click the Paste command. The copied information will now appear in the new cells.

To select more than one adjoining cell, left-click one of the cells, drag the cursor until all the cells are selected, and release the mouse button.

The copied cell will stay selected until you perform your next task, or you can double-click the cell to deselect it.

To Cut and Paste Cell Contents:

- **Step 1:** Select the cell or cells you wish to cut.

- **Step 2:** Click the Cut command in the Clipboard group on the Home tab. The border of the selected cells will change appearance.

- **Step 3:** Select the cell or cells where you want to paste the information.

- **Step 4:** Click the Paste command. The cut information will be removed from the original cells and now appear in the new cells.

Fig.8.7.24(a): Cut and Paste Cell Contents

Fig.8.7.24(b): Cut and Paste Cell Contents

To View the Spreadsheet in Print Preview:

- **Step 1:** Left-click the Microsoft Office Button.

- **Step 2:** Select Print.

- **Step 3:** Select Print Preview. The spreadsheet will appear in Print Preview view.

Click the Close Print Preview button to return to the Normal View.

Fig.8.7.25(a): Print Preview Option

Exploring Print Preview:

Once you are in Print Preview, you can access many of the same features that you can from the Ribbon; however, in Print Preview you can see how the spreadsheet will appear in printed format.

To Modify Margins, Column Width, or Row Height While in Print Preview:

- **Step 1:** Click the Print Preview command on the Quick Access toolbar, or select Print Preview from the Microsoft Office Button menu. The spreadsheet opens in print preview mode.

- **Step 2:** However your cursor over one of the black margin markers until a double arrow appears.

- **Step 3:** Left-click and drag the marker to the desired location. The change will be reflected in the spreadsheet.

To Modify Margins:

- **Step 1:** Select the Page Layout tab.

- **Step 2:** Left-click the Margins command.

- **Step 3:** Choose one of the predefined settings or enter custom margins.
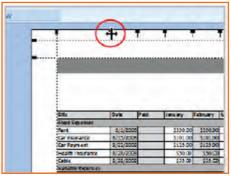
Fig.8.7.25(b): Print Preview Option
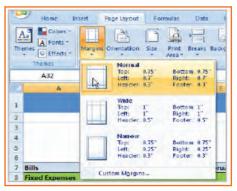
Fig.8.7.26: Modify Margins

8.7.12 Change Page Orientation

- **Step 1:** Select the Page Layout tab.

- **Step 2:** Left-click the Orientation command.

- **Step 3:** Select either Portrait or Landscape.

Portrait orients the page vertically, while Landscape orients the page horizontally.

Fig.8.7.27: Page Orientation

To Change the Paper Size:

- **Step 1:** Select the Page Layout tab.

- **Step 2:** Click the Size command.

- **Step 3:** Select a size option from the list.

To Print from the Microsoft Office Button:

• Left-click the Microsoft Office Button.

• Select Print. The Print dialog box appears.

• Select a printer if you wish to use a printer other than the default setting.

• Click Properties to change any necessary settings.

• Choose whether you want to print specific pages, all of the worksheet, a selected area, the active sheet or the entire workbook.

• Select the number of copies you'd like to print.

• Click OK.

Fig.8.7.28: Print from the Microsoft Office Button

8.7.13 Excel's Different Functions

There are many different functions in Excel 2007. Some of the more common functions include:

Statistical Functions:

• SUM - adds a range of cells together.

• AVERAGE - calculates the average of a range of cells.

• COUNT - counts the number of chosen data in a range of cells.

• MAX - identifies the largest number in a range of cells.

• MIN - identifies the smallest number in a range of cells.

Financial Functions:

• Interest Rates

• Loan Payments

• Depreciation Amounts

Date and Time functions:

• DATE - Converts a serial number to a day of the month.

• Day of Week.

• DAYS360.

• TIME - Returns the serial number of a particular time.

• HOUR - Converts a serial number to an hour.

• MINUTE - Converts a serial number to a minute.

• TODAY - Returns the serial number of today's date.

• MONTH - Converts a serial number to a month.

• YEAR - Converts a serial number to a year.

You don't have to memorize the functions but should have an idea of what each can do for you.

To Calculate the Sum of a Range of Data Using AutoSum:

- **Step 1:** Select the Formulas tab.

- **Step 2:** Locate the Function Library group. From here, you can access all the available functions.

- **Step 3:** Select the cell where you want the function to appear. In this example, select G42.

- **Step 4:** Select the drop-down arrow next to the AutoSum command.

- **Step 5:** Select Sum. A formula will appear in the selected cell, G42.

- **Step 6:** This formula, =SUM(G2:G41), is called a function. AutoSum command automatically selects the range of cells from G2 to G41, based on where you inserted the function. You can alter the cell range, if necessary.

- **Step 7:** Press the Enter key or Enter button on the formula bar. The total will appear.

To Edit a Function:

- **Step 1:** Select the cell where the function is defined.

- **Step 2:** Insert the cursor in the formula bar.

- **Step 3:** Edit the range by deleting and changing necessary cell numbers.

- **Step 4:** Click the Enter icon.
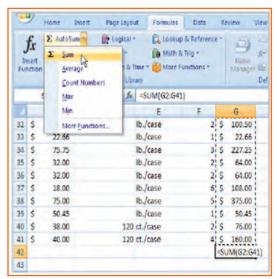
Fig.8.7.29: Using AutoSum

Fig.8.7.30: Edit a Function

Fig.8.7.31: Format Information

To Format Information as a Table:

- **Step 1:** Select any cell that contains information.

- **Step 2:** Click the Format as Table command in the Styles group on the Home tab. A list of predefined tables will appear.

- **Step 3:** Left-click a table style to select it.

- **Step 4:** A dialog box will appear. Excel has automatically selected the cells for your table. The cells will appear selected in the spreadsheet, and the range will appear in the dialog box.

- **Step 5:** Change the range listed in the field, if necessary.

- **Step 6:** Verify the box is selected to indicate your table has headings, if it does. De-select this box if your table does not have column headings.

- **Step 7:** Click OK. The table will appear formatted in the style you chose.

Fig.8.7.32: Format as Table

8.7.14 Aligning Text

Excel 2007 left-aligns text (labels) and right-aligns numbers (values). This makes data easier to read, but you do not have to use these defaults. Text and numbers can be defined as left-aligned, right-aligned, or centered in Excel.

To Align Text or Numbers in a Cell:

- **Step 1:** Select a cell or range of cells.

- **Step 2:** Click on either the Align Left, Center, or Align Right commands on the Home tab.

- **Step 3:** The text or numbers in the cell(s) take on the selected alignment treatment.

Fig.8.7.33: Align Text or Numbers

Left-click a column label to select the entire column or a row label to select an entire row.

Changing Vertical Cell Alignment:

You can also define vertical alignment in a cell. In Vertical alignment, information in a cell can be located at the top of the cell, middle of the cell, or bottom of the cell. The default is bottom.

To Change Vertical Alignment from the Alignment Group:

- **Step 1:** Select a cell or range of cells.

- **Step 2:** Click the Top Align, Center, or Bottom Align command.

Fig.8.7.34: Vertical Cell Alignment

Changing Text Control:

- **Step 1:** Text Control allows you to control the way Excel 2007 presents information in a cell.

- **Step 2:** There are two common types of Text control: Wrapped Text and Merge Cells.

Fig.8.7.35: Text Control

- **Step 3:** The Wrapped Text wraps the contents of a cell across several lines if it's too large than the column width. It increases the height of the cell as well.

- **Step 4:** Merge Cells can also be applied by using the Merge and Center button on the Home tab.

To Change Text Control:

- **Step 1:** Select a cell or range of cells.

- **Step 2:** Select the Home tab.

- **Step 3:** Click the Wrap Text command or the Merge and Center command.
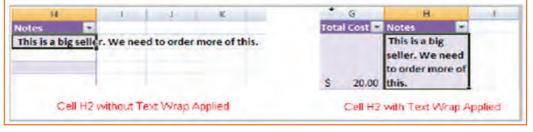
Fig.8.7.36: Text Control

To Name a Worksheet:

Right-click the sheet tab to select it.

- **Step 1:** Choose Rename from the menu that appears. The text is highlighted by a black box.

- **Step 2:** Type a new name for the worksheet.

- **Step 3:** Click off the tab. The worksheet now assumes the descriptive name defined.

Fig.8.7.37: Wrap Text

To Insert a New Worksheet:

Fig.8.7.38(a): Name a Worksheet

Fig.8.7.38(b): Name a Worksheet

- **Step 1:** Left-click the Insert Worksheet icon. A new sheet will appear. It will be named Sheet 4, Sheet5, or whatever the next sequential sheet number may be in the workbook.

Fig.8.7.39: Insert a New Worksheet

To Delete One or More Worksheets:

- **Step 1:** Click on the sheet(s) you want to delete.
- **Step 2:** Right-click the sheet(s) and a menu appears.
- **Step 3:** Select Delete.

Fig.8.7.40: Delete One or More Worksheets

Exercise

1. What are the things that MS Excel helps in?

   ....

   ....

2. How does one Zoom out in MS Excel?

   ....

   ....

3. The Save, Undo, and Redo commands appear by default in the Quick Access toolbar.

   a) True

   b) False

4. What can the Microsoft Button help with?

   ....

   ....

5. Calculate the average range of cells is a statistical function in MS Excel?

   a) True

   b) False

6. What is a financial function in MS Excel?

   a) Adding the SUM of all cells

   b) Convert a serial number to a minute

   c) Interest rates

UNIT 8.8: Internet Concepts

Unit Objectives

At the end of this unit, you will be able to:

- Understand internet concepts.
- Recognise the different types of URLs.
- Use MS-Outlook.

8.8.1 URL Concepts

The full form of URL is Uniform Resource Locator. It is the global address of documents and other resources on the World Wide Web. The URL is divided into two different parts. The first part of the URL is called a protocol identifier as it helps us identifying what protocol to use. The second part of the URL is called a resource name and it indicates the IP address or the domain name where the resource is located. The protocol identifier and the resource name are separated by a colon and two forward slashes it can be more clearly understood by looking in to the following example: the two URLs below point two different files at the domain pcwebopedia.com. Here the first one specifies an executable file that should be fetched using the FTP protocol; the second specifies a web page that should be fetched using the HTTP protocol:

1. ftp://www.pcwebopedia.com/stuff.exe
2. http://www.pcwebopedia.com/index.html

8.8.1.1 Different Kinds of URLs

There is a wide range of various types of URLs, as well as different terms to describe what a URL looks like. Let's have a better understanding of various URLs with an example:

- **Messy:** Such URL has many distorted and jumbled numbers, letters on it that makes slight organizational sense i.e.

  http://www.example.com/woeiruwoei909305820580.

- **Dynamic:** Dynamic URLs are the end result of database queries that provide content output based on the result of that query. The URL ends up looking quite mangled, alias "messy", which usually consist of the characters like: ?, &, %, +, =, $. Dynamic URLs are often found as part of consumer-driven websites: shopping, travel, or anything that requires changing answers for many different user queries.

- **Static:** A static URL is the opposite of a dynamic URL. The URL is "hard-wired" into the Web page's HTML coding. Static URL does not alter or adjust; it cannot be compromised; depending on what the user requests.

- **Obfuscated:** Obfuscated, or hidden, URLs are mostly used in phishing scams. Basically, a familiar URL is distorted in some way to make it seem legitimate. As soon as the user clicks on the obfuscated URL redirected to a malicious website.

There are a lot of clues and information that you can garnered from a simple URL, including:

- What kind of server the Web page is hosted on.
- What kind of organization the Web page belongs to.
- Where the Web page is located in the world.
- The names of the directories on the website.

By carefully looking at the different parts of any Web address, you can quickly determine quite a bit of useful information. In addition, by simply deleting parts of the URL, you can learn more about the website than what might be actually publicly accessible. For example:

- **http://www.widget.com/blog/music/:** This points to a resource online, and the URL tells you that yes, indeed, it does point to an online resource. Let's go further back.
- **http://www.widget.com/blog/:** By moving backwards in the URL from right to left, we can see that we're now at the blog section of this publication.
- **http://www.widget.com:** The home page of the website.

Of course, this is a very simple example. However, by dissecting complex URLs one step at a time, quite a bit of information can be uncovered.

8.8.2 How to create your E-mail account (Outlook)

You can create a new or additional Outlook account by following the same account creation wizard. You can follow the steps listed below to configure your Microsoft Outlook Express email client to work with your email account:

- **Step 1:** Open Outlook Express and select Tools E-mail Accounts from the main menu. The E-mail Accounts wizard will appear.
- **Step 2:** Click Add a new e-mail account. Click Next.
- **Step 3:** Select the server type. Most ISPs and webmail services use POP3 servers. Click Next.
- **Step 4:** Enter your Name.
- **Step 5:** Enter your E-mail Address.
- **Step 6:** Enter the incoming mail server and outgoing mail server information you obtained from your ISP or webmail service.
- **Step 7:** Enter your user name if it is different from the user name that automatically appears in the wizard form.
- **Step 8:** Enter your password.
- **Step 9:** Click Test Account Settings to test the information you entered in the wizard and confirm that it is valid.
- **Step 10:** Click Next.
- **Step 11:** Click Finish.

Note: *If you do not have an Outlook email account, you can select Microsoft Office Outlook from your computer's Start menu. The wizard will open, and you can follow the steps above to create an Outlook account.*

Fig.8.8.1: Creating E-mail Account in Outlook

Congratulations you have successfully configured your e-mail account!!

8.8.3 Sending an Email

The following page will make it easy for you to understand how easily and swiftly you can send an E-mail, just follow these simple steps and refer to the each image given below.

STEP 1: Open Outlook. Now click on Compose button.

STEP 2: As you click on the Compose button, a new page would open.

STEP 3: In the To box, (refer to the image below) type the email address of the person you want to send an e-mail to.

STEP 4: Now, In the Subject box as shown in the image; type the subject of the message, a few words to give the receiver an idea of what the email is all about.

STEP 5: In the large box under the tools, compose the body of an email as shown in the image. Once the writing and addressing your email is done, click the Send button.

Mail has successfully sent your email to your wishing recipient.

8.8.4 Reading Emails

Outlook maintains all email under mail folders. Initially, all of your incoming emails messages arrive in your Inbox folder (except suspected spam which goes directly into your Spam folder). To read an email message, open a mail folder and then click on email's subject.

- **Step 1:** Select the Inbox in the navigation pane.

- **Step 2:** If you see Inbox is in bold, it indicates that you have unread messages.

- **Step 3:** The number of unread messages is indicated by the number to the right of the word Inbox in parentheses.

- **Step 4:** Click a message in the inbox once, and Outlook will display it in the reading pane (if that feature is turned on).

- **Step 5:** You need to double-click a message, to open the message in a new window.

NOTE: *Unread messages are display in bold text in order to make it easy for a reader to identify how many mails are new or still unread.*

Now, to open and read an email, click on email's subject (bold or not) in the Subject column and you will be able to read your email.

8.8.5 Replying E-mails

Often, it is seen that once the mail is read, viewer looks for the option of reverting to that email to the sender or to add more recipient. Well! This can be done in two separate ways with Outlook i.e. there are two options as given below:

- **Reply:** It allows you to respond to the sender only.
- **Reply all:** Reply all, allows responding to the sender and everyone else who received themessage. This includes all email addresses listed in the To box and the Cc box, except your own email address.
- Now, Open the your email and click the drop down arrow given at the Reply button, then opt for Reply to reply to the sender only or Reply All to reply to all recipients of the email message.

Fig.8.8.2: Replying E-mail

NOTE: To reply to the sender only, you can also click the Reply button and not the arrow.

- **Step 1:** Click Reply on the Standard toolbar while viewing the message you want to reply to. Outlook will create a pre-addressed reply form to the email address the original email came from.

Fig.8.8.3: Composing Mail

- **Step 2:** Enter text into the body of the form.
- **Step 3:** Click the Send button when you're ready to send your email message.
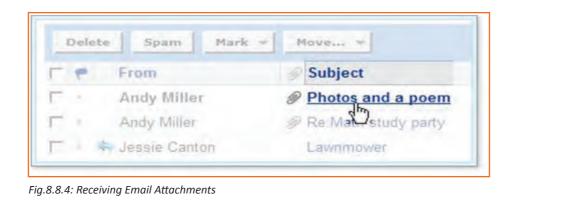
Tip: Original email which you received from the sender will always be included when you are replying to the sender however, this original text, is editable, you can type your reply anywhere in the text box. In fact, some of the information or whole mail can be deleted in the original message. Different colors can be used (if required) to differentiate between your reply followed by the original text in the same image.

8.8.6 Receiving Email Attachments

You know you've received an email with an attachment when you see a paper clip (🖉) next to the email's subject in the mail folder. Open the message to see what type of file is attached.

In a mail folder, click the subject of an email message that includes an attachment (the paper clip icon appears to the left of the subject).

When the message opens, a link to download the attachment appears in the message header, and if the attachment includes images, thumbnails appear at the bottom of the messages.

Fig.8.8.4: Receiving Email Attachments

8.8.7 Opening and Saving Attachments

When you click the link to an attachment, Outlook automatically uses AntiVirus™ installed on your system scan the file for viruses. Virus scanning can often "clean" a file that does have viruses, so you can safely open and download the file onto your computer.

1. Open the email message with the attachment.

2. Click the file name or thumbnail to allow Outlook to scan the file.
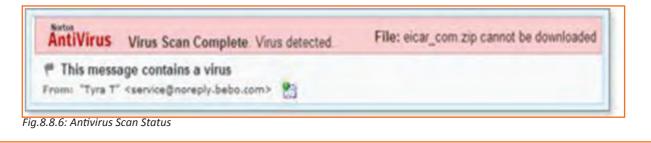
Antivirus scans the attachment and displays the results above the message header.

- If Norton Antivirus detects a virus, you can't download the file.

Fig.8.8.5: Click the file for Virus Scan

- If Antivirus doesn't detect a virus, you can download the file.

Fig.8.8.6: Antivirus Scan Status

- To download a virus-free attachment, click the Download File button.
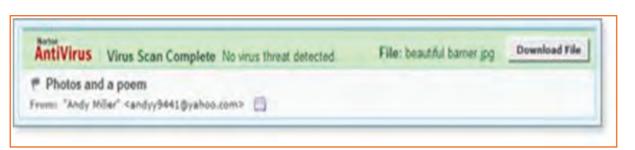
Fig.8.8.7: Click the Download File button

The File Download window prompts you to open or save the file. (The appearance of this window varies, depending on your operating system and other factors.)

Fig.8.8.8: Click the Download File button

3. You can click the Open button to view the attached file in its original application (such as Microsoft Word or Acrobat Reader), or you can click the Save button to download the file and save it on your computer.

Tip: *When you open a file without saving it, your browser automatically downloads it to a temporary location on your computer. When you close the file, your browser deletes the temporary file.*

8.8.8 Sending Attachments with Outgoing Email Messages

You can send all types of files as attachments, including word processor or spreadsheet documents, audio files, image files (such as .bmp, .jpg, .gif), and more.

Notes: *With Outlook, effective email virus protection is automatic. Anti-virus software in Mail automatically detects and cleans viruses in incoming and outgoing email and attachments.*

1. While composing a message, click the Attach Files button (You can attach files at any time before sending the message.). The Attach Files page opens.

2. Click the first Browse button.

   The Choose File or Open File window opens (depending on your operating system).

3. Locate the file you want to attach, select it, and click the Open or OK button.

Fig.8.8.9: Attach a File

The selected file and its location appear in the first attachment box.

4.   To attach more files, click the next Browse button, and repeat step 4.

Tips:

•   You cannot attach the same file multiple times to the same email message.

Fig.8.8.10: Browse a File

•   If you need more attachment boxes, click the Attach More Files link. Outlook adds another box.

5.   You can attach one or more files up to a total combined size of 10 MB.

6.   When all the files you want to send are listed, click the Attach Files button.

Tip: Antivirus™ automatically scans all outgoing email attachments andwill not let you attach an infected file.

Fig.8.8.11: Attach a File

Progress bars display the process of scanning and attaching each file. When the process is complete, the Compose page opens with the attached file.

Fig.8.8.12: Attached File

Note: Though Outlook often displays attached photos within the messagesyou receive, it doesn't display the photos you attach while composing your message. Instead, it lists the photos in the attachments area. The photos may appear within the text of the message when your recipients receive it if their email applications support embedded photos.

Exercise 📝

1.   What is the full form of URL?

....

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2. The second part of the URL is called a resource name and it indicates the IP address or the domain name where the resource is located.

    a) True

    b) False

3. Choose a URL example from the below list

    a) Messy

    b) Straight

    c) Constant

4. Initially all mails arrive in the inbox in outlook?

    a) True

    b) False

5. 'Reply' allows you to reply ONLY to the sender?

    a) True

    b) False

Notes

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9. Employability & Entrepreneurship Skills

Unit 9.1 – Personal Strengths & Value Systems

Unit 9.2 – Digital Literacy: A Recap

Unit 9.3 – Money Matters

Unit 9.4 – Preparing for Employment & Self Employment

Unit 9.5 – Understanding Entrepreneurship

Unit 9.6 – Preparing to be an Entrepreneur

Key Learning Outcomes 💡

At the end of this unit, you will be able to:

1. Explain the meaning of health
2. List common health issues
3. Discuss tips to prevent common health issues
4. Explain the meaning of hygiene
5. Understand the purpose of Swacch Bharat Abhiyan
6. Explain the meaning of habit
7. Discuss ways to set up a safe work environment
8. Discuss critical safety habits to be followed by employees
9. Explain the importance of self-analysis
10. Understand motivation with the help of Maslow's Hierarchy of Needs
11. Discuss the meaning of achievement motivation
12. List the characteristics of entrepreneurs with achievement motivation
13. List the different factors that motivate you
14. Discuss how to maintain a positive attitude
15. Discuss the role of attitude in self-analysis
16. List your strengths and weaknesses
17. Discuss the qualities of honest people
18. Describe the importance of honesty in entrepreneurs
19. Discuss the elements of a strong work ethic
20. Discuss how to foster a good work ethic
21. List the characteristics of highly creative people
22. List the characteristics of highly innovative people
23. Discuss the benefits of time management
24. List the traits of effective time managers
25. Describe effective time management technique
26. Discuss the importance of anger management
27. Describe anger management strategies
28. Discuss tips for anger management
29. Discuss the causes of stress
30. Discuss the symptoms of stress
31. Discuss tips for stress management
32. Identify the basic parts of a computer
33. Identify the basic parts of a keyboard

34. Recall basic computer terminology

35. Recall basic computer terminology

36. Recall the functions of basic computer keys

37. Discuss the main applications of MS Office

38. Discuss the benefits of Microsoft Outlook

39. Discuss the different types of e-commerce

40. List the benefits of e-commerce for retailers and customers

41. Discuss how the Digital India campaign will help boost e-commerce in India

42. Explain how you will sell a product or service on an e-commerce platform

43. Discuss the importance of saving money

44. Discuss the benefits of saving money

45. Discuss the main types of bank accounts

46. Describe the process of opening a bank account

47. Differentiate between fixed and variable costs

48. Describe the main types of investment options

49. Describe the different types of insurance products

50. Describe the different types of taxes

51. Discuss the uses of online banking

52. Discuss the main types of electronic funds transfers

53. Discuss the steps to prepare for an interview

54. Discuss the steps to create an effective Resume

55. Discuss the most frequently asked interview questions

56. Discuss how to answer the most frequently asked interview questions

57. Discuss basic workplace terminology

58. Discuss the concept of entrepreneurship

59. Discuss the importance of entrepreneurship

60. Describe the characteristics of an entrepreneur

61. Describe the different types of enterprises

62. List the qualities of an effective leader

63. Discuss the benefits of effective leadership

64. List the traits of an effective team

65. Discuss the importance of listening effectively

66. Discuss how to listen effectively

67. Discuss the importance of speaking effectively

68. Discuss how to speak effectively

69. Discuss how to solve problems

70. List important problem solving traits

71. Discuss ways to assess problem solving skills

72. Discuss the importance of negotiation

73. Discuss how to negotiate

74. Discuss how to identify new business opportunities

75. Discuss how to identify business opportunities within your business

76. Understand the meaning of entrepreneur

77. Describe the different types of entrepreneurs

78. List the characteristics of entrepreneurs

79. Recall entrepreneur success stories

80. Discuss the entrepreneurial process

81. Describe the entrepreneurship ecosystem

82. Discuss the government's role in the entrepreneurship ecosystem

83. Discuss the current entrepreneurship ecosystem in India

84. Understand the purpose of the Make in India campaign

85. Discuss the relationship between entrepreneurship and risk appetite

86. Discuss the relationship between entrepreneurship and resilience

87. Describe the characteristics of a resilient entrepreneur

88. Discuss how to deal with failure

89. Discuss how market research is carried out

90. Describe the 4 Ps of marketing

91. Discuss the importance of idea generation

92. Recall basic business terminology

93. Discuss the need for CRM

94. Discuss the benefits of CRM

95. Discuss the need for networking

96. Discuss the benefits of networking

97. Understand the importance of setting goals

98. Differentiate between short-term, medium-term and long-term goals

99. Discuss how to write a business plan

100. Explain the financial planning process

101. Discuss ways to manage your risk

102. Describe the procedure and formalities for applying for bank finance

103. Discuss how to manage your own enterprise

104. List important questions that every entrepreneur should ask before starting an enterprise

UNIT 9.1: Personal Strengths & Value Systems

Unit Objectives

At the end of this unit, you will be able to:

1. Explain the meaning of health
2. List common health issues
3. Discuss tips to prevent common health issues
4. Explain the meaning of hygiene
5. Understand the purpose of Swacch Bharat Abhiyan
6. Explain the meaning of habit
7. Discuss ways to set up a safe work environment
8. Discuss critical safety habits to be followed by employees
9. Explain the importance of self-analysis
10. Understand motivation with the help of Maslow's Hierarchy of Needs
11. Discuss the meaning of achievement motivation
12. List the characteristics of entrepreneurs with achievement motivation
13. List the different factors that motivate you
14. Discuss how to maintain a positive attitude
15. Discuss the role of attitude in self-analysis
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26. Discuss the importance of anger management
27. Describe anger management strategies
28. Discuss tips for anger management
29. Discuss the causes of stress
30. Discuss the symptoms of stress
31. Discuss tips for stress management

9.1.1 Health, Habits, Hygiene: What is Health

As per the World Health Organization (WHO), health is a "State of complete physical, mental, and social well-being, and not merely the absence of disease or infirmity." This means being healthy does not simply mean not being unhealthy – it also means you need to be at peace emotionally, and feel fit physically. For example, you cannot say you are healthy simply because you do not have any physical ailments like a cold or cough. You also need to think about whether you are feeling calm, relaxed and happy.

Common Health Issues

Some common health issues are:

- Allergies
- Asthma
- Skin Disorders
- Depression and Anxiety
- Diabetes
- Cough, Cold, Sore Throat
- Difficulty Sleeping
- Obesity

9.1.1.1 Tips to Prevent Health Issues

Taking measures to prevent ill health is always better than curing a disease or sickness. You can stay healthy by:

- Eating healthy foods like fruits, vegetables and nuts
- Cutting back on unhealthy and sugary foods
- Drinking enough water everyday
- Not smoking or drinking alcohol
- Exercising for at least 30 minutes a day, 4-5 times a week
- Taking vaccinations when required
- Practicing yoga exercises and meditation

How many of these health standards do you follow? Tick the ones that apply to you.

1. Get minimum 7-8 hours of sleep every night. ☐
2. Avoid checking email first thing in the morning and right before you go to bed at night. ☐
3. Don't skip meals – eat regular meals at correct meal times. ☐
4. Read a little bit every single day. ☐
5. Eat more home cooked food than junk food ☐
6. Stand more than you sit. ☐
7. Drink a glass of water first thing in the morning and have at least 8 glasses of water through the day. ☐

8. Go to the doctor and dentist for regular checkups. ☐

9. Exercise for 30 minutes at least 5 days a week. ☐

10. Avoid consuming lots of aerated beverages. ☐

9.1.1.2 What is Hygiene?

As per the World Health Organization (WHO), "Hygiene refers to conditions and practices that help to maintain health and prevent the spread of diseases." In other words, hygiene means ensuring that you do whatever is required to keep your surroundings clean, so that you reduce the chances of spreading germs and diseases.

For instance, think about the kitchen in your home. Good hygiene means ensuring that the kitchen is always spick and span, the food is put away, dishes are washed and dustbins are not overflowing with garbage. Doing all this will reduce the chances of attracting pests like rats or cockroaches, and prevent the growth of fungus and other bacteria, which could spread disease.

How many of these health standards do you follow? Tick the ones that apply to you.

1. Have a bath or shower every day with soap – and wash your hair with shampoo 2-3 times a week. ☐

2. Wear a fresh pair of clean undergarments every day. ☐

3. Brush your teeth in the morning and before going to bed. ☐

4. Cut your fingernails and toenails regularly. ☐

5. Wash your hands with soap after going to the toilet. ☐

6. Use an anti-perspirant deodorant on your underarms if you sweat a lot. ☐

7. Wash your hands with soap before cooking or eating. ☐

8. Stay home when you are sick, so other people don't catch what you have. ☐

9. Wash dirty clothes with laundry soap before wearing them again. ☐

10. Cover your nose with a tissue/your hand when coughing or sneezing. ☐

See how healthy and hygienic you are, by giving yourself 1 point for every ticked statement! Then take a look at what your score means.

Your Score

- **0-7/20:** You need to work a lot harder to stay fit and fine! Make it a point to practice good habits daily and see how much better you feel!

- **7-14/20:** Not bad, but there is scope for improvement! Try and add a few more good habits to your daily routine.

- **14-20/20:** Great job! Keep up the good work! Your body and mind thank you!

9.1.1.3 Swachh Bharat Abhiyan

We have already discussed the importance of following good hygiene and health practices for ourselves. But, it is not enough for us to be healthy and hygienic. We must also extend this standard to our homes, our immediate surroundings and to our country as a whole.

The 'Swachh Bharat Abhiyan' (Clean India Mission) launched by Prime Minister Shri Narendra Modi on 2nd October 2014, believes in doing exactly this. The aim of this mission is to clean the streets and roads of India and raise the overall level of cleanliness. Currently this mission covers 4,041 cities and towns across the country. Millions of our people have taken the pledge for a clean India. You should take the pledge too, and do everything possible to keep our country clean!

9.1.1.4 What are Habits?

A habit is a behaviour that is repeated frequently. All of us have good habits and bad habits. Keep in mind the phrase by John Dryden: "We first make our habits, and then our habits make us." This is why it is so important that you make good habits a way of life, and consciously avoid practicing bad habits.

Some good habits that you should make part of your daily routine are:

- Always having a positive attitude
- Making exercise a part of your daily routine
- Reading motivational and inspirational stories
- Smiling! Make it a habit to smile as often as possible
- Making time for family and friends
- Going to bed early and waking up early

Some bad habits that you should quit immediately are:

- Skipping breakfast
- Snacking frequently even when you are not hungry
- Eating too much fattening and sugary food
- Smoking, drinking alcohol and doing drugs
- Spending more money than you can afford
- Worrying about unimportant issues
- Staying up late and waking up late

9.1.1.5 Tips

- Following healthy and hygienic practices every day will make you feel good mentally and physically.
- Hygiene is two-thirds of health – so good hygiene will help you stay strong and healthy!

9.1.2 Safety: Tips to Design a Safe Workplace

Every employer is obligated to ensure that his workplace follows the highest possible safety protocol. When setting up a business, owners must make it a point to:

- Use ergonomically designed furniture and equipment to avoid stooping and twisting
- Provide mechanical aids to avoid lifting or carrying heavy objects
- Have protective equipment on hand for hazardous jobs
- Designate emergency exits and ensure they are easily accessible
- Set down health codes and ensure they are implemented
- Follow the practice of regular safety inspections in and around the workplace
- Ensure regular building inspections are conducted
- Get expert advice on workplace safety and follow it

9.1.2.1 Negotiable Employee Safety Habits

Every employer is obligated to ensure that his workplace follows the highest possible safety protocol. When setting up a business, owners must make it a point to:

- Immediately report unsafe conditions to a supervisor
- Recognize and report safety hazards that could lead to slips, trips and falls
- Report all injuries and accidents to a supervisor
- Wear the correct protective equipment when required
- Learn how to correctly use equipment provided for safety purposes
- Be aware of and avoid actions that could endanger other people
- Take rest breaks during the day and some time off from work during the week

9.1.2.2 Tips

- Be aware of what emergency number to call at the time of a workplace emergency
- Practice evacuation drills regularly to avoid chaotic evacuations

9.1.3 Self Analysis – Attitude, Achievement Motivation

To truly achieve your full potential, you need to take a deep look inside yourself and find out what kind of person you really are. This attempt to understand your personality is known as self-analysis. Assessing yourself in this manner will help you grow, and will also help you to identify areas within yourself that need to be further developed, changed or eliminated. You can better understand yourself by taking a deep look at what motivates you, what your attitude is like, and what your strengths and weaknesses are.

9.1.3.1 What is Motivation?

Very simply put, motivation is your reason for acting or behaving in a certain manner. It is important to understand that not everyone is motivated by the same desires – people are motivated by many, many different things. We can understand this better by looking at Maslow's Hierarchy of Needs.

9.1.3.2 Maslow's Hierarchy of Needs

Famous American psychologist Abraham Maslow wanted to understand what motivates people. He believed that people have five types of needs, ranging from very basic needs (called physiological needs) to more important needs that are required for self-growth (called self- actualization needs). Between the physiological and self-actualization needs are three other needs – safety needs, belongingness and love needs, and esteem needs. These needs are usually shown as a pyramid with five levels and are known as Maslow's Hierarchy of Needs.
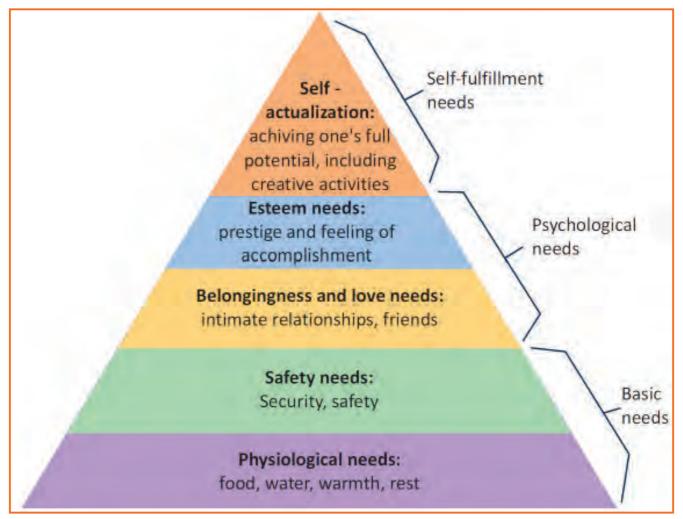

Fig.9.1.1: Maslow's Hierarchy of Needs

As you can see from the pyramid, the lowest level depicts the most basic needs. Maslow believed that our behaviour is motivated by our basic needs, until those needs are met. Once they are fulfilled, we move to the next level and are motived by the next level of needs. Let's understand this better with an example.

Rupa comes from a very poor family. She never has enough food, water, warmth or rest. According to Maslow, until Rupa is sure that she will get these basic needs, she will not even think about the next level of needs – her safety needs. But, once Rupa is confident that her basic needs will be met, she will move to the next level, and her behaviour will then be motivated by her need for security and safety. Once these new needs are met, Rupa will once again move to the next level, and be motivated by her need for relationships and friends. Once this need is satisfied, Rupa will then focus on the fourth level of needs – her esteem needs, after which she will move up to the fifth and last level of needs – the desire to achieve her full potential.

9.1.3.3 Understanding Achievement Motivation

We now know that people are motivated by basic, psychological and self-fulfillment needs. However, certain people are also motivated by the achievement of highly challenging accomplishments. This is known as Achievement Motivation, or 'need for achievement'.

The level of motivation achievement in a person differs from individual to individual. It is important that entrepreneurs have a high level of achievement motivation – a deep desire to accomplish something important and unique. It is equally important that they hire people who are also highly motivated by challenges and success.

What Motivates You?

What are the things that really motivate you? List down five things that really motivate you. Remember to answer honestly!

I am motivated by:

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Characteristics of Entrepreneurs with Achievement Motivation

- Entrepreneurs with achievement motivation can be described as follows:
- Unafraid to take risks for personal accomplishment
- Love being challenged Future-oriented Flexible and adaptive
- Value negative feedback more than positive feedback
- Very persistent when it comes to achieving goals
- Extremely courageous
- Highly creative and innovative
- Restless - constantly looking to achieve more
- Feel personally responsible for solving problems

Think about it:

- How many of these traits do you have?
- Can you think of entrepreneurs who display these traits?

9.1.3.4 How to Cultivate a Positive Attitude

The good news is attitude is a choice. So it is possible to improve, control and change our attitude, if we decide we want to! The following tips help foster a positive mindset:

- Remember that you control your attitude, not the other way around
- Devote at least 15 minutes a day towards reading, watching or listening to something positive
- Avoid negative people who only complain and stop complaining yourself
- Expand your vocabulary with positive words and delete negative phrases from your mind
- Be appreciative and focus on what's good in yourself, in your life, and in others
- Stop thinking of yourself as a victim and start being proactive
- Imagine yourself succeeding and achieving your goals

9.1.3.5 What is Attitude?

Now that we understand why motivation is so important for self-analysis, let's look at the role our attitude plays in better understanding ourselves. Attitude can be described as your tendency (positive or negative), to think and feel about someone or something. Attitude is the foundation for success in every aspect of life. Our attitude can be our best friend or our worst enemy. In other words:

<div align="center">

"The only disability in life is a bad attitude."

</div>

When you start a business, you are sure to encounter a wide variety of emotions, from difficult times and failures to good times and successes. Your attitude is what will see you through the tough times and guide you towards success. Attitude is also infectious. It affects everyone around you, from your customers to your employees to your investors. A positive attitude helps build confidence in the workplace while a negative attitude is likely to result in the demotivation of your people.

9.1.3.6 What Are Your Strengths and Weaknesses

Another way to analyze yourself is by honestly identifying your strengths and weaknesses. This will help you use your strengths to your best advantage and reduce your weaknesses.

Note down all your strengths and weaknesses in the two columns below. Remember to be honest with yourself!

Strengths	Weaknesses

9.1.3.7 Tips

- Achievement motivation can be learned.
- Don't be afraid to make mistakes.
- Train yourself to finish what you start.
- Dream big.

9.1.4 Honesty & Work Ethics: What is Honesty?

Honesty is the quality of being fair and truthful. It means speaking and acting in a manner that inspires trust. A person who is described as honest is seen as truthful and sincere, and as someone who isn't deceitful or devious and doesn't steal or cheat. There are two dimensions of honesty – one is honesty in communication and the other is honesty in conduct.

Honesty is an extremely important trait because it results in peace of mind and builds relationships that are based on trust. Being dishonest, on the other hand, results in anxiety and leads to relationships full of distrust and conflict.

9.1.4.1 Qualities of Honest People

Honest individuals have certain distinct characteristics. Some common qualities among honest people are:

- They don't worry about what others think of them. They believe in being themselves – they don't bother about whether they are liked or disliked for their personalities.

- They stand up for their beliefs. They won't think twice about giving their honest opinion, even if they are aware that their point of view lies with the minority.

- They are think skinned. This means they are not affected by others judging them harshly for their honest opinions.

- They forge trusting, meaningful and healthy friendships. Honest people usually surround themselves with honest friends. They have faith that their friends will be truthful and upfront with them at all times.

They are trusted by their peers. They are seen as people who can be counted on for truthful and objective feedback and advice.

- **Honesty and employees:** When entrepreneurs build honest relationships with their employees, it leads to more transparency in the workplace, which results in higher work performance and better results.

- **Honesty and investors:** For entrepreneurs, being honest with investors means not only sharing strengths but also candidly disclosing current and potential weaknesses, problem areas and solution strategies. Keep in mind that investors have a lot of experience with startups and are aware that all new companies have problems. Claiming that everything is perfectly fine and running smoothly is a red flag for most investors.

- **Honesty with oneself:** The consequences of being dishonest with oneself can lead to dire results, especially in the case of entrepreneurs. For entrepreneurs to succeed, it is critical that they remain realistic about their situation at all times, and accurately judge every aspect of their enterprise for what it truly is.

9.1.4.2 Importance of Honesty in Entrepreneurs

One of the most important characteristics of entrepreneurs is honesty. When entrepreneurs are honest with their customers, employees and investors, it shows that they respect those that they work with. It is also important that entrepreneurs remain honest with themselves. Let's look at how being honest would lead to great benefits for entrepreneurs.

- **Honesty and customers:** When entrepreneurs are honest with their customers it leads to stronger relationships, which in turn results in business growth and a stronger customer network.

9.1.4.3 What are Work Ethics?

Being ethical in the workplace means displaying values like honesty, integrity and respect in all your decisions and communications. It means not displaying negative qualities like lying, cheating and stealing.

Workplace ethics play a big role in the profitability of a company. It is as crucial to an enterprise as high morale and teamwork. This is why most companies lay down specific workplace ethic guidelines that must compulsorily be followed by their employees. These guidelines are typically outlined in a company's employee handbook.

9.1.4.4 Elements of a Strong Work Ethic

An entrepreneur must display strong work ethics, as well as hire only those individuals who believe in and display the same level of ethical behavior in the workplace. Some elements of a strong work ethic are:

- **Professionalism:** This involves everything from how you present yourself in a corporate setting to the manner in which you treat others in the workplace.

- **Respectfulness:** This means remaining poised and diplomatic regardless of how stressful or volatile a situation is.

- **Dependability:** This means always keeping your word, whether it's arriving on time for a meeting or delivering work on time.

- **Dedication:** This means refusing to quit until the designated work is done, and completing the work at the highest possible level of excellence.

- **Determination:** This means embracing obstacles as challenges rather than letting them stop you, and pushing ahead with purpose and resilience to get the desired results.

- **Accountability:** This means taking responsibility for your actions and the consequences of your actions, and not making excuses for your mistakes.

- **Humility:** This means acknowledging everyone's efforts and had work, and sharing the credit for accomplishments.

9.1.4.5 How to Foster a Good Work Ethic

As an entrepreneur, it is important that you clearly define the kind of behaviour that you expect from each and every team member in the workplace. You should make it clear that you expect employees to display positive work ethics like:

- **Honesty:** All work assigned to a person should be done with complete honesty, without any deceit or lies.

- **Good attitude:** All team members should be optimistic, energetic, and positive.

- **Reliability:** Employees should show up where they are supposed to be, when they are supposed to be there.

- **Good work habits:** Employees should always be well groomed, never use inappropriate language, conduct themselves professionally at all times, etc.

- **Initiative:** Doing the bare minimum is not enough. Every team member needs to be proactive and show initiative.

- **Trustworthiness:** Trust is non-negotiable. If an employee cannot be trusted, it's time to let that employee go.

- **Respect:** Employees need to respect the company, the law, their work, their colleagues and themselves.

- **Integrity:** Each and every team member should be completely ethical and must display above board behaviour at all times.

- **Efficiency:** Efficient employees help a company grow while inefficient employees result in a waste of time and resources.

9.1.4.6 Tips

- Don't get angry when someone tells you the truth and you don't like what you hear.
- Always be willing to accept responsibility for your mistakes.

9.1.5 Creativity & Innovation

What is Creativity

Creativity means thinking outside the box. It means viewing things in new ways or from different perspectives, and then converting these ideas into reality. Creativity involves two parts: thinking and producing. Simply having an idea makes you imaginative, not creative. However, having an idea and acting on it makes you creative.

Characteristics of Highly Creative People

Some characteristics of creative people are:

- They are imaginative and playful
- They see issues from different angles
- They notice small details
- They have very little tolerance for boredom
- They detest rules and routine
- They love to daydream
- They are very curious

What is Innovation?

There are many different definitions of innovation. In simple terms, innovation means turning an idea into a solution that adds value. It can also mean adding value by implementing a new product, service or process, or significantly improving on an existing product, service or process.

Characteristics of Highly Innovative People

Some characteristics of highly innovative people are:

- They embrace doing things differently
- They don't believe in taking shortcuts
- They are not afraid to be unconventional
- They are highly proactive and persistent
- They are organized, cautious and risk-averse

9.1.5.1 Tips

- Take regular breaks from your creative work to recharge yourself and gain fresh perspective.
- Build prototypes frequently, test them out, get feedback, and make the required changes.

9.1.6 Time Management

Time management is the process organizing your time, and deciding how to allocate your time between different activities. Good time management is the difference between working smart (getting more done in less time) and working hard (working for more time to get more done).

Effective time management leads to an efficient work output, even when you are faced with tight deadlines and high pressure situations. On the other hand, not managing your time effectively results in inefficient output and increases stress and anxiety.

Benefits of Time Management

Time management can lead to huge benefits like:

• Greater productivity

• Higher efficiency

• Better professional reputation

• Reduced stress

• Higher chances for career advancement

• Greater opportunities to achieve goals

Not managing time effectively can result in undesirable consequences like:

• Missing deadlines

• Inefficient work output

• Substandard work quality

• Poor professional reputation

• Stalled career

• Increase in stress and anxiety

9.1.6.1 Traits of Effective Time Managers

Some traits of effective time managers are:

• They begin projects early They set daily objectives

• They modify plans if required, to achieve better results

• They are flexible and open-minded

• They inform people in advance if their help will be required

• They know how to say no

• They break tasks into steps with specific deadlines

• They continually review long term goals

• They think of alternate solutions if and when required

• They ask for help when required They create backup plans

9.1.6.2 Effective Time Management Techniques

You can manage your time better by putting into practice certain time management techniques. Some helpful tips are:

- **Plan out your day as well as plan for interruptions.** Give yourself at least 30 minutes to figure out your time plan. In your plan, schedule some time for interruptions.

- **Put up a "Do Not Disturb" sign** when you absolutely have to complete a certain amount of work.

- **Close your mind to all distractions.** Train yourself to ignore ringing phones, don't reply to chat messages and disconnect from social media sites.

- **Delegate your work.** This will not only help your work get done faster, but will also show you the unique skills and abilities of those around you.

- **Stop procrastinating.** Remind yourself that procrastination typically arises due to the fear of failure or the belief that you cannot do things as perfectly as you wish to do them.

- **Prioritize.** List each task to be completed in order of its urgency or importance level. Then focus on completing each task, one by one.

- **Maintain a log of your work activities.** Analyze the log to help you understand how efficient you are, and how much time is wasted every day.

- **Create time management goals** to reduce time wastage.

9.1.6.3 Tips

- Always complete the most important tasks first.
- Get at least 7 – 8 hours of sleep every day.
- Start your day early.
- Don't waste too much time on small, unimportant details.
- Set a time limit for every task that you will undertake.
- Give yourself some time to unwind between tasks.

9.1.7 Anger Management

Anger management is the process of:

1. Learning to recognize the signs that you, or someone else, is becoming angry

2. Taking the best course of action to calm down the situation in a positive way Anger management does not mean suppressing anger.

Importance of Anger Management

Anger is a perfectly normal human emotion. In fact, when managed the right way, anger can be considered a healthy emotion. However, if it is not kept in check, anger can make us act inappropriately and can lead to us saying or doing things that we will likely later regret.

Extreme anger can:

- **Hurt you physically:** It leads to heart disease, diabetes, a weakened immune system, insomnia, and high blood pressure.

- **Hurt you mentally:** It can cloud your thinking and lead to stress, depression and mental health issues.

- **Hurt your career:** It can result in alienating your colleagues, bosses, clients and lead to the loss of respect.

- **Hurt your relationships:** It makes it hard for your family and friends to trust you, be honest with you and feel comfortable around you.

This is why anger management, or managing anger appropriately, is so important.

9.1.7.1 Anger Management Strategies

Here are some strategies that can help you control your anger:

Strategy 1: Relaxation

Something as simple as breathing deeply and looking at relaxing images works wonders in calming down angry feelings. Try this simple breathing exercise:

- Take a deep breath from your diaphragm (don't breathe from your chest)

- Visualize your breath coming up from your stomach

- Keep repeating a calming word like 'relax' or 'take it easy' (remember to keep breathing deeply while repeating the word)

- Picture a relaxing moment (this can be from your memory or your imagination)

Follow this relaxation technique daily, especially when you realize that you're starting to feel angry.

Strategy 2: Cognitive Restructuring

Cognitive restructuring means changing the manner in which you think. Anger can make you curse, swear, exaggerate and act very dramatically. When this happens, force yourself to replace your angry thoughts with more logical ones. For instance, instead of thinking 'Everything is ruined' change your mindset and tell yourself 'It's not the end of the world and getting angry won't solve this'.

Strategy 3: Problem Solving

Getting angry about a problem that you cannot control is a perfectly natural response. Sometimes, try as you may, there may not be a solution to the difficulty you are faced with. In such cases, stop focusing on solving the problem, and instead focus on handling and facing the problem. Remind yourself that you will do your best to deal with the situation, but that you will not blame yourself if you don't get the solution you desire.

Strategy 4: Better Communication

When you're angry, it is very easy to jump to inaccurate conclusions. In this case, you need to force yourself to stop reacting, and think carefully about what you want to say, before saying it. Avoid saying the first thing that enters your head. Force yourself to listen carefully to what the other person is saying. Then think about the conversation before responding.

Strategy 5: Changing Your Environment

If you find that your environment is the cause of your anger, try and give yourself a break from your surroundings. Make an active decision to schedule some personal time for yourself, especially on days that are very hectic and stressful. Having even a brief amount of quiet or alone time is sure to help calm you down.

9.1.7.2 Tips for Anger Management

- The following tips will help you keep your anger in check:
- Take some time to collect your thoughts before you speak out in anger.
- Express the reason for your anger in an assertive, but non-confrontational manner once you have calmed down.
- Do some form of physical exercise like running or walking briskly when you feel yourself getting angry.
- Make short breaks part of your daily routine, especially during days that are stressful. Focus on how to solve a problem that's making you angry, rather than focusing on the fact that the problem is making you angry.

9.1.8 Stress Management

We say we are 'stressed' when we feel overloaded and unsure of our ability to deal with the pressures placed on us. Anything that challenges or threatens our well-being can be defined as a stress. It is important to note that stress can be good and bad. While good stress keeps us going, negative stress undermines our mental and physical health. This is why it is so important to manage negative stress effectively.

Causes of Stress

Stress can be caused by internal and external factors.

Internal causes of stress:

- Constant worry
- Rigid thinking
- Unrealistic expectations
- Pessimism
- Negative self-talk
- All in or all out attitude

External causes of stress:

- Major life changes
- Difficulties with relationships
- Having too much to do
- Difficulties at work or in school
- Financial difficulties
- Worrying about one's children and/or family

9.1.8.1 Symptoms of Stress

Stress can manifest itself in numerous ways. Take a look at the cognitive, emotional, physical and behavioral symptoms of stress.

Cognitive Symptoms	Emotional Symptoms
• Memory problems	• Depression
• Concentration issues	• Agitation
• Lack of judgement	• Irritability
• Pessimism	• Loneliness
• Anxiety	• Anxiety
• Constant worrying	• Anger

Physical Symptoms	Behavioral Symptoms
• Aches and pain	• Increase or decrease in appetite
• Diarrhea or constipation	• Over sleeping or not sleeping enough
• Nausea	• Withdrawing socially
• Dizziness	• Ignoring responsibilities
• Chest pain and/or rapid heartbeat	• Consumption of alcohol or cigarettes
• Frequent cold or flu like feelings	• Nervous habits like nail biting, pacing etc.

9.1.8.2 Tips Manage Stress

The following tips can help you manage your stress better:
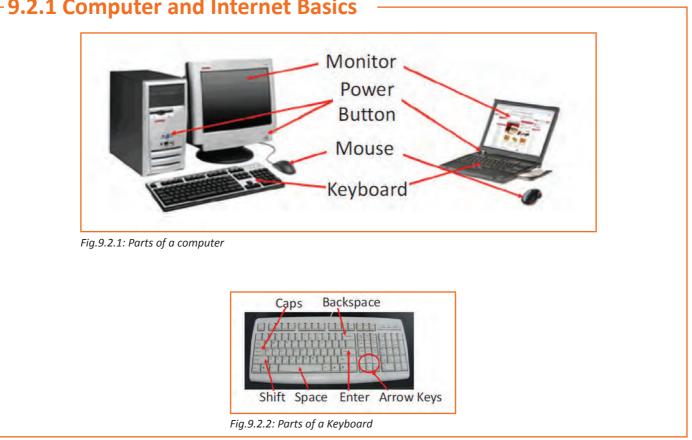
• Note down the different ways in which you can handle the various sources of your stress.

• Remember that you cannot control everything, but you can control how you respond.

• Discuss your feelings, opinions and beliefs rather than reacting angrily, defensively or passively.

• Practice relaxation techniques like meditation, yoga or tai chi when you start feeling stressed.

• Devote a part of your day towards exercise.

• Eat healthy foods like fruits and vegetables. Avoid unhealthy foods especially those containing large amounts of sugar.

• Plan your day so that you can manage your time better, with less stress.

• Say no to people and things when required.

• Schedule time to pursue your hobbies and interests.

• Ensure you get at least 7-8 hours of sleep.

• Reduce your caffeine intake.

• Increase the time spent with family and friends.

UNIT 9.2: Digital Literacy: A Recap

Unit Objectives ⊚

At the end of this unit, you will be able to:

1. Identify the basic parts of a computer
2. Identify the basic parts of a keyboard
3. Recall basic computer terminology
4. Recall basic computer terminology
5. Recall the functions of basic computer keys
6. Discuss the main applications of MS Office
7. Discuss the benefits of Microsoft Outlook
8. Discuss the different types of e-commerce
9. List the benefits of e-commerce for retailers and customers
10. Discuss how the Digital India campaign will help boost e-commerce in India
11. Describe how you will sell a product or service on an e-commerce platform

9.2.1 Computer and Internet Basics

Fig.9.2.1: Parts of a computer

Fig.9.2.2: Parts of a Keyboard

9.2.1.1 Basic Parts of a Computer

1. **Central Processing Unit (CPU):** The brain of the computer. It interprets and carries out program instructions.

2. **Hard Drive:** A device that stores large amounts of data.

3. **Monitor:** The device that contains the computer screen where the information is visually displayed.

4. **Desktop:** The first screen displayed after the operating system loads.

5. **Background:** The image that fills the background of the desktop.

6. **Mouse:** A hand-held device used to point to items on the monitor.

7. **Speakers:** Devices that enable you to hear sound from the computer.

8. **Printer:** A device that converts output from a computer into printed paper documents.

9. **Icon:** A small picture or image that visually represents something on your computer.

10. **Cursor:** An arrow which indicates where you are positioned on the screen.

11. **Program Menu:** A list of programs on your computer that can be accessed from the Start menu.

12. **Taskbar:** The horizontal bar at the bottom of the computer screen that lists applications that are currently in use.

13. **Recycle Bin:** A temporary storage for deleted files.

9.2.1.2 Basic Internet Terms

- **The Internet:** Avast, international collection of computer networks that transfers information.

- **The World Wide Web:** A system that lets you access information on the Internet.

- **Website:** A location on the World Wide Web (and Internet) that contains information about a specific topic.

- **Homepage:** Provides information about a website and directs you to other pages on that website.

- **Link/Hyperlink:** A highlighted or underlined icon, graphic, or text that takes you to another file or object.

- **Web Address/URL:** The address for a website.

- **Address Box:** A box in the browser window where you can type in a web address.

9.2.1.3 Basic Computer Keys

- **Arrow Keys:** Press these keys to move your cursor.

- **Space bar:** Adds a space.

- **Enter/Return:** Moves your cursor to a new line.

- **Shift:** Press this key if you want to type a capital letter or the upper symbol of a key.

- **Caps Lock:** Press this key if you want all the letters you type to be capital letters. Press it again to revert back to typing lowercase letters.

- **Backspace:** Deletes everything to the left of your cursor.

9.2.1.4 Tips

- When visiting a .com address, there no need to type http:// or even www. Just type the name of the website and then press Ctrl + Enter. (Example: Type 'apple' and press Ctrl + Enter to go to www.apple.com)

- Press the Ctrl key and press the + or - to increase and decrease the size of text.

- Press F5 or Ctrl + R to refresh or reload a web page.

9.2.2 MS Office and Email

About MS Office

MS Office or Microsoft Office is a suite of computer programs developed by Microsoft. Although meant for all users, it offers different versions that cater specifically to students, home users and business users. All the programs are compatible with both, Windows and Macintosh.

Most Popular Office Products

Some of the most popular and universally used MS Office applications are:

1. **Microsoft Word:** Allows users to type text and add images to a document.

2. **Microsoft Excel:** Allows users to enter data into a spreadsheet and create calculations and graphs.

3. **Microsoft PowerPoint:** Allows users to add text, pictures and media and create slideshows and presentations.

4. **Microsoft Outlook:** Allows users to send and receive email.

5. **Microsoft OneNote:** Allows users to make drawings and notes with the feel of a pen on paper.

6. **Microsoft Access:** Allows users to store data over many tables.

Why Choose Microsoft Outlook

A popular email management choice especially in the workplace, Microsoft Outlook also includes an address book, notebook, web browser and calendar. Some major benefits of this program are:

- **Integrated search function:** You can use keywords to search for data across all Outlook programs.

- **Enhanced security:** Your email is safe from hackers, junk mail and phishing website email.

- **Email syncing:** Sync your mail with your calendar, contact list, notes in One Note and...your phone!

- **Offline access to email:** No Internet? No problem! Write emails offline and send them when you're connected again.

9.2.2.1 Tips

- Press Ctrl+R as a shortcut method to reply to email.

- Set your desktop notifications only for very important emails.

- Flag messages quickly by selecting messages and hitting the Insert key.

- Save frequently sent emails as a template to reuse again and again.

- Conveniently save important emails as files.

9.2.3 E-Commerce

What is E-Commerce

E-commerce is the buying or selling of goods and services, or the transmitting of money or data, electronically on the internet. E-Commerce is the short form for "electronic commerce."

Examples of E-Commerce:

- Online shopping Online auctions
- Online ticketing
- Electronic payments
- Internet banking

Types of E-Commerce

E-commerce can be classified based on the types of participants in the transaction. The main types of e-commerce are:

- **Business to Business (B2B):** Both the transacting parties are businesses.
- **Business to Consumer (B2C):** Businesses sell electronically to end-consumers.
- **Consumer to Consumer (C2C):** Consumers come together to buy, sell or trade items to other consumers.
- **Consumer-to-Business (C2B):** Consumers make products or services available for purchase to companies looking for exactly those services or products.
- **Business-to-Administration (B2A):** Online transactions conducted between companies and public administration.
- **Consumer-to-Administration (C2A):** Online transactions conducted between individuals and public administration.

9.2.3.1 Benefits of E-Commerce

The e-commerce business provides some benefits for retailers and customers.

Benefits for retailers:

- Establishes an online presence
- Reduces operational costs by removing overhead costs
- Increases brand awareness through the use of good keywords
- Increases sales by removing geographical and time constraints

Benefits for customers:

- Offers a wider range of choice than any physical store
- Enables goods and services to be purchased from remote locations
- Enables consumers to perform price comparisons

9.2.3.2 Digital India Campaign

Prime Minister Narendra Modi launched the Digital India campaign in 2015, with the objective of offering every citizen of India access to digital services, knowledge and information. The campaign aims to improve the country's online infrastructure and increase internet connectivity, thus boosting the e-commerce industry.

Currently, the majority of online transactions come from tier 2 and tier 3 cities. Once the Digital India campaign is in place, the government will deliver services through mobile connectivity, which will help deliver internet to remote corners of the country. This will help the e-commerce market to enter India's tier 4 towns and rural areas.

E-Commerce Activity

Choose a product or service that you want to sell online. Write a brief note explaining how you will use existing e-commerce platforms, or create a new e-commerce platform, to sell your product or service.

9.2.3.3 Tips

- Before launching your e-commerce platform, test everything.
- Pay close and personal attention to your social media.

UNIT 9.3: Money Matters

Unit Objectives

At the end of this unit, you will be able to:

1. Discuss the importance of saving money
2. Discuss the benefits of saving money
3. Discuss the main types of bank accounts
4. Describe the process of opening a bank account
5. Differentiate between fixed and variable costs
6. Describe the main types of investment options
7. Describe the different types of insurance products
8. Describe the different types of taxes
9. Discuss the uses of online banking
10. Discuss the main types of electronic funds transfers

9.3.1 Personal Finance – Why to Save

Importance of Saving

We all know that the future is unpredictable. You never know what will happen tomorrow, next week or next year. That's why saving money steadily through the years is so important. Saving money will help improve your **financial situation** over time. But more importantly, knowing that you have money stashed away for an emergency will give you peace of mind. Saving money also opens the door to many more options and possibilities.

Benefits of Saving

Inculcating the habit of saving leads to a vast number of benefits. Saving helps you:

- **Become financially independent:** When you have enough money saved up to feel secure you can start making your choices, from taking a vacation whenever you want, to switching careers or starting your own business.

- **Invest in yourself through education:** Through saving, you can earn enough to pay up for courses that will add to your professional experience and ultimately result in higher paying jobs.

- **Get out of debt:** Once you have saved enough as a reserve fund, you can use your savings to pay off debts like loans or bills that have accumulated over time.

- **Be prepared for surprise expenses:** Having money saved enables you to pay for unforeseen expenses like sudden car or house repairs, without feeling financially stressed.

- **Pay for emergencies:** Saving helps you deal with emergencies like sudden health issues or emergency trips without feeling financially burdened.

- **Afford large purchases and achieve major goals:** Saving diligently makes it possible to place down payments towards major purchases and goals, like buying a home or a car.

- **Retire:** The money you have saved over the years will keep you comfortable when you no longer have the income you would get from your job.

9.3.1.1 Tips

- Break your spending habit. Try not spending on one expensive item per week, and put the money that you would have spent into your savings.

- Decide that you will not buy anything on certain days or weeks and stick to your word.

9.3.2 Types of Bank Accounts

In India, banks offer four main types of bank accounts. These are:

1. Current Accounts
2. Savings Accounts
3. Recurring Deposit Accounts
4. Fixed Deposit Accounts

Current Accounts

Current accounts offer the most liquid deposits and thus, are best suited for businessmen and companies. As these accounts are not meant for investments and savings, there is no imposed limit on the number or amount of transactions that can be made on any given day. Current account holders are not paid any interest on the amounts held in their accounts. They are charged for certain services offered on such accounts.

Savings Accounts

Savings accounts are meant to promote savings, and are therefore the number one choice for salaried individuals, pensioners and students. While there is no restriction on the number and amount of deposits made, there are usually restrictions on the number and amount of withdrawals. Savings account holders are paid interest on their savings.

Recurring Deposit Accounts

Recurring Deposit accounts, also called RD accounts, are the accounts of choice for those who want to save an amount every month, but are unable to invest a large sum at one time. Such account holders deposit a small, fixed amount every month for a pre-determined period (minimum 6 months). Defaulting on a monthly payment results in the account holder being charged a penalty amount. The total amount is repaid with interest at the end of the specified period.

Fixed Deposit Accounts

Fixed Deposit accounts, also called FD accounts, are ideal for those who wish to deposit their savings for a long term in return for a high rate of interest. The rate of interest offered depends on the amount deposited and the time period, and also differs from bank to bank. In the case of an FD, a certain amount of money is deposited by the account holder for a fixed period of time. The money can be withdrawn when the period expires. If necessary, the depositor can break the fixed deposit prematurely. However, this usually attracts a penalty amount which also differs from bank to bank.

9.3.2.1 Opening a Bank Account

Opening a bank account is quite a simple process. Take a look at the steps to open an account of your own:

Step 1: Fill in the Account Opening Form

This form requires you to provide the following information:

• Personal details (name, address, phone number, date of birth, gender, occupation, address)

• Method of receiving your account statement (hard copy/email)

• Details of your initial deposit (cash/cheque)

• Manner of operating your account (online/mobile banking/traditional via cheque, slip books) Ensure that you sign wherever required on the form.

Step 2: Affix your Photograph

Stick a recent photograph of yourself in the allotted space on the form.

Step 3: Provide your Know Your Customer (KYC) Details

KYC is a process that helps banks verify the identity and address of their customers. To open an account, every individual needs to submit certain approved documents with respect to photo identity (ID) and address proof. Some Officially Valid Documents (OVDs) are:

• Passport

• Driving License

• Voters' Identity Card

• PAN Card

• UIDAI (Aadhaar) Card

Step 4: Submit All your Documents

Submit the completed Account Opening Form and KYC documents. Then wait until the forms are processed and your account has been opened!

9.3.2.2 Tips

• Select the right type of account.

• Fill in complete nomination details.

• Ask about fees.

• Understand the rules.

• Check for online banking – it's convenient!

• Keep an eye on your bank balance.

9.3.3 Costs: Fixed vs Variable

What are Fixed and Variable Costs

• Fixed costs and variable costs together make up a company's total cost. These are the two types of costs that companies have to bear when producing goods and services.

• A fixed cost does not change with the volume of goods or services a company produces. It always remains the same.

• A variable cost, on the other hand, increases and decreases depending on the volume of goods and services produced. In other words, it varies with the amount produced.

Differences Between Fixed and Variable Costs

Let's take a look at some of the main differences between fixed and variable costs:

Criteria	Fixed Costs	Variable Costs
Meaning	A cost that stays the same, regardless of the output produced.	A cost that changes when the
Nature	Time related.	Volume related.
Incurred	Incurred irrespective of units being produced.	Incurredonlywhenunitsareproduced.
Unit cost	Inversely proportional to the number of units produced.	Remains the same, per unit.
Examples	Depreciation, rent, salary, insurance, tax etc.	Materialconsumed, wages, commission on sales, packing expenses, etc.

9.3.3.1 Tips

• When trying to determine whether a cost is fixed or variable, simply ask the following question: Will the particular cost change if the company stopped its production activities? If the answer is no, then it is a fixed cost. If the answer is yes, then it is probably a variable cost.

9.3.4 Investment, Insurance and Taxes

Investment

Investment means that money is spent today with the aim of reaping financial gains at a future time. The main types of investment options are as follows:

• **Bonds:** Bonds are instruments used by public and private companies to raise large sums of money – too large to be borrowed from a bank. These bonds are then issued in the public market and are bought by lenders.

• **Stocks:** Stocks or equity are shares that are issued by companies and are bought by the general public.

• **Small Savings Schemes:** Small Savings Schemes are tools meant to save money in small amounts. Some popular schemes are the Employees Provident Fund, Sukanya Samriddhi Scheme and National Pension Scheme.

- **Mutual Funds:** Mutual Funds are professionally managed financial instruments that invest money in different securities on behalf of investors.

- **Fixed Deposits:** A fixed amount of money is kept aside with a financial institution for a fixed amount of time in return for interest on the money.

- **Real Estate:** Loans are taken from banks to purchase real estate, which is then leased or sold with the aim of making a profit on the appreciated property price.

- **Hedge Funds:** Hedge funds invest in both financial derivatives and/or publicly traded securities.

- **Private Equity:** Private Equity is trading in the shares of an operating company that is not publicly listed and whose shares are not available on the stock market.

- **Venture Capital:** Venture Capital involves investing substantial capital in a budding company in return for stocks in that company.

Insurance

There are two types of insurance:

1. Life Insurance

2. Non-Life or General Insurance.

Life Insurance Products

The main life insurance products are:

1. **Term Insurance:** This is the simplest and cheapest form of insurance. It offers financial protection for a specified tenure, say 15 to 20 years. In the case of your death, your family is paid the sum assured. In the case of your surviving the term, the insurer pays nothing.

2. **Endowment Policy:** This offers the dual benefit of insurance and investment. Part of the premium is allocated towards the sum assured, while the remaining premium gets invested in equity and debt. It pays a lump sum amount after the specified duration or on the death of the policyholder, whichever is earlier.

3. **Unit-Linked Insurance Plan (ULIP):** Here part of the premium is spent on the life cover, while the remaining amount is invested in equity and debt. It helps develop a regular saving habit.

4. **Money Back Life Insurance:** While the policyholder is alive, periodic payments of the partial survival benefits are made during the policy tenure. On the death of the insured, the insurance company pays the full sum assured along with survival benefits.

5. **Whole Life Insurance:** It offers the dual benefit of insurance and investment. It offers insurance cover for the whole life of the person or up to 100 years whichever is earlier.

General Insurance

General Insurance deals with all insurance covering assets like animals, agricultural crops, goods, factories, cars and so on.

General Insurance Products:

1. **Motor Insurance:** This can be divided into Four Wheeler Insurance and Two Wheeler Insurance.

2. **Health Insurance:** The main types of health insurance are individual health insurance, family floater health insurance, comprehensive health insurance and critical illness insurance.

3. **Travel Insurance:** This can be categorised into Individual Travel Policy, Family Travel Policy, Student Travel Insurance and Senior Citizen Health Insurance.

4. **Home Insurance:** This protects the house and its contents from risk.

5. **Marine Insurance:** This insurance covers goods, freight, cargo etc. against loss or damage during transit by rail, road, sea and/or air.

Taxes

There are two types of taxes:

1. Direct Taxes

2. Indirect Taxes.

Direct Tax

Direct taxes are levied directly on an entity or a person and are non-transferrable. Some examples of Direct Taxes are:

• **Income Tax:** This tax is levied on your earning in a financial year. It is applicable to both, individuals and companies.

• **Capital Gains Tax:** This tax is payable whenever you receive a sizable amount of money. It is usually of two types – short term capital gains from investments held for less than 36 months and long term capital gains from investments held for longer than 36 months.

• **Securities Transaction Tax:** This tax is added to the price of a share. It is levied every time you buy or sell shares.

• **Perquisite Tax:** This tax is levied is on perks that have been acquired by a company or used by an employee.

• **Corporate Tax:** Corporate tax is paid by companies from the revenue they earn.

Indirect Tax

Indirect taxes are levied on goods or services. Some examples of Indirect Taxes are:

• **Sales Tax:** Sales Tax is levied on the sale of a product.

• **Service Tax:** Service Tax is added to services provided in India.

• **Value Added Tax:** Value Added Tax is levied at the discretion of the state government. The tax is levied on goods sold in the state. The tax amount is decided by the state.

• **Customs Duty & Octroi:** Customs Duty is a charge that is applied on purchases that are imported from another country. Octroi is levied on goods that cross state borders within India.

• **Excise Duty:** Excise Duty is levied on all goods manufactured or produced in India.

9.3.4.1 Tips

• Think about how quickly you need your money back and pick an investment option accordingly.

• Ensure that you are buying the right type of insurance policy for yourself.

• Remember, not paying taxes can result in penalties ranging from fines to imprisonment.

9.3.5 Online Banking, NEFT, RTGS etc

What is Online Banking

Internet or online banking allows account holders to access their account from a laptop at any location. In this way, instructions can be issued. To access an account, account holders simply need to use their unique customer ID number and password.

Internet banking can be used to:

- Find out an account balance
- Transfer amounts from one account to another
- Arrange for the issuance of cheques
- Instruct payments to be made
- Request for a cheque book
- Request for a statement of accounts
- Make a fixed deposit

Electronic Funds Transfers

Electronic funds transfer is a convenient way of transferring money from the comfort of one's own home, using integrated banking tools like internet and mobile banking.

Transferring funds via an electronic gateway is extremely convenient. With the help of online banking, you can choose to:

- Transfer funds into your own accounts of the same bank.
- Transfer funds into different accounts of the same bank.
- Transfer funds into accounts in different banks, using NEFT.
- Transfer funds into other bank accounts using RTGS.
- Transfer funds into various accounts using IMPS.

NEFT

NEFT stands for National Electronic Funds Transfer. This money transfer system allows you to electronically transfer funds from your respective bank accounts to any other account, either in the same bank or belonging to any other bank. NEFT can be used by individuals, firms and corporate organizations to transfer funds between accounts.

In order to transfer funds via NEFT, two things are required:

- A transferring bank
- A destination bank

Before you can transfer funds through NEFT, you will need to register the beneficiary who will be receiving the funds. In order to complete this registration, you will require the following

- Recipient's name
- Recipient's account number
- Recipient's bank's name
- Recipient's bank's IFSC code

RTGS

RTGS stands for Real Time Gross Settlement. This is a real time funds transfer system which enables you to transfer funds from one bank to another, in real time or on a gross basis. The transferred amount is immediately deducted from the account of one bank, and instantly credited to the other bank's account. The RTGS payment gateway is maintained by the Reserve Bank of India. The transactions between banks are made electronically.

RTGS can be used by individuals, companies and firms to transfer large sums of money. Before remitting funds through RTGS, you will need to add the beneficiary and his bank account details via your online banking account. In order to complete this registration, you will require the following information:

- Name of the beneficiary
- Beneficiary's account number
- Beneficiary's bank address
- Bank's IFSC code

IMPS

IMPS stands for Immediate Payment Service. This is a real-time, inter-bank, electronic funds transfer system used to transfer money instantly within banks across India. IMPS enables users to make instant electronic transfer payments using mobile phones through both, Mobile Banking and SMS. It can also be used through ATMs and online banking. IMPS is available 24 hours a day and 7 days a week. The system features a secure transfer gateway and immediately confirms orders that have been fulfilled.

To transfer money through IMPS, the you need to:

- Register for IMPS with your bank
- Receive a Mobile Money Identifier (MMID) from the bank
- Receive a MPIN from the bank

Once you have both these, you can login or make a request through SMS to transfer a particular amount to a beneficiary.

For the beneficiary to receive the transferred money, he must:

- Link his mobile number with his respective account
- Receive the MMID from the bank

In order to initiate a money transfer through IMPS, you will need to enter the following information:

- The beneficiary's mobile number
- The beneficiary's MMID
- The transfer amount
- Your MPIN

As soon as money has been deducted from your account and credited into the beneficiary's account, you will be sent a confirmation SMS with a transaction reference number, for future reference.

9.3.5.1 Differences Between NEFT, RTGS & IMPS

Criteria	NEFT	RTGS	IMPS
Settlement	Done in batches	Real-time	Real-time
Full form	National Electronic Fund Transfer	Real Time Gross Settlement	Immediate Payment Service
Timings on Monday – Friday	8:00 am – 6:30 pm	9:00 am – 4:30 pm	24x7
Timings on Saturday	8:00 am – 1:00 pm	9:00 am – 1:30 pm	24x7
Minimum amount of money transfer limit	₹1	₹2 lacs	₹1
Maximum amount of money transfer limit	₹10 lacs	₹10 lacs per day	₹2 lacs
Maximum charges as per RBI	Upto 10,000 – ₹2.5 above 10,000 – 1 lac – ₹5 above 1 – 2 lacs – ₹15 above 2 – 5 lacs – ₹25 above 5 – 10 lacs – ₹25	above 2 – 5 lacs – ₹25 above 5 – 10 lacs – ₹50	Upto 10,000 – ₹5 above 10,000 – 1 lac – ₹5 above 1 – 2 lacs – ₹15

Fig.9.3.1: Differences Between NEFT, RTGS & IMPS

9.3.5.2 Tips

- Never click on any links in any e-mail message to access your online banking website.
- You will never be asked for your credit or debit card details while using online banking.
- Change your online banking password regularly.

UNIT 9.4: Preparing for Employment & Self Employment

Unit Objectives

At the end of this unit, you will be able to:

1. Discuss the steps to prepare for an interview
2. Discuss the steps to create an effective Resume
3. Discuss the most frequently asked interview questions
4. Discuss how to answer the most frequently asked interview questions
5. Discuss basic workplace terminology

9.4.1 Interview Preparation: How to Prepare for an Interview

The success of your getting the job that you want depends largely on how well your interview for that job goes. Therefore, before you go in for your interview, it is important that you prepare for it with a fair amount of research and planning. Take a look at the steps to follow in order to be well prepared for an interview:

1. **Research the organization that you are having the interview with.**

• Studying the company beforehand will help you be more prepared at the time of the interview. Your knowledge of the organization will help you answer questions at the time of the interview, and will leave you looking and feeling more confident. This is sure to make you stand out from other, not as well informed, candidates.

• Look for background information on the company. Ty and find an overview of the company and its industry profile.

• Visit the company website to get a good idea of what the company does. A company website offers a wealth of important information. Read and understand the company's mission statement. Pay attention to the company's products/services and client list. Read through any press releases to get an idea of the company's projected growth and stability.

• Note down any questions that you have after your research has been completed.

2. **Think about whether your skills and qualifications match the job requirements.**

• Carefully read through and analyze the job description.

• Make a note of the knowledge, skills and abilities required to fulfill the job requirements.

• Take a look at the organization hierarchy. Figure out where the position you are applying for fits into this hierarchy.

3. **Go through the most typical interview questions asked, and prepare your responses.**

• Remember, in most interviews a mix of resume-based, behavioral and case study questions are asked.

• Think about the kind of answers you would like to provide to typical questions asked in these three areas.

• Practice these answers until you can express them confidently and clearly.

4. **Plan your attire for the interview.**

• It is always safest to opt for formal business attire, unless expressly informed to dress in business casual (in

which case you should use your best judgement).

- Ensure that your clothes are clean and well-ironed. Pick neutral colours – nothing too bright or flashy.
- The shoes you wear should match your clothes, and should be clean and suitable for an interview.
- Remember, your aim is to leave everyone you meet with the impression that you are a professional and highly efficient person.

5. **Ensure that you have packed everything that you may require during the interview.**

- Carry a few copies of your resume. Use a good quality paper for your resume print outs.
- Always take along a notepad and a pen.
- Take along any information you may need to refer to, in order to fill out an application form.
- Carry a few samples of your work, if relevant.

6. **Remember the importance of non-verbal communication.**

- Practice projecting confidence. Remind yourself to smile and make eye contact. Practice giving a firm handshake.
- Keep in mind the importance of posture. Practice sitting up straight. Train yourself to stop nervous gestures like fidgeting and foot-tapping.
- Practice keeping your reactions in check. Remember, your facial expressions provide a good insight into your true feelings. Practice projecting a positive image.

7. **Make a list of questions to end the interview with.**

- Most interviews will end with the interviewer(s) asking if you have any questions. This is your chance to show that you have done your research and are interested in learning more about the company.
- If the interviewer does not ask you this question, you can inform him/her that you have some queries that you would like to discuss. This is the time for you to refer to the notes you made while studying the company.
- Some good questions to ask at this point are:
    - » What do you consider the most important criteria for success in this job?
    - » How will my performance be evaluated?
    - » What are the opportunities for advancement?
    - » What are the next steps in the hiring process?
- Remember, never ask for information that is easily available on the company website.

9.4.1.1 Tips

- Ask insightful and probing questions.
- When communicating, use effective forms of body language like smiling, making eye contact, and actively listening and nodding. Don't slouch, play with nearby items, fidget, chew gum, or mumble.

9.4.2 Preparing an Effective Resume

A resume is a formal document that lists a candidate's work experience, education and skills. A good resume gives a potential employer enough information to believe the applicant is worth interviewing. That's why it is so important to create a résumé that is effective. Take a look at the steps to create an effective resume:

Step 1: Write the Address Section

The Address section occupies the top of your resume. It includes information like your name, address, phone number and e-mail address. Insert a bold line under the section to separate it from rest of your resume.

Example:

Jasmine Watts
Breach Candy, Mumbai – India
Contact No: +91 2223678270
Email: jasmine.watts@gmail.com

_____

Step 2: Add the Profile Summary Section

This part of your resume should list your overall experiences, achievements, awards, certifications and strengths. You can make your summary as short as 2-3 bullet points or as long as 8-10 bullet points.

Example:

Profile Summary

- A Content Writer graduated from University of Strathclyde having 6 years of experience in writing website copy.

- Core expertise lies in content creation for e-learning courses, specifically for the K-12 segment.

Step 3: **Include Your Educational Qualifications**

When listing your academic records, first list your highest degree. Then add the second highest qualification under the highest one and so on. To provide a clear and accurate picture of your educational background, it is critical that include information on your position, rank, percentage or CPI for every degree or certification that you have listed.

If you have done any certifications and trainings, you can add a Trainings & Certifications section under your Educational Qualifications section.

Example:

Educational Qualifications

- Masters in International Management (2007) from Columbia University with 8.8 CPI.

- Bachelor of Management Studies (2004) from Mumbai University with 87% marks.

- 10+2 with Math, Stats (2001) from Maharashtra Board with 91% marks.

- High School (1999) from Maharashtra Board with 93% marks.

Step 4: List Your Technical Skills

When listing your technical skills, start with the skills that you are most confident about. Then add the skills that you do not have as good a command over. It is perfectly acceptable to include just one skill, if you feel that particular skill adds tremendous value to your résumé. If you do not have any technical skills, you can omit this step.

Example:

Technical Skills
- Flash
- Photoshop

Step 5: Insert Your Academic Project Experience

List down all the important projects that you have worked on. Include the following information in this section:

Example:

- Project title
- Contribution
- Organization
- Description
- Platform used

Academic Projects

Project Title: Different Communication Skills

Organization: True Blue Solutions

Platform used: Articulate

Contribution: Content writing and graphic visualization

Description: Development of storyboards for corporate induction & training programs

Step 6: List Your Strengths

This is where you list all your major strengths. This section should be in the form of a bulleted list.

Example:

Strengths
- Excellent oral, written and presentation skills
- Action-oriented and result-focused
- Great time management skills

Step 7: List Your Extracurricular Activities

It is very important to show that you have diverse interests and that your life consists of more than academics. Including your extracurricular activities can give you an added edge over other candidates who have similar academic scores and project experiences. This section should be in the form of a bulleted list.

Example:

Extracurricular Activities

- Member of the Debate Club
- Played tennis at a national level
- Won first prize in the All India Camel Contest, 2010

Step 8: **Write Your Personal Details**

The last section of your résumé must include the following personal information:

- Date of birth
- Gender & marital status
- Nationality
- Languages known

Example:

Personal Details
- Date of birth: 25th May, 1981
- Gender & marital status: Female, Single
- Nationality: Indian
- Languages known: English, Hindi, Tamil, French

9.4.2.1 Tips

- Keep your resume file name short, simple and informational.
- Make sure the resume is neat and free from typing errors.
- Always create your resume on plain white paper.

9.4.3 Interview FAQs

Take a look at some of the most frequently asked interview questions, and some helpful tips on how to answer them.

1. **Can you tell me a little about yourself?**

Tips to answer:

- Don't provide your full employment or personal history.
- Offer 2-3 specific experiences that you feel are most valuable and relevant.
- Conclude with how those experiences have made you perfect for this specific role.

2.   How did you hear about the position?

Tips to answer:

- Tell the interviewer how you heard about the job – whether it was through a friend (name the friend), event or article (name them) or a job portal (say which one).

- Explain what excites you about the position and what in particular caught your eye about this role.

3.   What do you know about the company?

Tips to answer:

- Don't recite the company's About Us page.

- Show that you understand and care about the company's goals.

- Explain why you believe in the company's mission and values.

4.   Why do you want this job?

Tips to answer:

Show that you are passionate about the job.

Identify why the role is a great fit for you.

Explain why you love the company.

5.   Why should we hire you?

- Tips to answer:

- Prove through your words that you can not only do the work, but can definitely deliver excellent results.

- Explain why you would be a great fit with the team and work culture.

- Explain why you should be chosen over any other candidate.

6.   What are your greatest professional strengths?

Tips to answer:

- Be honest – share some of your real strengths, rather than give answers that you think sound good.

- Offer examples of specific strengths that are relevant to the position you are applying for.

- Provide examples of how you've demonstrated these strengths.

7.   What do you consider to be your weaknesses?

Tips to answer:

- The purpose of this question is to gauge your self-awareness and honesty.

- Give an example of a trait that you struggle with, but that you're working on to improve.

8.   What are your salary requirements?

Tips to answer:

- Do your research beforehand and find out the typical salary range for the job you are applying for.

- Figure out where you lie on the pay scale based on your experience, education, and skills.

- Be flexible. Tell the interviewer that you know your skills are valuable, but that you want the job and are willing to negotiate.

9. **What do you like to do outside of work?**

Tips to answer:

- The purpose of this question is to see if you will fit in with the company culture.

- Be honest – open up and share activities and hobbies that interest and excite you.

10. **If you were an animal, which one would you want to be?**

Tips to answer:

- The purpose of this question is to see if you are able to think on your feet.

- There's no wrong answer – but to make a great impression try to bring out your strengths or personality traits through your answer.

11. **What do you think we could do better or differently?**

Tips to answer:

- The purpose of this question is to see if you have done your research on the company, and to test whether you can think critically and come up with new ideas.

- Suggest new ideas. Show how your interests and expertise would help you execute these ideas.

12. **Do you have any questions for us?**

Tips to answer:

- Do not ask questions to which the answers can be easily found on the company website or through a quick online search.

- Ask intelligent questions that show your ability to think critically.

9.4.3.1 Tips

- Be honest and confident while answering.

- Use examples of your past experiences wherever possible to make your answers more impactful.

9.4.4 Work Readiness – Terms & Terminologies

Every employee should be well versed in the following terms:

- **Annual leave:** Paid vacation leave given by employers to employees.

- **Background Check**: A method used by employers to verify the accuracy of the information provided by potential candidates.

- **Benefits**: A part of an employee's compensation package.

- **Breaks**: Short periods of rest taken by employees during working hours.

- **Compensation Package:** The combination of salary and benefits that an employer provides to his/her employees.

- **Compensatory Time (Comp Time):** Time off in lieu of pay.

- **Contract Employee:** An employee who works for one organization that sells said employee's services to another company, either on a project or time basis.

- **Contract of Employment**: When an employee is offered work in exchange for wages or salary, and accepts the offer made by the employer, a contract of employment exists.

- **Corporate Culture:** The beliefs and values shared by all the members of a company, and imparted from one generation of employees to another.

- **Counter Offer/Counter Proposal**: A negotiation technique used by potential candidates to increase the amount of salary offered by a company.

- **Cover Letter**: A letter that accompanies a candidate's resume. It emphasizes the important points in the candidate's resume and provides real examples that prove the candidate's ability to perform the expected job role.

- **Curriculum Vitae (CV)/Resume:** A summary of a candidate's achievements, educational background, work experience, skills and strengths.

- **Declining Letter:** A letter sent by an employee to an employer, turning down the job offer made by the employer to the employee.

- **Deductions:** Amounts subtracted from an employee's pay and listed on the employee's pay slip.

- **Discrimination:** The act of treating one person not as favourably as another person.

- **Employee:** A person who works for another person in exchange for payment.

- **Employee Training:** A workshop or in-house training that an employee is asked to attend by his or her superior, for the benefit of the employer.

- **Employment Gaps**: Periods of unemployed time between jobs.

- **Fixed-Term Contract**: A contract of employment which gets terminated on an agreed-upon date.

- **Follow-Up**: The act of contacting a potential employer after a candidate has submitted his or her resume.

- **Freelancer/Consultant/Independent Contractor**: A person who works for him or herself and pitches for temporary jobs and projects with different employers.

- **Holiday**: Paid time-off from work.

- **Hourly Rate:** The amount of salary or wages paid for 60 minutes of work.

- **Internship**: A job opportunity offered by an employer to a potential employee, called an intern, to work at the employer's company for a fixed, limited time period.

- **Interview:** A conversation between a potential employee and a representative of an employer, in order to determine if the potential employee should be hired.

- **Job Application**: A form which asks for a candidate's information like the candidate's name, address, contact details and work experience. The purpose of a candidate submitting a job application, is to show that candidate's interest in working for a particular company.

- **Job Offer**: An offer of employment made by an employer to a potential employee.

- **Job Search Agent**: A program that enables candidates to search for employment opportunities by selecting criteria listed in the program, for job vacancies.

- **Lay Off:** A lay off occurs when an employee is temporarily let go from his or her job, due to the employer not having any work for that employee.

- **Leave**: Formal permission given to an employee, by his or her employer, to take a leave of absence from work.

- **Letter of Acceptance:** A letter given by an employer to an employee, confirming the offer of employment made by the employer, as well as the conditions of the offer.

- **Letter of Agreement:** A letter that outlines the terms of employment.

- **Letter of Recommendation**: A letter written for the purpose of validating the work skills of a person.

- **Maternity Leave**: Leave taken from work by women who are pregnant, or who have just given birth.

- **Mentor**: A person who is employed at a higher level than you, who offers you advice and guides you in your career.

- **Minimum wage**: The minimum wage amount paid on an hourly basis.

- **Notice**: An announcement made by an employee or an employer, stating that the employment contract will end on a particular date.

- **Offer of Employment:** An offer made by an employer to a prospective employee that contains important information pertaining to the job being offered, like the starting date, salary, working conditions etc.

- **Open-Ended Contract**: A contract of employment that continues till the employer or employee terminates it.

- **Overqualified**: A person who is not suited for a particular job because he or she has too many years of work experience, or a level of education that is much higher than required for the job, or is currently or was previously too highly paid.

- **Part-Time Worker:** An employee who works for fewer hours than the standard number of hours normally worked.

- **Paternity Leave:** Leave granted to a man who has recently become a father.

- **Recruiters/Headhunters/Executive Search Firms:** Professionals who are paid by employers to search for people to fill particular positions.

- **Resigning/Resignations:** When an employee formally informs his or her employer that he or she is quitting his or her job.

- **Self-Employed:** A person who has his or her own business and does not work in the capacity of an employee.

- **Time Sheet:** A form that is submitted to an employer, by an employee, that contains the number of hours worked every day by the employee.

UNIT 9.5: Understanding Entrepreneurship

Unit Objectives

At the end of this unit, you will be able to:

1. Discuss the concept of entrepreneurship
2. Discuss the importance of entrepreneurship
3. Describe the characteristics of an entrepreneur
4. Describe the different types of enterprises
5. List the qualities of an effective leader
6. Discuss the benefits of effective leadership
7. List the traits of an effective team
8. Discuss the importance of listening effectively
9. Discuss how to listen effectively
10. Discuss the importance of speaking effectively
11. Discuss how to speak effectively
12. Discuss how to solve problems
13. List important problem solving traits
14. Discuss ways to assess problem solving skills
15. Discuss the importance of negotiation
16. Discuss how to negotiate
17. Discuss how to identify new business opportunities
18. Discuss how to identify business opportunities within your business
19. Understand the meaning of entrepreneur
20. Describe the different types of entrepreneurs
21. List the characteristics of entrepreneurs
22. Recall entrepreneur success stories
23. Discuss the entrepreneurial process
24. Describe the entrepreneurship ecosystem
25. Discuss the government's role in the entrepreneurship ecosystem
26. Discuss the current entrepreneurship ecosystem in India
27. Understand the purpose of the Make in India campaign
28. Discuss the relationship between entrepreneurship and risk appetite
29. Discuss the relationship between entrepreneurship and resilience
30. Describe the characteristics of a resilient entrepreneur
31. Discuss how to deal with failure

9.5.1 Concept Introduction

Anyone who is determined to start a business, no matter what the risk, is an entrepreneur. Entrepreneurs run their own start-up, take responsibility for the financial risks and use creativity, innovation and vast reserves of self-motivation to achieve success. They dream big and are determined to do whatever it takes to turn their idea into a viable offering. The aim of an entrepreneur is to create an enterprise. The process of creating this enterprise is known as entrepreneurship.

9.5.1.1 Importance of Entrepreneurship

Entrepreneurship is very important for the following reasons:

1. It results in the creation of new organizations
2. It brings creativity into the marketplace
3. It leads to improved standards of living
4. It helps develop the economy of a country

9.5.1.2 Characteristics of Entrepreneurs

All successful entrepreneurs have certain characteristics in common.

They are all:

- Extremely passionate about their work
- Confident in themselves
- Disciplined and dedicated
- Motivated and driven
- Highly creative
- Visionaries
- Open-minded
- Decisive

Entrepreneurs also have a tendency to:

- Have a high risk tolerance
- Thoroughly plan everything
- Manage their money wisely
- Make their customers their priority
- Understand their offering and their market in detail
- Ask for advice from experts when required
- Know when to cut their losses

9.5.1.3 Examples of Famous Entrepreneurs

Some famous entrepreneurs are:

- Bill Gates (Founder of Microsoft)
- Steve Jobs (Co-founder of Apple)
- Mark Zuckerberg (Founder of Facebook)
- Pierre Omidyar (Founder of eBay)

9.5.1.4 Types of Enterprises

As an entrepreneur in India, you can own and run any of the following types of enterprises:

Sole Proprietorship

In a sole proprietorship, a single individual owns, manages and controls the enterprise. This type of business is the easiest to form with respect to legal formalities. The business and the owner have no separate legal existence. All profit belongs to the proprietor, as do all the losses- the liability of the entrepreneur is unlimited.

Partnership

A partnership firm is formed by two or more people. The owners of the enterprise are called partners. A partnership deed must be signed by all the partners. The firm and its partners have no separate legal existence. The profits are shared by the partners. With respect to losses, the liability of the partners is unlimited. A firm has a limited life span and must be dissolved when any one of the partners dies, retires, claims bankruptcy or goes insane.

Limited Liability Partnership (LLP)

In a Limited Liability Partnership or LLP, the partners of the firm enjoy perpetual existence as well as the advantage of limited liability. Each partner's liability is limited to their agreed contribution to the LLP. The partnership and its partners have a separate legal existence.

9.5.1.5 Tips

- Learn from others' failures.
- Be certain that this is what you want.
- Search for a problem to solve, rather than look for a problem to attach to your idea.

9.5.2 Leadership & Teamwork: Leadership and Leaders

Leadership means setting an example for others to follow. Setting a good example means t asking someone to do something that you wouldn't willingly want to do yourself. Leadership is about figuring out what to do in order to win as a team, and as a company.

Leaders believe in doing the right things. They also believe in helping others to do the right things. An effective leader is someone who:

- Creates an inspiring vision of the future.
- Motivates and inspires his team to pursue that vision.

9.5.2.1 Leadership Qualities That All Entrepreneurs Need

Building a successful enterprise is only possible if the entrepreneur in charge possesses excellent leadership qualities. Some critical leadership skills that every entrepreneur must have are:

1. **Pragmatism:** This means having the ability to highlight all obstacles and challenges, in order to resolve issues and reduce risks.

2. **Humility:** This means admitting to mistakes often and early, and being quick to take responsibility for your actions. Mistakes should be viewed as challenges to overcome, not opportunities to point blame.

3. **Flexibility:** It is critical for a good leader to be very flexible and quickly adapt to change. It is equally critical to know when to adapt and when not to.

4. **Authenticity:** This means showing both, your strengths and your weaknesses. It means being human and showing others that you are human.

5. **Reinvention:** This means refreshing or changing your leadership style when necessary. To do this, it's important to learn where your leadership gaps lie and find out what resources are required to close them.

6. **Awareness:** This means taking the time to recognize how others view you. It means understanding how your presence affects those around you.

9.5.2.2 Benefits of Effective Leadership

Effective leadership results in numerous benefits. Great leadership leads to the leader successfully:

- Gaining the loyalty and commitment of the team members

- Motivating the team to work towards achieving the company's goals and objectives

- Building morale and instilling confidence in the team members

- Fostering mutual understanding and team-spirit among team members

- Convincing team members about the need to change when a situation requires adaptability

9.5.2.3 Teamwork and Teams

Teamwork occurs when the people in a workplace combine their individual skills to pursue a common goal. Effective teams are made up of individuals who work together to achieve this common goal. A great team is one who holds themselves accountable for the end result.

9.5.2.4 Importance of Teamwork in Entrepreneurial Success

For an entrepreneurial leader, building an effective team is critical to the success of a venture. An entrepreneur must ensure that the team he builds possesses certain crucial qualities, traits and characteristics. An effective team is one which has:

1. **Unity of purpose:** All the team members should clearly understand and be equally committed to the purpose, vision and goals of the team.

2. **Great communication skills:** Team members should have the ability to express their concerns, ask questions and use diagrams, and charts to convey complex information.

3. **The ability to collaborate:** Every member should feel entitled to provide regular feedback on new ideas.

4. **Initiative:** The team should consist of proactive individuals. The members should have the enthusiasm to come up with new ideas, improve existing ideas, and conduct their own research.

5. **Visionary members:** The team should have the ability to anticipate problems and act on these potential problem before they turn into real problems.

6. **Great adaptability skills:** The team must believe that change is a positive force. Change should be seen as the chance to improve and try new things.

7. **Excellent organizational skills:** The team should have the ability to develop standard work processes, balance responsibilities, properly plan projects, and set in place methods to measure progress and ROI.

9.5.2.5 Tips

• Don't get too attached to your original idea. Allow it to evolve and change.

• Be aware of your weaknesses and build a team that will complement your shortfalls.

• Hiring the right people is not enough. You need to promote or incentivize your most talented people to keep them motivated.

• Earn your team's respect

9.5.3 Communication Skills

Listening is the ability to correctly receive and understand messages during the process of communication. Listening is critical for effective communication. Without effective listening skills, messages can easily be misunderstood. This results in a communication breakdown and can lead to the sender and the receiver of the message becoming frustrated or irritated.

It's very important to note that listening is not the same as hearing. Hearing just refers to sounds that you hear. Listening is a whole lot more than that. To listen, one requires focus. It means not only paying attention to the story, but also focusing on how the story is relayed, the way language and voice is used, and even how the speaker uses their body language. The ability to listen depends on how effectively one can perceive and understand both, verbal and non-verbal cues.

9.5.3.1 How to Listen Effectively

To listen effectively you should:

• Stop talking

• Stop interrupting

• Focus completely on what is being said

• Nod and use encouraging words and gestures

• Be open-minded

• Think about the speaker's perspective

- Be very, very patient

- Pay attention to the tone that is being used

- Pay attention to the speaker's gestures, facial expressions and eye movements

- Not try and rush the person

- Not let the speaker's mannerisms or habits irritate or distract you

9.5.3.2 How to Listen Effectively

How successfully a message gets conveyed depends entirely on how effectively you are able to get it through. An effective speaker is one who enunciates properly, pronounces words correctly, chooses the right words and speaks at a pace that is easily understandable. Besides this, the words spoken out loud need to match the gestures, tone and body language used.

What you say, and the tone in which you say it, results in numerous perceptions being formed. A person who speaks hesitantly may be perceived as having low self-esteem or lacking in knowledge of the discussed topic. Those with a quiet voice may very well be labelled as shy. And those who speak in commanding tones with high levels of clarity, are usually considered to be extremely confident. This makes speaking a very critical communication skill.

9.5.3.3 How to Speak Effectively

To speak effectively you should:

- Incorporate body language in your speech like eye contact, smiling, nodding, gesturing etc.

- Build a draft of your speech before actually making your speech.

- Ensure that all your emotions and feelings are under control.

- Pronounce your words distinctly with the correct pitch and intensity. Your speech should be crystal clear at all times.

- Use a pleasant and natural tone when speaking. Your audience should not feel like you are putting on an accent or being unnatural in any way.

- Use precise and specific words to drive your message home. Ambiguity should be avoided at all costs.

- Ensure that your speech has a logical flow.

- Be brief. Don't add any unnecessary information.

- Make a conscious effort to avoid irritating mannerisms like fidgeting, twitching etc.

- Choose your words carefully and use simple words that the majority of the audience will have no difficulty understanding.

- Use visual aids like slides or a whiteboard.

- Speak slowly so that your audience can easily understand what you're saying. However, be careful not to speak too slowly because this can come across as stiff, unprepared or even condescending.

- Remember to pause at the right moments.

9.5.3.4 Tips

- If you're finding it difficult to focus on what someone is saying, try repeating their words in your head.

- Always maintain eye contact with the person that you are communicating with, when speaking as well as listening. This conveys and also encourages interest in the conversation.

9.5.4 Problem Solving & Negotiation skills

As per The Concise Oxford Dictionary (1995), a problem is, "A doubtful or difficult matter requiring a solution"

All problems contain two elements:

1. Goals

2. Obstacles

The aim of problem solving is to recognize the obstacles and remove them in order to achieve the goals.

9.5.4.1 How to Solve Problems

Solving a problem requires a level of rational thinking. Here are some logical steps to follow when faced with an issue:

- **Step 1:** Identify the problem

- **Step 2:** Study the problem in detail

- **Step 3:** List all possible solutions

- **Step 4:** Select the best solution

- **Step 5:** Implement the chosen solution

- **Step 6:** Check that the problem has really been solved

9.5.4.2 Important Traits for Problem Solving

Highly developed problem solving skills are critical for both, business owners and their employees. The following personality traits play a big role in how effectively problems are solved:

- Being open minded

- Asking the right questions

- Being proactive

- Not panicking

- Having a positive attitude

- Focusing on the right problem

9.5.4.3 Important Traits for Problem Solving

As an entrepreneur, it would be a good idea to assess the level of problem solving skills of potential candidates before hiring them. Some ways to assess this skill are through:

- **Application forms:** Ask for proof of the candidate's problem solving skills in the application form.
- **Psychometric tests:** Give potential candidates logical reasoning and critical thinking tests and see how they fare.
- **Interviews:** Create hypothetical problematic situations or raise ethical questions and see how the candidates respond.
- **Technical questions:** Give candidates examples of real life problems and evaluate their thought process.

9.5.4.4 What is Negotiation?

Negotiation is a method used to settle differences. The aim of negotiation is to resolve differences through a compromise or agreement while avoiding disputes. Without negotiation, conflicts are likely to lead to resentment between people. Good negotiation skills help satisfy both parties and go a long way towards developing strong relationships.

Why Negotiate

Starting a business requires many, many negotiations. Some negotiations are small while others are critical enough to make or break a startup. Negotiation also plays a big role inside the workplace. As an entrepreneur, you need to know not only know how to negotiate yourself, but also how to train employees in the art of negotiation.

How to Negotiate

Take a look at some steps to help you negotiate:

Step 1: Pre-Negotiation Preparation: Agree on where to meet to discuss the problem, decide who all will be present and set a time limit for the discussion.

Step 2: Discuss the Problem: This involves asking questions, listening to the other side, putting your views forward and clarifying doubts.

Step 3: Clarify the Objective: Ensure that both parties want to solve the same problem and reach the same goal.

Step 4: Aim for a Win-Win Outcome: Try your best to be open minded when negotiating. Compromise and offer alternate solutions to reach an outcome where both parties win.

Step 5: Clearly Define the Agreement: When an agreement has been reached, the details of the agreement should be crystal clear to both sides, with no scope for misunderstandings.

Step 6: Implement the Agreed Upon Solution: Agree on a course of action to set the solution in motion.

9.5.4.5 Tips

- Know exactly what you want before you work towards getting it
- Give more importance to listening and thinking, than speaking
- Focus on building a relationship rather than winning

- Remember that your people skills will affect the outcome
- Know when to walk away – sometimes reaching an agreement may not be possible

9.5.5 Business Opportunities Identification

"The entrepreneur always searches for change, responds to it and exploits it as an opportunity."

Peter Drucker

The ability to identify business opportunities is an essential characteristic of an entrepreneur.

What is an Opportunity?

The word opportunity suggests a good chance or a favourable situation to do something offered by circumstances.

A business opportunity means a good or favourable change available to run a specific business in a given environment, at a given point of time.

Common Questions Faced by Entrepreneurs

A critical question that all entrepreneurs face is how to go about finding the business opportunity that is right for them.

Some common questions that entrepreneurs constantly think about are:

- Should the new enterprise introduce a new product or service based on an unmet need?
- Should the new enterprise select an existing product or service from one market and offer it in another where it may not be available?
- Should the enterprise be based on a tried and tested formula that has worked elsewhere?

It is therefore extremely important that entrepreneurs must learn how to identify new and existing business opportunities and evaluate their chances of success.

When is an Idea an Opportunity?

An idea is an opportunity when:

- It creates or adds value to a customer
- It solves a significant problem, removes a pain point or meets a demand
- Has a robust market and profit margin
- Is a good fit with the founder and management team at the right time and place

Factors to Consider When Looking for Opportunities

- Consider the following when looking for business opportunities:
- Economic trends Changes in funding
- Changing relationships between vendors, partners and suppliers
- Market trends
- Changes in political support
- Shift in target audience

Ways to Identify New Business Opportunities

- **Identify Market Inefficiencies:** When looking at a market, consider what inefficiencies are present in the market. Think about ways to correct these inefficiencies.

- **Remove Key Hassles:** Rather than create a new product or service, you can innovatively improve a product, service or process.

- **Create Something New:** Think about how you can create a new experience for customers, based on existing business models.

- **Pick a Growing Sector/Industry:** Research and find out which sectors or industries are growing and think about what opportunities you can tap in the same.

- **Think About Product Differentiation:** If you already have a product in mind, think about ways to set it apart from the existing ones.

Ways to Identify Business Opportunities Within Your Business

SWOT Analysis: An excellent way to identify opportunities inside your business is by creating a SWOT analysis. The acronym SWOT stands for strengths, weaknesses, opportunities, and threats. SWOT analysis framework:

Fig.9.5.1: SWOT Analysis

Consider the following when looking for business opportunities:

By looking at yourself and your competitors using the SWOT framework, you can uncover opportunities that you can exploit, as well as manage and eliminate threats that could derail your success.

Establishing Your USP

Establish your USP and position yourself as different from your competitors. Identify why customers should buy from you and promote that reason.

Opportunity Analysis

Once you have identified an opportunity, you need to analyze it. To analyze an opportunity, you must:

- Focus on the idea
- Focus on the market of the idea
- Talk to industry leaders in the same space as the idea
- Talk to players in the same space as the idea

9.5.5.1 Tips

- Remember, opportunities are situational.
- Look for a proven track record.
- Avoid the latest craze.
- Love your idea.

9.5.6 Entrepreneurship Support Eco-System

An entrepreneur is a person who:

- Does not work for an employee
- Runs a small enterprise
- Assumes all the risks and rewards of the enterprise, idea, good or service

Types of Entrepreneurs

There are four main types of entrepreneurs:

1. **The Traditional Entrepreneur:** This type of entrepreneur usually has some kind of skill – they can be a carpenter, mechanic, cook etc. They have businesses that have been around for numerous years like restaurants, shops and carpenters. Typically, they gain plenty of experience in a particular industry before they begin their own business in a similar field.

2. **The Growth Potential Entrepreneur:** The desire of this type of entrepreneur is to start an enterprise that will grow, win many customers and make lots of money. Their ultimate aim is to eventually sell their enterprise for a nice profit. Such entrepreneurs usually have a science or technical background.

3. **The Project-Oriented Entrepreneur:** This type of entrepreneur generally has a background in the Arts or psychology. Their enterprises tend to be focus on something that they are very passionate about.

4. **The Lifestyle Entrepreneur:** This type of entrepreneur has usually worked as a teacher or a secretary. They are more interested in selling something that people will enjoy, rather than making lots of money.

Characteristics of an Entrepreneur

Successful entrepreneurs have the following characteristics:

- They are highly motivated

- They are creative and persuasive

- They are mentally prepared to handle each and every task

- They have excellent business skills – they know how to evaluate their cash flow, sales and revenue

- They are willing to take great risks

- They are very proactive – this means they are willing to do the work themselves, rather than wait for someone else to do it

- They have a vision – they are able to see the big picture

- They are flexible and open-minded

- They are good at making decisions

9.5.6.1 Entrepreneur Success Stories

Dhiru Bhai Ambani

Dhirubhai Ambani began his entrepreneurial career by selling "bhajias" to pilgrims in Mount Girnar on weekends. At 16, he moved to Yemen where he worked as a gas-station attendant, and as a clerk in an oil company. He returned to India with Rs. 50,000 and started a textile trading company. Reliance went on to become the first Indian company to raise money in global markets and the first Indian company to feature in Forbes 500 list.
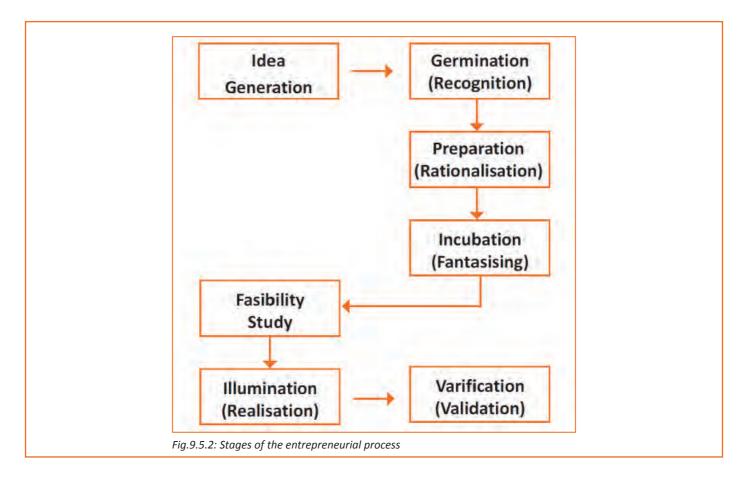
Dr. Karsanbhai Patel

Karsanbhai Patel made detergent powder in the backyard of his house. He sold his product door-to-door and offered a money back guarantee with every pack that was sold. He charged Rs. 3 per kg when the cheapest detergent at that time was Rs.13 per kg. Dr. Patel eventually started Nirma which became a whole new segment in the Indian domestic detergent market.

9.5.6.2 The Entrepreneurial Process

Let's take a look at the stages of the entrepreneurial process.

- **Stage 1:** Idea Generation. The entrepreneurial process begins with an idea that has been thought of by the entrepreneur. The idea is a problem that has the potential to be solved.

- **Stage 2:** Germination or Recognition. In this stage a possible solution to the identified problem is thought of.

- **Stage 3:** Preparation or Rationalization. The problem is studied further and research is done to find out how others have tried to solve the same problem.

- **Stage 4:** Incubation or Fantasizing. This stage involves creative thinking for the purpose of coming up with more ideas. Less thought is given to the problem areas.

- **Stage 5:** Feasibility Study: The next step is the creation of a feasibility study to determine if the idea will make a profit and if it should be seen through.

- **Stage 6:** Illumination or Realization. This is when all uncertain areas suddenly become clear. The entrepreneur feels confident that his idea has merit.

- **Stage 7:** Verification or Validation. In this final stage, the idea is verified to see if it works and if it is useful.

Take a look at the diagram below to get a better idea of this process.

Fig.9.5.2: Stages of the entrepreneurial process

9.5.6.3 What is an Entrepreneur?

The entrepreneurship support ecosystem signifies the collective and complete nature of entrepreneurship. New companies emerge and flourish not only because of the courageous, visionary entrepreneurs who launch them, but they thrive as they are set in an environment or 'ecosystem' made of private and public participants. These players nurture and sustain the new ventures, facilitating the entrepreneurs' efforts.

An entrepreneurship ecosystem comprises of the following six domains:

1. **Favourable Culture:** This includes elements such as tolerance of risk and errors, valuable networking and positive social standing of the entrepreneur.

2. **Facilitating Policies & Leadership:** This includes regulatory framework incentives and existence of public research institutes.

3. **Financing Options:** Angel financing, venture capitalists and micro loans would be good examples of this.

4. **Human Capital:** This refers to trained and untrained labour, entrepreneurs and entrepreneurship training programmes, etc.

5. **Conducive Markets for Products & Services:** This refers to an existence or scope of existence of a market for the product/service.

6. **Institutional & Infrastructural Support:** This includes legal and financing advisers, telecommunications, digital and transportation infrastructure, and entrepreneurship networking programmes.

These domains indicate whether there is a strong entrepreneurship support ecosystem and what actions should the government put in place to further encourage this ecosystem. The six domains and their various elements have been graphically depicted.
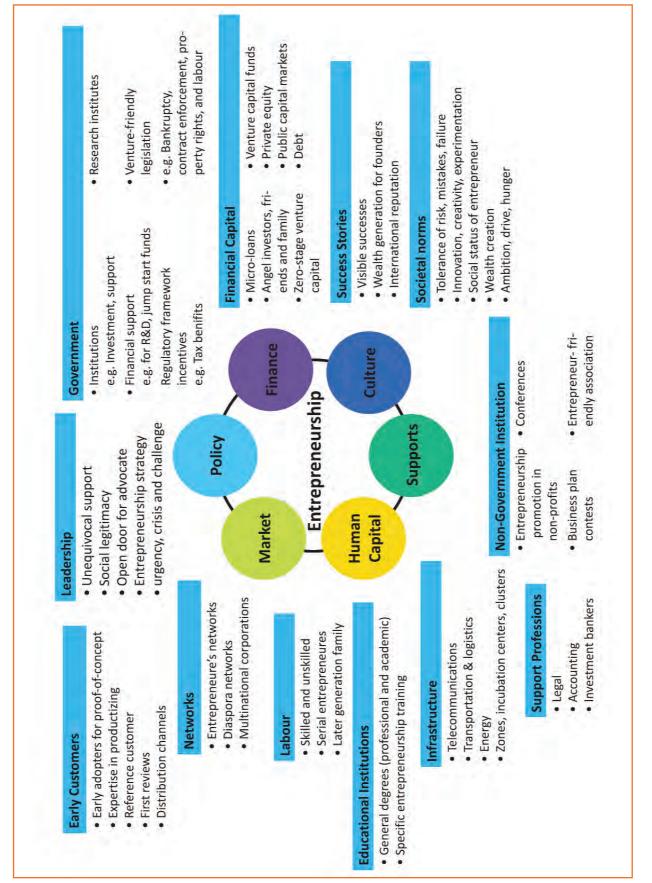
Fig.9.5.3: Entrepreneurship support ecosystem

Early Customers
- Early adopters for proof-of-concept
- Expertise in productizing
- Reference customer
- First reviews
- Distribution channels

Networks
- Entrepreneure's networks
- Diaspora networks
- Multinational corporations

Labour
- Skilled and unskilled
- Serial entrepreneures
- Later generation family

Educational Institutions
- General degrees (professional and academic)
- Specific entrepreneurship training

Infrastructure
- Telecommunications
- Transportation & logistics
- Energy
- Zones, incubation centers, clusters

Support Professions
- Legal
- Accounting
- Investment bankers

Leadership
- Unequivocal support
- Social legitimacy
- Open door for advocate
- Entrepreneurship strategy
- urgency, crisis and challenge

Government
- Institutions
  e.g. Investment, support
- Financial support
  e.g. for R&D, jump start funds
  Regulatory framework
  incentives
  e.g. Tax benifits
- Research institutes
- Venture-friendly
  legislation
- e.g. Bankruptcy,
  contract enforcement, pro-
  perty rights, and labour

Financial Capital
- Micro-loans
- Angel investors, fri-
  ends and family
- Zero-stage venture
  capital
- Venture capital funds
- Private equity
- Public capital markets
- Debt

Success Stories
- Visible successes
- Wealth generation for founders
- International reputation

Societal norms
- Tolerance of risk, mistakes, failure
- Innovation, creativity, experimentation
- Social status of entrepreneur
- Wealth creation
- Ambition, drive, hunger

Non-Government Institution
- Entrepreneurship
  promotion in
  non-profits
- Business plan
  contests
- Conferences
- Entrepreneur- fri-
  endly association

Finance
Culture
Policy
Supports
Market
Human
Capital
Entrepreneurship

Every entrepreneurship support ecosystem is unique and all the elements of the ecosystem are interdependent. Although every region's entrepreneurship ecosystem can be broadly described by the above features, each ecosystem is the result of the hundred elements interacting in highly complex and particular ways.

Entrepreneurship ecosystems eventually become (largely) self-sustaining. When the six domains are resilient enough, they are mutually beneficial. At this point, government involvement can and should be significantly minimized. Public leaders do not need to invest a lot to sustain the ecosystem. It is imperative that the entrepreneurship ecosystem incentives are formulated to be self-liquidating, hence focusing on sustainability of the environment.

9.5.6.4 Government's Role in the Entrepreneurship Ecosystem

Encouraging new ventures is a major focus for policymakers. Governments across the world are recognizing that new businesses flourish in distinctive types of supportive environments. Policymakers should study the scenario and take into account the following points whilst they formulate policies and regulations that enable successful entrepreneurship support ecosystems.

- Policymakers should avoid regulations that discourage new entrants and work towards building efficient methods for business startups. Policies and regulations that favour existing, dominant firms over entrepreneurial ventures, restrict competition and obstruct entry for new companies.

- Instead of developing policies conceptually intended to correct market failures, policymakers should interact with entrepreneurs and understand the challenges faced by them. The feedback should be used to develop policies that incite idea exploration, product development and increased rates of deal flow.

- Entrepreneurial supporters should create a database that enables identifying who the participants in the ecosystem are and how they are connected. These ecosystem maps are useful tools in developing engagement strategies.

- Disruptions are unavoidable in economic and social life. However, it's important to note that economic disruption gives rise to entrepreneurial opportunities. Architects of the entrepreneurship ecosystems (entrepreneurs, mentors, policymakers and consumers,) should anticipate these dips, thus capitalizing on the opportunities they create.

The need for effective strategies to enable local entrepreneurship support ecosystems is a practical one. Better understanding of the actual ecosystems provides a framework within which policy makers can ask relevant questions, envisage more efficient approaches, and assess ensuing outcomes.

9.5.6.5 Snapshot of the Entrepreneurship Ecosystem in India

Entrepreneurship has earned a newfound respect in India. Many Indians, with exposure to the world of business, who traditionally would have opted for a job, are setting up their own ventures. Many elements of the entrepreneurship ecosystem are beginning to come together. For example, increase in venture capitalists, government schemes and incubators, academia industry linkages, and emerging clusters and support to rural economy. All these initiatives are effective but there is a need to scale up and enrich the ecosystem further in the following ways:

1. We need to review our attitude towards failures and accept them as learning experiences.

2. We must encourage the educated to become entrepreneurs and provide students in schools and colleges with entrepreneurship skills.

3. Universities, research labs and the government need to play the role of enablers in the entrepreneurship support ecosystem.

4. Policymakers need to focus on reducing the obstacles such as corruption, red tape and bureaucracy.

5. We need to improve our legal systems and court international venture capital firms and bring them to India.

6. We must devise policies and methods to reach the secondary and tertiary towns in India, where people do not have access to the same resources available in the cities.

Today, there is a huge opportunity in this country to introduce innovative solutions that are capable of scaling up, and collaborating within the ecosystem as well as enriching it.

9.5.6.6 Make in India Campaign

Every entrepreneur has certain needs. Some of their important needs are:

- To easily get loans
- To easily find investors
- To get tax exemptions
- To easily access resources and good infrastructure
- To enjoy a procedure that is free of hassles and is quick
- To be able to easily partner with other firms

The Make in India campaign, launched by Prime Minister Modi aims to satisfy all these needs of young, aspiring entrepreneurs. Its objective is to:

- Make investment easy
- Support new ideas
- Enhance skill development
- Safeguard the ideas of entrepreneurs
- Create state-of-the-art facilities for manufacturing goods

9.5.6.7 Tips

- Research the existing market, network with other entrepreneurs, venture capitalists, angel investors, and thoroughly review the policies in place to enable your entrepreneurship.
- Failure is a stepping stone and not the end of the road. Review yours and your peers' errors and correct them in your future venture.
- Be proactive in your ecosystem. Identify the key features of your ecosystem and enrich them to ensure self-sustainability of your entrepreneurship support ecosystem.

9.5.7 Risk Appetite & Resilience

Entrepreneurship and Risk

Entrepreneurs are inherently risk takers. They are path-makers not path-takers. Unlike a normal, cautious person, an entrepreneur would not think twice about quitting his job (his sole income) and taking a risk on himself and his idea.

An entrepreneur is aware that while pursuing his dreams, assumptions can be proven wrong and unforeseen events may arise. He knows that after dealing with numerous problems, success is still not guaranteed. Entrepreneurship is synonymous with the ability to take risks. This ability, called risk-appetite, is an entrepreneurial trait that is partly genetic and partly acquired.

What is Risk Appetite?

Risk appetite is defined as the extent to which a company is equipped to take risk, in order   to achieve its objectives. Essentially, it refers to the balance, struck by the company, between possible profits and the hazards caused by changes in the environment (economic ecosystem, policies, etc.). Taking on more risk may lead to higher rewards but have a high probability of losses as well. However, being too conservative may go against the company as it can miss out on good opportunities to grow and reach their objectives.

The levels of risk appetite can be broadly categorized as "low", "medium" and "high." The company's entrepreneur(s) have to evaluate all potential alternatives and select the option most likely to succeed. Companies have varying levels of risk appetites for different objectives. The levels depend on:

• The type of industry

• Market pressures

• Company objectives

For example, a startup with a revolutionary concept will have a very high risk appetite. The startup can afford short term failures before it achieves longer term success. This type of appetite will not remain constant and will be adjusted to account for the present circumstances of the company.

Risk Appetite Statement

Companies have to define and articulate their risk appetite in sync with decisions made about their objectives and opportunities. The point of having a risk appetite statement is to have a framework that clearly states the acceptance and management of risk in business. It sets risk taking limits within the company. The risk appetite statement should convey the following:

• The nature of risks the business faces.

• Which risks the company is comfortable taking on and which risks are unacceptable.

• How much risk to accept in all the risk categories.

• The desired tradeoff between risk and reward.

• Measures of risk and methods of examining and regulating risk exposures.

Entrepreneurship and Resilience

Entrepreneurs are characterized by a set of qualities known as resilience. These qualities play an especially large role in the early stages of developing an enterprise. Risk resilience is an extremely valuable characteristic as it is believed to protect entrepreneurs against the threat of challenges and changes in the business environment.

What is Entrepreneurial Resilience?

Resilience is used to describe individuals who have the ability to overcome setbacks related to their life and career

aspirations. A resilient person is someone who is capable of easily and quickly recovering from setbacks. For the entrepreneur, resilience is a critical trait. Entrepreneurial resilience can be enhanced in the following ways:

• By developing a professional network of coaches and mentors

• By accepting that change is a part of life

• By viewing obstacles as something that can be overcome

Characteristics of a Resilient Entrepreneur

The characteristics required to make an entrepreneur resilient enough to go the whole way in their business enterprise are:

• A strong internal sense of control

• Strong social connections

• Skill to learn from setbacks

• Ability to look at the bigger picture

• Ability to diversify and expand

• Survivor attitude

• Cash-flow conscious habits

• Attention to detail

9.5.7.1 Tips

• Cultivate a great network of clients, suppliers, peers, friends and family. This will not only help you promote your business, but will also help you learn, identify new opportunities and stay tuned to changes in the market.

• Don't dwell on setbacks. Focus on what the you need to do next to get moving again.

• While you should try and curtail expenses, ensure that it is not at the cost of your growth.

9.5.8 Success & Failures

Understanding Successes and Failures in Entrepreneurship

Shyam is a famous entrepreneur, known for his success story. But what most people don't know, is that Shyam failed numerous times before his enterprise became a success. Read his interview to get an idea of what entrepreneurship is really about, straight from an entrepreneur who has both, failed and succeeded.

Interviewer: Shyam, I have heard that entrepreneurs are great risk-takers who are never afraid of failing. Is this true?

Shyam: Ha ha, no of course it's not true! Most people believe that entrepreneurs need to   be fearlessly enthusiastic. But the truth is, fear is a very normal and valid human reaction, especially when you are planning to start your own business! In fact, my biggest fear was the fear of failing. The reality is, entrepreneurs fail as much as they succeed. The trick is to not allow the fear of failing to stop you from going ahead with your plans. Remember, failures are lessons for future success!

Interviewer: What, according to you, is the reason that entrepreneurs fail?

Shyam: Well, there is no one single reason why entrepreneurs fail. An entrepreneur can fail due to numerous reasons. You could fail because you have allowed your fear of failure to defeat you. You could fail because you are unwilling to delegate (distribute) work. As the saying goes, "You can do anything, but not everything!" You could fail because you gave up too easily – maybe you were not persistent enough. You could fail because you were focusing your energy on small, insignificant tasks and ignoring the tasks that were most important. Other reasons for failing are partnering with the wrong people, not being able to sell your product to the right customers at the right time at the right price… and many more reasons!

Interviewer: As an entrepreneur, how do you feel failure should be looked at?

Shyam: I believe we should all look at failure as an asset, rather than as something negative. The way I see it, if you have an idea, you should try to make it work, even if there is a chance that you will fail. That's because not trying is failure right there, anyway! And failure is not the worst thing that can happen. I think having regrets because of not trying, and wondering 'what if' is far worse than trying and actually failing.

Interviewer: How did you feel when you failed for the first time?

Shyam: I was completely heartbroken! It was a very painful experience. But the good news is, you do recover from the failure. And with every subsequent failure, the recovery process gets a lot easier. That's because you start to see each failure more as a lesson that will eventually help you succeed, rather than as an obstacle that you cannot overcome. You will start to realize that failure has many benefits.

Interviewer: Can you tell us about some of the benefits of failing?

Shyam: One of the benefits that I have experienced personally from failing is that the failure made me see things in a new light. It gave me answers that I didn't have before. Failure can make you a lot stronger. It also helps keep your ego in control.

Interviewer: What advice would you give entrepreneurs who are about to start their own enterprises?

Shyam: I would tell them to do their research and ensure that their product is something that is actually wanted by customers. I'd tell them to pick their partners and employees very wisely and cautiously. I'd tell them that it's very important to be aggressive – push and market your product as aggressively as possible. I would warn them that starting an enterprise is very expensive and that they should be prepared for a situation where they run out of money.

I would tell them to create long term goals and put a plan in action to achieve that goal. I would tell them to build a product that is truly unique. Be very careful and ensure that you are not copying another startup. Lastly, I'd tell them that it's very important that they find the right investors.

Interviewer: That's some really helpful advice, Shyam! I'm sure this will help all entrepreneurs to be more prepared before they begin their journey! Thank you for all your insight!

9.5.8.1 Tips

- Remember that nothing is impossible.
- Identify your mission and your purpose before you start.
- Plan your next steps – don't make decisions hastily.

UNIT 9.6: Preparing to be an Entrepreneur

Unit Objectives 🎯

At the end of this unit, you will be able to:

1. Discuss how market research is carried out
2. Describe the 4 Ps of marketing
3. Discuss the importance of idea generation
4. Recall basic business terminology
5. Discuss the need for CRM
6. Discuss the benefits of CRM
7. Discuss the need for networking
8. Discuss the benefits of networking
9. Understand the importance of setting goals
10. Differentiate between short-term, medium-term and long-term goals
11. Discuss how to write a business plan
12. Explain the financial planning process
13. Discuss ways to manage your risk
14. Describe the procedure and formalities for applying for bank finance
15. Discuss how to manage your own enterprise
16. List important questions that every entrepreneur should ask before starting an enterprise

9.6.1 Market Study / The 4 Ps of Marketing / Importance of an IDEA

Understanding Market Research

Market research is the process of gathering, analyzing and interpreting market information on a product or service that is being sold in that market. It also includes information on:

- Past, present and prospective customers
- Customer characteristics and spending habits
- The location and needs of the target market
- The overall industry
- Relevant competitors

Market research involves two types of data:

- Primary information. This is research collected by yourself or by someone hired by you.
- Secondary information. This is research that already exists and is out there for you to find and use.

Primary research

Primary research can be of two types:

- **Exploratory:** This is open-ended and usually involves detailed, unstructured interviews.
- **Specific:** This is precise and involves structured, formal interviews. Conducting specific research is the more expensive than conducting exploratory research.

Secondary research

Secondary research uses outside information. Some common secondary sources are:

- **Public sources:** These are usually free and have a lot of good information. Examples are government departments, business departments of public libraries etc.
- **Commercial sources:** These offer valuable information but usually require a fee to be paid. Examples are research and trade associations, banks and other financial institutions etc.
- **Educational institutions:** These offer a wealth of information. Examples are colleges, universities, technical institutes etc.

9.6.1.1 The 4 Ps of Marketing

The 4 Ps of marketing are:

1. Product,
2. Price,
3. Promotion and
4. Place.

Let's look at each of these 4 Ps in detail.

Product

A product can be:

- A tangible good
- An intangible service

Whatever your product is, it is critical that you have a clear understanding of what you are offering, and what its unique characteristics are, before you begin with the marketing process.

Some questions to ask yourself are:

- What does the customer want from the product/service?
- What needs does it satisfy?
- Are there any more features that can be added?
- Does it have any expensive and unnecessary features?
- How will customers use it?
- What should it be called?
- How is it different from similar products?

- How much will it cost to produce?

- Can it be sold at a profit?

Price

Once all the elements of Product have been established, the Price factor needs to be considered. The Price of a Product will depend on several factors such as profit margins, supply, demand and the marketing strategy.

Some questions to ask yourself are:

- What is the value of the product/service to customers?

- Do local products/services have established price points?

- Is the customer price sensitive?

- Should discounts be offered?

- How is your price compared to that of your competitors?

Promotion

Once you are certain about your Product and your Price, the next step is to look at ways to promote it. Some key elements of promotion are advertising, public relations, social media marketing, email marketing, search engine marketing, video marketing and more.

Some questions to ask yourself are:

- Where should you promote your product or service?

- What is the best medium to use to reach your target audience?

- When would be the best time to promote your product?

- How are your competitors promoting their products?

Place

According to most marketers, the basis of marketing is about offering the right product, at the right price, at the right place, at the right time. For this reason, selecting the best possible location is critical for converting prospective clients into actual clients.

Some questions to ask yourself are:

- Will your product or service be looked for in a physical store, online or both?

- What should you do to access the most appropriate distribution channels?

- Will you require a sales force?

- Where are your competitors offering their products or services?

- Should you follow in your competitors' footsteps?

- Should you do something different from your competitors?

Importance of an IDEA

Ideas are the foundation of progress. An idea can be small or ground-breaking, easy to accomplish or extremely complicated to implement. Whatever the case, the fact that it is an idea gives it merit. Without ideas, nothing is possible. Most people are afraid to speak out their ideas, out for fear of being ridiculed. However, if are an entrepreneur and want to remain competitive and innovative, you need to bring your ideas out into the light.

Some ways to do this are by:

- Establishing a culture of brainstorming where you invite all interested parties to contribute

- Discussing ideas out loud so that people can add their ideas, views, opinions to them

- Being open minded and not limiting your ideas, even if the idea who have seems ridiculous

- Not discarding ideas that you don't work on immediately, but instead making a note of them and shelving them so they can be revisited at a later date.

9.6.1.2 Tips

- Keep in mind that good ideas do not always have to be unique.

- Remember that timing plays a huge role in determining the success of your idea.

- Situations and circumstances will always change, so be flexible and adapt your idea accordingly.

9.6.2 Business Entity Concepts: Basic Business Terminology

If your aim is to start and run a business, it is crucial that you have a good understanding of basic business terms. Every entrepreneur should be well versed in the following terms:

- **Accounting:** A systematic method of recording and reporting financial transactions.

- **Accounts payable:** Money owed by a company to its creditors.

- **Accounts Receivable:** The amount a company is owed by its clients.

- **Assets:** The value of everything a company owns and uses to conduct its business.

- **Balance Sheet:** A snapshot of a company's assets, liabilities and owner's equity at a given moment.

- **Bottom Line:** The total amount a business has earned or lost at the end of a month.

- **Business:** An organization that operates with the aim of making a profit.

- **Business to Business (B2B):** A business that sells goods or services to another business.

- **Business to Consumer (B2C):** A business that sells goods or services directly to the end user.

- **Capital:** The money a business has in its accounts, assets and investments. The two main types of capital are debt and equity.

- **Cash Flow:** The overall movement of funds through a business each month, including income and expenses.

- **Cash Flow Statement:** A statement showing the money that entered and exited a business during a specific period of time.

- **Contract:** A formal agreement to do work for pay.

- **Depreciation:** The degrading value of an asset over time.

- **Expense:** The costs that a business incurs through its operations.

- **Finance:** The management and allocation of money and other assets.

- **Financial Report:** A comprehensive account of a business' transactions and expenses.
- **Fixed Cost:** A one-time expense.
- **Income Statement (Profit and Loss Statement):** Shows the profitability of a business during a period of time.
- **Liabilities:** The value of what a business owes to someone else.
- **Marketing:** The process of promoting, selling and distributing a product or service.
- **Net Income/Profit:** Revenues minus expenses.
- **Net Worth:** The total value of a business.
- **Payback Period:** The amount of time it takes to recover the initial investment of a business.
- **Profit Margin:** The ratio of profit, divided by revenue, displayed as a percentage.
- **Return on Investment (ROI):** The amount of money a business gets as return from an investment.
- **Revenue:** The total amount of income before expenses are subtracted.
- **Sales Prospect:** A potential customer.
- **Supplier:** A provider of supplies to a business.
- **Target Market:** A specific group of customers at which a company's products and services are aimed.
- **Valuation:** An estimate of the overall worth of the business.
- **Variable Cost:** Expenses that change in proportion to the activity of a business.
- **Working Capital:** Calculated as current assets minus current liabilities.

9.6.3 CRM & Networking

What is CRM?

CRM stands for Customer Relationship Management. Originally the expression Customer Relationship Management meant managing one's relationship with customers. However, today it refers to IT systems and software designed to help companies manage their relationships.

The Need for CRM

The better a company can manage its relationships with its customers, the higher the chances of the company's success. For any entrepreneur, the ability to successfully retain existing customers and expand the enterprise is paramount. This is why IT systems that focus on addressing the problems of dealing with customers on a daily basis are becoming more and more in demand.

Customer needs change over time, and technology can make it easier to understand what customers really want. This insight helps companies to be more responsive to the needs   of their customers. It enables them to modify their business operations when required, so that their customers are always served in the best manner possible. Simply put, CRM helps companies recognize the value of their clients and enables them to capitalize on improved customer relations.

Benefits of CRM

CRM has a number of important benefits:

- It helps improve relations with existing customers which can lead to:

» Increased sales

» Identification of customer needs

» Cross-selling of products

- It results in better marketing of one's products or services

- It enhances customer satisfaction and retention

- It improves profitability by identifying and focusing on the most profitable customers

9.3.3.1 What is Networking?

In business, networking means leveraging your business and personal connections in order to bring in a regular supply of new business. This marketing method is effective as well as low cost. It is a great way to develop sales opportunities and contacts. Networking can be based on referrals and introductions, or can take place via phone, email, and social and business networking websites.

The Need for Networking

Networking is an essential personal skill for business people, but it is even more important for entrepreneurs. The process of networking has its roots in relationship building. Networking results in greater communication and a stronger presence in the entrepreneurial ecosystem. This helps build strong relationships with other entrepreneurs.

Business networking events held across the globe play a huge role in connecting like-minded entrepreneurs who share the same fundamental beliefs in communication, exchanging ideas and converting ideas into realities. Such networking events also play a crucial role in connecting entrepreneurs with potential investors. Entrepreneurs may have vastly different experiences and backgrounds but they all have a common goal in mind – they all seek connection, inspiration, advice, opportunities and mentors. Networking offers them a platform to do just that. Benefits of Networking

Networking offers numerous benefits for entrepreneurs. Some of the major benefits are:

- Getting high quality leads

- Increased business opportunities

- Good source of relevant connections

- Advice from like-minded entrepreneurs

- Gaining visibility and raising your profile

- Meeting positive and enthusiastic people

- Increased self-confidence

- Satisfaction from helping others

- Building strong and lasting friendships

9.6.3.2 Tips

- Use social media interactions to identify needs and gather feedback.

- When networking, ask open-ended questions rather than yes/no type questions.

9.6.4 Business Plan: Why Set Goals

Setting goals is important because it gives you long-term vision and short-term motivation. Goals can be short term, medium term and long term.

Short-Term Goals

- These are specific goals for the immediate future. Example: Repairing a machine that has failed. Medium-Term Goals

- These goals are built on your short term goals.

- They do not need to be as specific as your short term goals.

Example: Arranging for a service contract to ensure that your machines don't fail again.

Long-Term Goals

These goals require time and planning. They usually take a year or more to achieve.

Example: Planning your expenses so you can buy new machinery

Why Create a Business Plan

A business plan is a tool for understanding how your business is put together. It can be used to monitor progress, foster accountable and control the fate of the business. It usually offers a 3-5 year projection and outlines the plan that the company intends to follow to grow its revenues. A business plan is also a very important tool for getting the interest of key employees or future investors.

A business plan typically comprises of eight elements.

9.6.4.1 Elements of a Business Plan

Executive Summary

The executive summary follows the title page. The summary should clearly state your desires as the business owner in a short and businesslike way. It is an overview of your business and your plans. Ideally this should not be more than 1-2 pages.

Your Executive Summary should include:

- **The Mission Statement:** Explain what your business is all about.

  Example: Nike's Mission Statement

  Nike's mission statement is "To bring inspiration and innovation to every athlete in the world."

- **Company Information:** Provide information like when your business was formed, the names and roles of the founders, the number of employees, your business location(s) etc.

- **Growth Highlights:** Mention examples of company growth. Use graphs and charts where possible.

- **Your Products/Services:** Describe the products or services provided.

- **Financial Information:** Provide details on current bank and investors.

- **Summarize future plans:** Describe where you see your business in the future.

Business Description

The second section of your business plan needs to provide a detailed review of the different elements of your business. This will help potential investors to correctly understand your business goal and the uniqueness of your offering.

Your Business Description should include:

- A description of the nature of your business

- The market needs that you are aiming to satisfy

- The ways in which your products and services meet these needs

- The specific consumers and organizations that you intend to serve

- Your specific competitive advantages

Market Analysis

The market analysis section usually follows the business description. The aim of this section is to showcase your industry and market knowledge. This is also the section where you should lay down your research findings and conclusions.

Your Market Analysis should include:

- Your industry description and outlook

- Information on your target market

- The needs and demographics of your target audience

- The size of your target market

- The amount of market share you want to capture

- Your pricing structure

- Your competitive analysis

- Any regulatory requirements

Organization & Management

This section should come immediately after the Market Analysis. Your Organization & Management section should include:

- Your company's organizational structure

- Details of your company's ownership

- Details of your management team

- Qualifications of your board of directors

- Detailed descriptions of each division/department and its function

- The salary and benefits package that you offer your people

- The incentives that you offer

Service or Product Line

The next section is the service or product line section. This is where you describe your service or product, and stress on their benefits to potential and current customers. Explain in detail why your product of choice will fulfill the needs of your target audience.

Your Service or Product Line section should include:

- A description of your product/service

- A description of your product or service's life cycle

- A list of any copyright or patent filings

- A description of any R&D activities that you are involved in or planning

Marketing & Sales

Once the Service or Product Line section of your plan has been completed, you should start on the description of the marketing and sales management strategy for your business.

Your Marketing section should include the following strategies:

- **Market penetration strategy:** This strategy focuses on selling your existing products or services in existing markets, in order to increase your market share.

- **Growth strategy:** This strategy focuses on increasing the amount of market share, even if it reduces earnings in the short-term.

- **Channels of distribution strategy:** These can be wholesalers, retailers, distributers and even the internet.

- **Communication strategy:** These can be written strategies (e-mail, text, chat), oral strategies (phone calls, video chats, face-to-face conversations), non-verbal strategies (body language, facial expressions, tone of voice) and visual strategies (signs, webpages, illustrations).

Your Sales section should include the following information:

- **A salesforce strategy:** This strategy focuses on increasing the revenue of the enterprise.

- A breakdown of your sales activities: **This means detailing out how you intend to sell your products or ser**vices – will you sell it offline or online, how many units do you intend to sell, what price do you plan to sell each unit at, etc.

Funding Request

This section is specifically for those who require funding for their venture. The Funding Request section should include the following information:

- How much funding you currently require.

- How much funding you will require over the next five years. This will depend on your long- term goals.

- The type of funding you want and how you plan to use it. Do you want funding that can be used only for a specific purpose, or funding that can be used for any kind of requirement?

- Strategic plans for the future. This will involve detailing out your long-term plans – what these plans are and how much money you will require to put these plans in motions.

- Historical and prospective financial information. This can be done by creating and maintaining all your financial records, right from the moment your enterprise started, to the present day. Documents required for this are your balance sheet which contains details of your company's assets and liabilities, your income statement which lists your company's revenues, expenses and net income for the year, your tax returns (usually for the last three years) and your cash flow budget which lists the cash that came in, the cash that went out and states whether you had a cash deficit (negative balance) or surplus (positive balance) at the end of each month.

Financial Planning

Before you begin building your enterprise, you need to plan your finances. Take a look at the steps for financial planning:

- **Step 1:** Create a financial plan. This should include your goals, strategies and timelines for accomplishing these goals.

- **Step 2:** Organize all your important financial documents. Maintain a file to hold your investment details, bank statements, tax papers, credit card bills, insurance papers and any other financial records.

- **Step 3:** Calculate your net worth. This means figure out what you own (assets like your house, bank accounts, investments etc.), and then subtract what you owe (liabilities like loans, pending credit card amounts etc.) the amount you are left with is your net worth.

- **Step 4:** Make a spending plan. This means write down in detail where your money will come from, and where it will go.

- **Step 5:** Build an emergency fund. A good emergency fund contains enough money to cover at least 6 months' worth of expenses.

- **Step 6:** Set up your insurance. Insurance provides long term financial security and protects you against risk.

Risk Management

As an entrepreneur, it is critical that you evaluate the risks involved with the type of enterprise that you want to start, before you begin setting up your company. Once you have identified potential risks, you can take steps to reduce them. Some ways to manage risks are:

- Research similar business and find out about their risks and how they were minimized.

- Evaluate current market trends and find out if similar products or services that launched a while ago are still being well received by the public.

- Think about whether you really have the required expertise to launch your product or service.

- Examine your finances and see if you have enough income to start your enterprise.

- Be aware of the current state of the economy, consider how the economy may change over time, and think about how your enterprise will be affected by any of those changes.

- Create a detailed business plan.

9.6.4.2 Tips

- Ensure all the important elements are covered in your plan.

- Scrutinize the numbers thoroughly.

- Be concise and realistic.

- Be conservative in your approach and your projections.

- Use visuals like charts, graphs and images wherever possible.

9.6.5 Procedure and Formalities for Bank Finance

The Need for Bank Finance

For entrepreneurs, one of the most difficult challenges faced involves securing funds for startups. With numerous funding options available, entrepreneurs need to take a close look at which funding methodology works best for them. In India, banks are one of the largest funders of startups, offering funding to thousands of startups every year.

9.6.5.1 What Information Should Entrepreneurs Offer Banks for Funding

When approaching a bank, entrepreneurs must have a clear idea of the different criteria that banks use to screen, rate and process loan applications. Entrepreneurs must also be aware of the importance of providing banks with accurate and correct information. It is now easier than ever for financial institutions to track any default behaviour of loan applicants. Entrepreneurs looking for funding from banks must provide banks with information relating to their general credentials, **financial situation** and guarantees or collaterals that can be offered.

General Credentials

This is where you, as an entrepreneur, provide the bank with background information on yourself. Such information includes:

- **Letter(s) of Introduction:** This letter should be written by a respected business person who knows you well enough to introduce you. The aim of this letter is set across your achievements and vouch for your character and integrity.

- **Your Profile:** This is basically your resume. You need to give the bank a good idea of your educational achievements, professional training, qualifications, employment record and achievements.

- **Business Brochure:** A business brochure typically provides information on company products, clients, how long the business has been running for etc.

- **Bank and Other References:** If you have an account with another bank, providing those bank references is a good idea.

- **Proof of Company Ownership or Registration:** In some cases, you may need to provide the bank with proof of company ownership and registration. A list of assets and liabilities may also be required.

Financial Situation

Banks will expect current financial information on your enterprise. The standard financial reports you should be prepared with are:

- Balance Sheet

- Profit-and-Loss Account

- Cash-Flow Statement

- Projected Sales and Revenues

- Business Plan

- Feasibility Study

Guarantees or Collaterals

Usually banks will refuse to grant you a loan without security. You can offer assets which the bank can seize and sell off if you do not repay the loan. Fixed assets like machinery, equipment, vehicles etc. are also considered to be security for loans.

9.6.5.2 The Lending Criteria of Banks

Your request for funding will have a higher chance of success if you can satisfy the following lending criteria:

- Good cash flow

- Adequate shareholders' funds

- Adequate security

- Experience in business

- Good reputation

The Procedure

To apply for funding the following procedure will need to be followed.

- Submit your application form and all other required documents to the bank.

- The bank will carefully assess your credit worthiness and assign ratings by analyzing your business information with respect to parameters like management, financial, operational and industry information as well as past loan performance.

- The bank will make a decision as to whether or not you should be given funding.

9.6.5.3 Tips

- Get advice on funding options from experienced bankers.

- Be cautious and avoid borrowing more than you need, for longer than you need, at an interest rate that is higher than you are comfortable with.

9.6.6 Enterprise Management - An Overview

To manage your enterprise effectively you need to look at many different aspects, right from managing the day-to-day activities to figuring out how to handle a large scale event. Let's take a look at some simple steps to manage your company effectively.

Step 1: Use your leadership skills and ask for advice when required.

Let's take the example of Ramu, an entrepreneur who has recently started his own enterprise. Ramu has good leadership skills – he is honest, communicates well, knows how to delegate work etc. These leadership skills definitely help Ramu in the management of his enterprise. However, sometimes Ramu comes across situations that he is unsure how to handle. What should Ramu do in this case? One solution is for him to find a more experienced manager who is willing to mentor him. Another solution is for Ramu to use his networking skills so that he can connect with managers from other organizations, who can give him advice on how to handle such situations.

Step 2: Divide your work amongst others – realize that you cannot handle everything yourself.

Even the most skilled manager in the world will not be able to manage every single task that an enterprise will demand of him. A smart manager needs to realize that the key to managing his enterprise lies in his dividing all his work between those around him. This is known as delegation. However, delegating is not enough. A manager must delegate effectively if he wants to see results. This is important because delegating, when done incorrectly, can result in you creating even more work for yourself. To delegate effectively, you can start by making two lists. One list should contain the things that you know you need to handle yourself. The second list should contain the things that you are confident can be given to others to manage and handle. Besides incorrect delegation, another issue that may arise is over-delegation. This means giving away too many of your tasks to others. The problem with this is, the more tasks you delegate, the more time you will spend tracking and monitoring the work progress of those you have handed the tasks to. This will leave you with very little time to finish your own work.

Step 3: Hire the right people for the job.

Hiring the right people goes a long way towards effectively managing your enterprise. To hire the best people suited for the job, you need to be very careful with your interview process. You should ask potential candidates the right questions and evaluate their answers carefully. Carrying out background checks is always a good practice. Running a credit check is also a good idea, especially if the people you are planning to hire will be handling your money. Create a detailed job description for each role that you want filled and ensure that all candidates have a clear and correct understanding of the job description. You should also have an employee manual in place, where you put down every expectation that you have from your employees. All these actions will help ensure that the right people are approached for running your enterprise.

Step 4: Motivate your employees and train them well.

Your enterprise can only be managed effectively if your employees are motivated to work hard for your enterprise. Part of being motivated involves your employees believing in the vision and mission of your enterprise and genuinely wanting to make efforts towards pursuing the same. You can motivate your employees with recognition, bonuses and rewards for achievements. You can also motivate them by telling them about how their efforts have led to the company's success. This will help them feel pride and give them a sense of responsibility that will increase their motivation.

Besides motivating your people, your employees should be constantly trained in new practices and technologies. Remember, training is not a one-time effort. It is a consistent effort that needs to be carried out regularly.

Step 5: Train your people to handle your customers well.

Your employees need to be well-versed in the art of customer management. This means they should be able to understand what their customers want, and also know how to satisfy their needs. For them to truly understand this, they need to see how you deal effectively with customers. This is called leading by example. Show them how you sincerely listen to your clients and the efforts that you put into understand their requirements. Let them listen to the type of questions that you ask your clients so they understand which questions are appropriate.

Step 6: Market your enterprise effectively.

Use all your skills and the skills of your employees to market your enterprise in an effective manner. You can also hire a marketing agency if you feel you need help in this area.

Now that you know what is required to run your enterprise effectively, put these steps into play, and see how much easier managing your enterprise becomes!

9.6.6.1 Tips

- Get advice on funding options from experienced bankers.
- Be cautious and avoid borrowing more than you need, for longer than you need, at an interest rate that is higher than you are comfortable with.

9.6.7 Considering Entrepreneurship

Questions to Ask Yourself Before Considering Entrepreneurship

- Why am I starting a business?
- What problem am I solving?

- Have others attempted to solve this problem before? Did they succeed or fail?
- Do I have a mentor1 or industry expert that I can call on?
- Who is my ideal customer2?
- Who are my competitors3?
- What makes my business idea different from other business ideas?
- What are the key features of my product or service?
- Have I done a SWOT4 analysis?
- What is the size of the market that will buy my product or service?
- What would it take to build a minimum viable product5 to test the market?
- How much money do I need to get started?
- Will I need to get a loan?
- How soon will my products or services be available?
- When will I break even6 or make a profit?
- How will those who invest in my idea make a profit?
- How should I set up the legal structure7 of my business?
- What taxes8 will I need to pay?
- What kind of insurance9 will I need?
- Have I reached out to potential customers for feedback

9.6.7.1 Tips

- It is very important to validate your business ideas before you invest significant time, money and resources into it.
- The more questions you ask yourself, the more prepared you will be to handle to highs and lows of starting an enterprise.

Footnotes:

1. A mentor is a trusted and experienced person who is willing to coach and guide you.

2. A customer is someone who buys goods and/or services.

3. A competitor is a person or company that sells products and/or services similar to your products and/or services.

4. SWOT stands for Strengths, Weaknesses, Opportunities and Threats. To conduct a SWOT analysis of your company, you need to list down all the strengths and weaknesses of your company, the opportunities that are present for your company and the threats faced by your company.

5. A minimum viable product is a product that has the fewest possible features, that can be sold to customers, for the purpose of getting feedback from customers on the product.

6. A company is said to break even when the profits of the company are equal to the costs.

7. The legal structure could be a sole proprietorship, partnership or limited liability partnership.

8. There are two types of taxes – direct taxes payable by a person or a company, or indirect taxes charged on goods and/or services.

9. There are two types of insurance – life insurance and general insurance. Life insurance covers human life while general insurance covers assets like animals, goods, cars etc.

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Annexure - Excercises

FULLSPEEDTREADLECONTROL,PS1
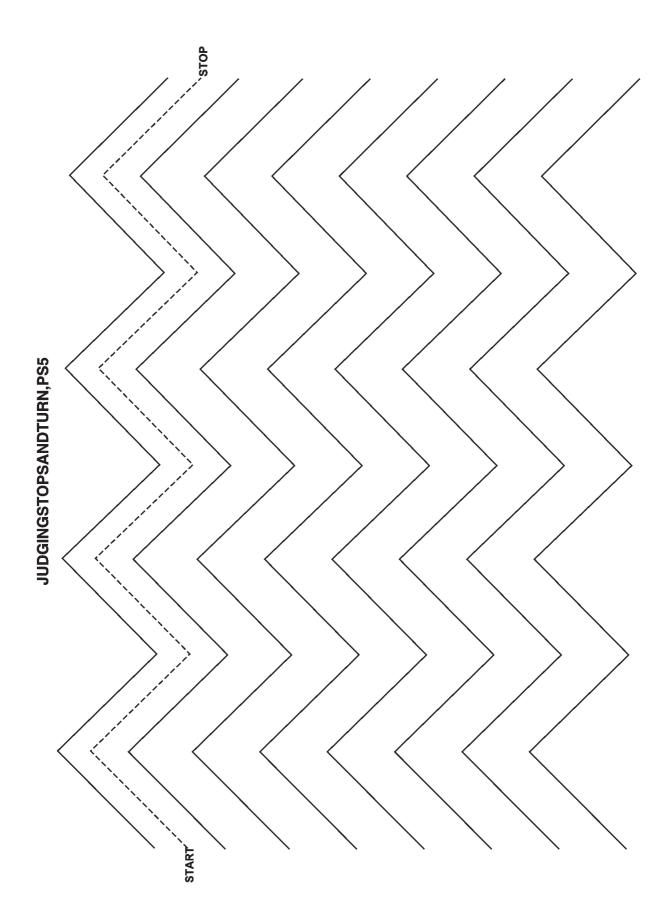
FULL SPEED TREADLE CONTROL ANDSTOPPING ACCURACY PS2
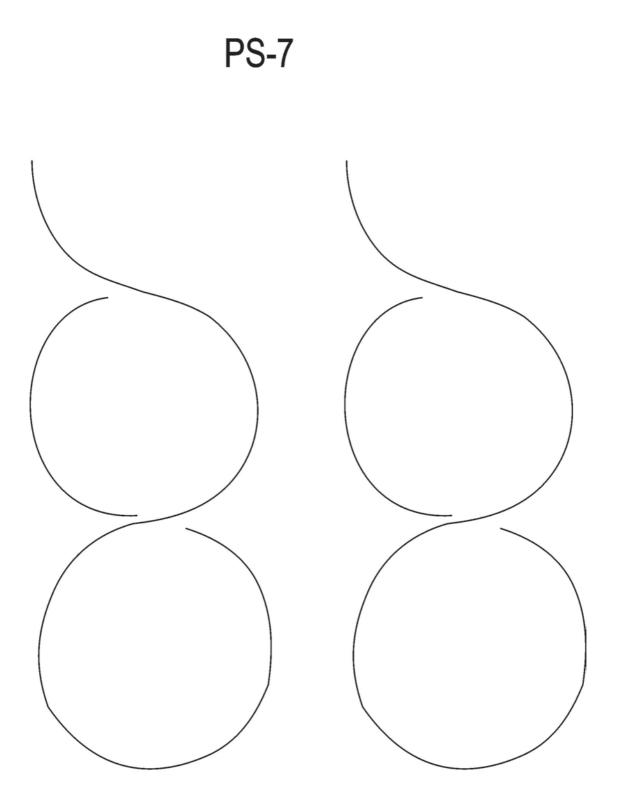
STOP

START
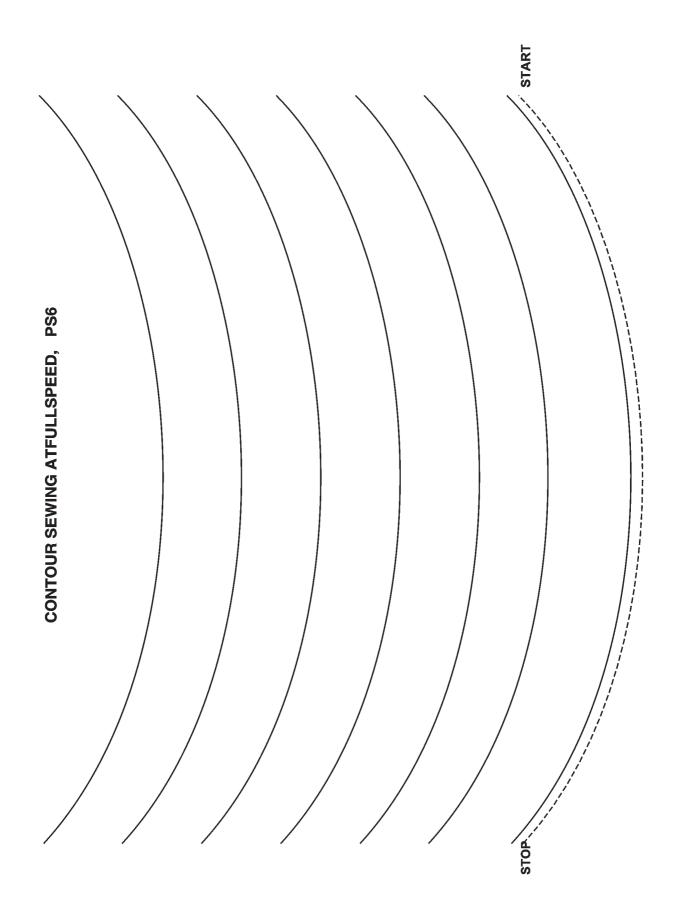
SPEEDANDSTARIGHT   LINEACCURACY,   Ps3
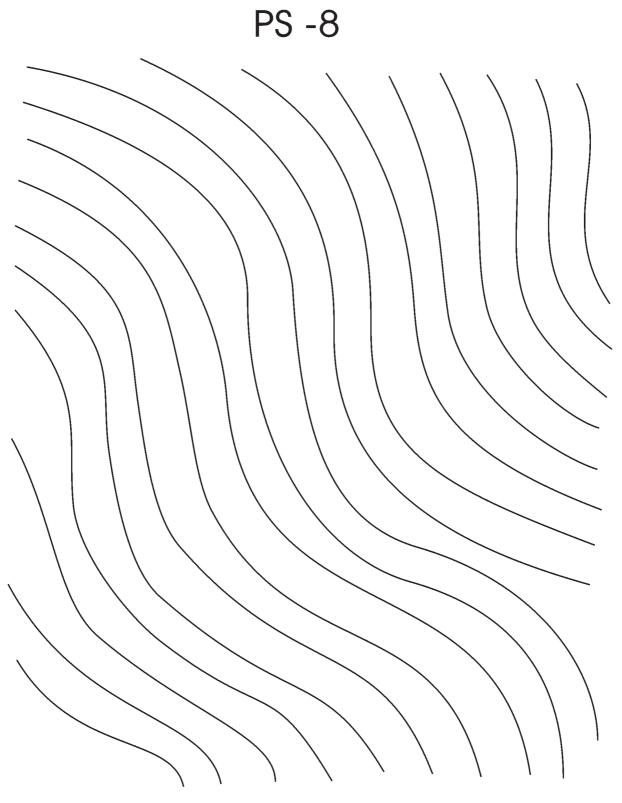
NEEDLE DOWN TURN-A PS4
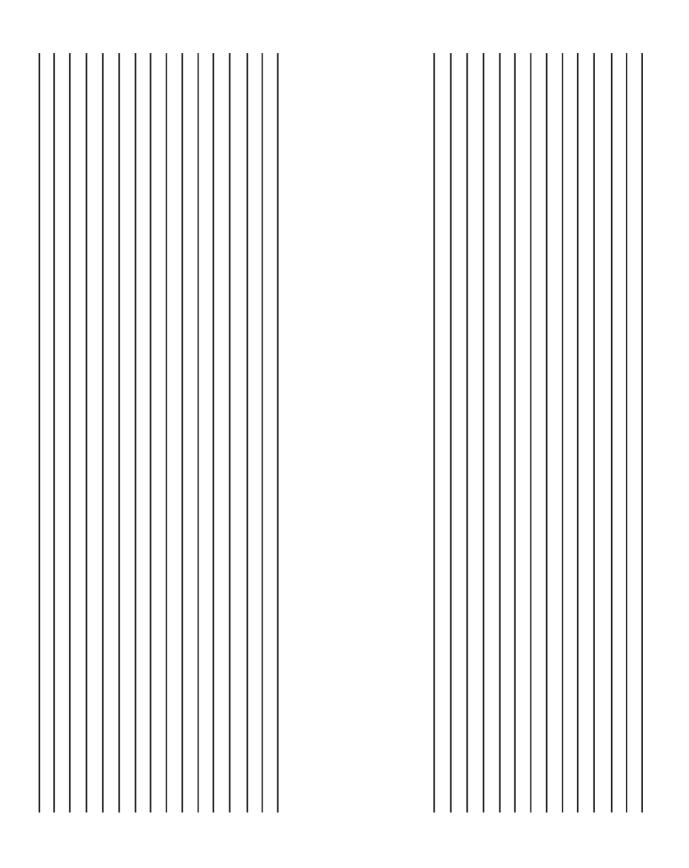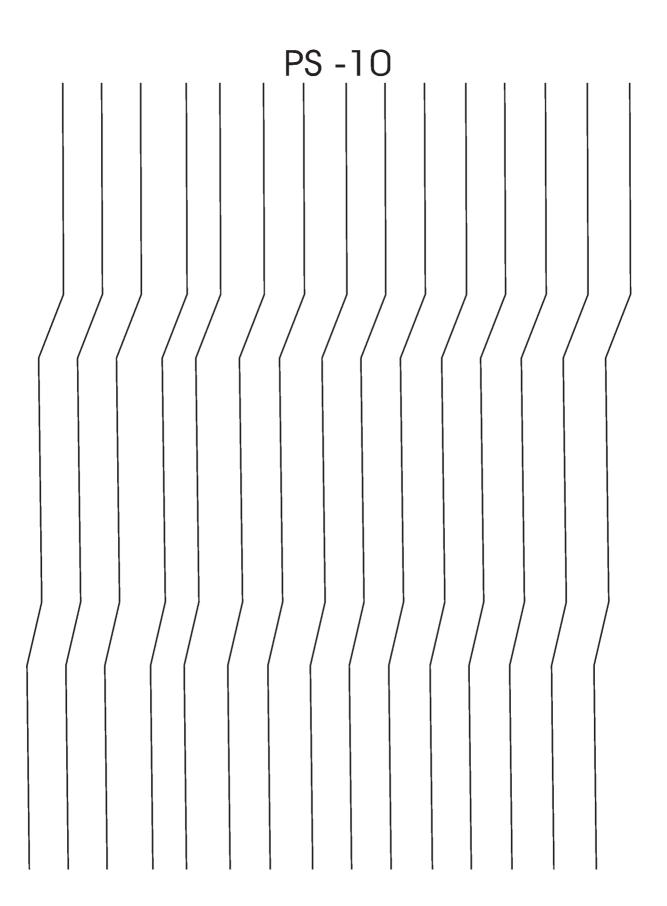
STOP

JUDGINGSTOPSANDTURN,PS5

START

CONTOUR SEWING ATFULLSPEED, PS6

START

STOP

PS-7

Forma AAMT-7

PS -8

Forma AAMT -8

PS -9

PS -10

PS -11

Forma AAMT -11

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